



## Antonio Acín

Institut de Ciències Fotòniques (ICFO)  
Engineering Sciences

Antonio Acín is an ICREA Research Professor at ICFO-The Institute of Photonic Sciences. He has a degree in Physics from the Universitat de Barcelona (UB) and in Telecommunication Engineering from the Universitat Politècnica de Catalunya. He got his PhD in Theoretical Physics in 2001 from the UB. After a post-doctoral stay in Geneva, in the group of Prof. Gisin (GAP-Optique), he joined ICFO in 2003. At ICFO, Acín leads the Quantum Information Theory group. His research has been awarded with 3 grants from the European Research Council: 1 Starting, 1 Proof of Concept and 1 Consolidator Grant, the latter starting in 2014. He also received an AXA Chair in Quantum Information Science in 2016.

### Research interests

Most of the research work by Antonio Acín is in quantum information theory. This is a scientific area that studies how information is processed and transmitted when encoded on quantum particles. Using the quantum effects, new information tasks become possible: more powerful computers, unbreakable cryptography protocols and quantum teleportation. It is a very inter-disciplinary area combining tools and concepts from mathematics, computer science, physics and engineering. More recently, Acín's research activity also covers aspects of foundations of quantum physics, quantum thermodynamics, many-body physics and quantum optics.

### Selected publications

- Perarnau-Llobet M, Baumer E, Hovhannisyan KV, Huber M & **Acín A** 2017, 'No-Go Theorem for the Characterization of Work Fluctuations in Coherent Quantum Systems', *Physical Review Letters*, 118, 7, 070601.
- Bendersky A, Senno G, de la Torre G, Figueira S & **Acín A** 2017, 'Nonsignaling Deterministic Models for Nonlocal Correlations have to be Uncomputable', *Physical Review Letters*, 118, 13, 130401.
- Curchod FJ, Johansson M, Augusiak R, Hoban MJ, Wittek P & **Acín A** 2017, 'Unbounded randomness certification using sequences of measurements', *Physical Review A*, 95, 2.
- Baccari F, Cavalcanti D, Wittek P & **Acín A** 2017, 'Efficient Device-Independent Entanglement Detection for Multipartite Systems', *Physical Review X*, 7, 2, 021042.
- Salavrakos A, Augusiak R, Tura J, Wittek P, **Acín A** & Pironio S 2017, 'Bell Inequalities Tailored to Maximally Entangled States', *Physical Review Letters*, 119, 4, 040402.
- Oszmaniec M, Guerini L, Wittek P & **Acín A** 2017, 'Simulating Positive-Operator-Valued Measures with Projective Measurements', *Physical Review Letters*, 119, 19, 190501.
- Hernández-Santana S, Gogolin C, Cirac JI & **Acín A** 2017, 'Correlation decay in fermionic lattice systems with power-law interactions at non-zero temperature', *Phys. Rev. Lett.*, vol. 119, pp. 110601.
- Bera MN, **Acín A**, Kús M, **Mitchell M** & **Lewenstein M** 2017, 'Randomness in Quantum Mechanics: Philosophy, Physics and Technology', *Rep. Prog. Phys.* vol. 80, pp. 124001.
- Bylicka B, Johansson M & **Acín A** 2017, 'Constructive Method for Detecting the Information Backflow of Non-Markovian Dynamics', *Physical Review Letters*, 118, 12, 120501.
- Tura J, De las Cuevas G, Augusiak R, **Lewenstein M**, **Acín A** & Cirac JI 2017, 'Energy as a Detector of Nonlocality of Many-Body Spin Systems', *Physical Review X*, 7, 2, 021005.



## Jordi Agustí

Institut Català de Paleoecologia Humana i Evolució Social (IPHES)  
Humanities

PhD in Biological Sciences by the Univ. of Barcelona in 1981, under the supervision of Prof. Miquel Crusafont. Director of the Inst. of Paleontology M. Crusafont from 1985 to 2005. ICREA Research Professor at IPHES since 2005. Member of the Royal Academy of Sciences and Arts of Barcelona. Narcís Monturiol Medal of the Catalan Government for his scientific merits. Scientific Literature Prize of the Catalan Government for his book "El secret de Darwin" (2001). President of the Regional Committee on Neogene Mediterranean Stratigraphy from 1999 to 2009 and voting member of the Subcommission on Neogene Stratigraphy (IUGS, UNESCO). Chairman of several national and international projects, among them the ESF-Network on "Hominoid Evolution and Climatic change in the Neogene of Europe" (1996-1999). He has also conducted field-campaigns in northern Africa and Caucasus (Georgia). He has written 11 books and edited 13. He is the author or co-author of more than 200 papers.

### Research interests

My main field of interest is the environmental and biogeographic changes in the Mediterranean terrestrial ecosystems in the last 10 million years. I accomplish this goal throughout the study of the fossils of small mammals. This key time includes a number of critical climatic phases, such as the onset of the Northern Hemisphere Glaciation at 2.6 Ma, the early Pleistocene crisis at 1.8 Ma and the early-middle Pleistocene transition at 0.8 Ma. These crises have modelled the evolution of our own lineage, the hominids, which experienced significant changes following these climatic events. My research has therefore been developed in those areas having extraordinary conditions to follow these changes, either in the Iberian Peninsula (Vallès-Penedès and Guadix-Baza basins) or outside (northern Africa and, most specially, Georgia). Most of these areas are also key ones in order to elucidate the evolution of our lineage during the last 10 Ma, in relation with climatic and environmental changes.

### Selected publications

- Agustí J & Rubio X 2017, 'Were Neanderthals responsible for their own extinction?', *Quaternary International* 431, 232-237
- Furió M & Agustí J 2017. Latest Miocene Insectivores (Eulipotyphla, Mammalia) from Eastern Spain: evidence for enhanced latitudinal differences during the Messinian, *Geobios*, 50, 123-140
- Piñero P, Agustí J, Oms O, Blain H-A, Laplana C, Ros-Montoya S & Martínez-Navarro B 2017, 'Rodents from Baza-1 (Guadix-Baza Basin, southeast Spain): filling the gap of the early Pliocene succession in the Betics', *Journal of Vertebrate Paleontology*, 37, 4, e1338294.
- Piñero P, Agustí J, Oms O, Fierro I, Montoya P, Mansino S, Ruiz-Sanchez F, Alba DM, Alberdi MT, Blain H-A, Laplana C, Van der Made J, Mazo AV, Morales J, Murelaga X, Perez-Garcia A, Perez-Valera F, Perez-Valera JA, Sevilla P, Soria JM, Romero G 2017, 'Early Pliocene continental vertebrate Fauna at Puerto de la Cadena (SE Spain) and its bearing on the marine-continental correlation of the Late Neogene of Eastern Betics', *Palaeogeography Palaeoclimatology Palaeoecology*, 479, 102 - 114.
- González-Guarda E, Domingo L, Tornero C, Pino M, Hernández Fernández M, Sevilla P, Villavicencio N & Agustí J 2017, Late Pleistocene ecological, environmental and climatic reconstruction based on megafauna stable isotopes from northwestern Chilean Patagonia, *Quaternary Science Reviews* 170, 188-202.
- Ros-Montoya S, Martínez-Navarro B, Espigares MP, Guerra-Merchán A, García-Aguilar JM, Piñero P, Rodríguez-Rueda A, Agustí J, Oms O & Palmqvist P 2017, A new Ruscinian site in Europe: Baza-1 (Baza basin, Andalusia, Spain). *C. R. Palevol* 16, 746-761.
- Maldonado-Garrido E, Piñero P & Agustí J 2017, A catalogue of the vertebrate fossil record from the Guadix-Baza Basin (SE Spain), *Spanish Journal of Paleontology*, 32 (1), 207-236.

### Selected research activities

2 PhD thesis defended, 5 contributions to international congresses, field-work in Morocco and Georgia



## Tomás Alarcón

Centre de Recerca Matemàtica (CRM)  
Experimental Sciences & Mathematics

I obtained my PhD in Theoretical Physics from the University of Barcelona in 2000. After that I spent many wonderful years working as a postdoc at the University of Oxford, UK (2001-2003), University College London, UK (2003-2006), and Imperial College London, UK (2006-2009). I briefly held a senior researcher and group leader position at BCAM, Bilbao, Spain (2009-2010), after which I moved the Centre Recerca Matemàtica where I lead the Computational & Mathematical Biology Group. I have also held visiting fellowships at the Universidad Complutense de Madrid, IIMAS (UNAM, Mexico DF), OCCAM (University of Oxford, UK), the Mathematical Institute (University of Oxford, UK), and the Mathematical Biosciences Institute (Columbus, Ohio, USA). In October 2015, I was appointed to an ICREA Research Professorship at the Centre de Recerca Matemàtica.

### Research interests

My research focuses on Mathematical Biology, particularly in multi-scale and stochastic modelling of tumour growth and tumour-induced angiogenesis. The main aim of my research is to understand the mechanisms involved in drug resistance and formulate therapeutic strategies which are robust to such mechanisms. Although tumour growth is my main field of specialisation, I am interested in other areas of Mathematical Biology, particularly regarding the effects of random fluctuations in cell regulatory systems and population dynamics, robustness and evolvability, and the stochastic dynamics of HIV-1-infection in patients treated with potent anti-retroviral therapy.

### Selected publications

- Perfahl H, Hughes BD, **Alarcón T**, Maini PK, Lloyd MC, Reuss M & Byrne HM 2017, '3D Hybrid Modelling of Vascular Network Formation', *J. Theor. Biol.*, 414, 254-268.
- Menendez JA & **Alarcón T** 2017, 'Senescence-inflammatory regulation of reparative cellular reprogramming in aging and cancer', *Frontiers in Cell and Developmental Biology*, 5:49
- Trejo-Soto C, Costa-Miracle E, Rodríguez-Villarreal I, Cid J, Castro M, **Alarcón T** & Hernández-Machado A 2017, 'Front microrheology of the non-Newtonian behaviour of blood: Scaling theory of erythrocyte aggregation by aging', *Soft Matter*. 13, 3042-3047.
- de la Cruz R, Guerrero P, Calvo J & **Alarcón T** 2017, 'Coarse-graining and hybrid methods for efficient simulation of stochastic multi-scale models of tumour growth', *J. Comp. Phys.* 350, 974-991.

### Selected research activities

Co-organiser (jointly with Philip Maini, Oxford, Fred Nijhout, Duke, and Pablo Padilla, UNAM) of the MBI Emphasis Semester on *Growth and*

*Morphogenesis*, held at the Mathematical Biology Institute, Columbus, Ohio, USA, Spring Term, 2017.

Co-organiser (jointly with Helen Byrne, Oxford, and James Glazier, Indiana) of the Workshop on *Hybrid Multi-scale modelling and validation*, held at the Mathematical Biology Institute, Columbus, Ohio, USA, 27-31 March, 2017.



## Mar Albà

Institut Hospital del Mar d'Investigacions Mèdiques (IMIM)  
Life & Medical Sciences

Mar Albà graduated in Biological Sciences at the University of Barcelona (UB), and obtained her PhD at the same University in 1997. During 1997-1999 she studied for the MSc in Bioinformatics and Molecular Modeling at Birkbeck College while working as a postdoctoral researcher in the group of John Hancock at the MRC Clinical Research Centre, in London. Later she joined the group led by Paul Kellam at University College London to develop new computational tools to study herpesvirus evolution and function. She was awarded a Ramón y Cajal tenure track position in 2002 to work at Universitat Pompeu Fabra (UPF). In 2005 she was appointed ICREA Research Professor. She has directed 10 doctoral thesis and is author of more than 80 publications.

### Research interests

We are interested in understanding the mechanisms of molecular evolutionary innovation in genomes. We are intrigued by how novel genes originate and we are using deep RNA sequencing strategies to identify expressed genes in related species and elucidate the processes behind the emergence of new genes. We also investigate the role of repetitive sequences in the expansion of coding sequences and the formation of novel protein domains.

### Selected publications

- Domazet-Lošo T, Carvunis AR, **Albà MM**, Šestak MS, Bakarić R, Neme R & Tautz D 2017, 'No evidence for phylostratigraphic bias impacting inferences on patterns of gene emergence and evolution' *Molecular Biology and Evolution*, vol. 34, pp 843-856.
- Villanueva-Cañas JL, Ruiz-Orera J, Agea MI, Gallo M, Andreu D, **Albà MM** 2017, 'New genes and functional innovation in mammals', *Genome Biology and Evolution*, 1886-1900.
- **Albà MM** 2017, 'Zinc-finger domains in metazoans: evolution gone wild', *Genome Biology*, 18, 168.

### Selected research activities

Supervision of PhD thesis by Jorge Ruiz Orera "Understanding the mechanisms of de novo gene evolution using transcriptomics data" (Universitat Pompeu Fabra, Jan 19 2017) and MSc thesis by Teresa Tavella "Differential gene expression analysis in baker's yeast during oxidative stress" (University of Bologna, Jul 12 2017).

Talks to present the research in the group at the 5th International Quest for Orthologs Meeting (Los Angeles, Jun 9 2017) and at the Annual Meeting of the Society for Molecular Biology and Evolution (Austin, Jul 4 2017). Participation in Ada Lovelace Day by giving a talk to secondary school students at the Center for Regulatory Genomics (CRG-PRBB, Oct 10 2017). Extensive media coverage of our article "New genes and functional innovation in mammals" (TV3 feature Dec 4 20).



## Anna Alberni

Universitat de Barcelona (UB)  
Humanities

Anna Alberni studied English Philology at the University of Barcelona. She obtained her PhD in Catalan Philology in 2003 at the same University. She has been a researcher and assistant lecturer at the University of Barcelona (1996-2000), and at the University of Girona (2005-2009). From 2003 to 2005 she was a postdoc researcher at the University of Rome-La Sapienza and at the University of L'Aquila. In 2005 she accepted an ICREA Junior position at the University of Girona. In 2009 she moved to the University of Barcelona, where she is ICREA Research Professor at the Department of Linguistics and Catalan Philology-IRCVM. During the last years Alberni has extensively dedicated her efforts to the consolidation of the research group created in 2009 in order to develop the ERC-StG project *The Last Song of the Troubadours. Linguistic Codification and Construction of a Literary Canon in the Crown of Aragon*.

### Research interests

Alberni's research focuses on the study of medieval Catalan poetry as an essential part of Europe's cultural past, with a particular interest on late Romance lyric collections and on how the reception of the poetic code of the troubadours shaped the intellectual background in which the literary culture of modern Europe is deeply rooted. More specifically, she works on issues of poetic genre, intertextuality, discursive traditions and textual criticism.

Alberni's new project is *Ioculator seu Mimus. Performing Music and Poetry in Medieval Iberia* (ERC-CoG-2017). The aim of *MiMus* is to transform our understanding of medieval poetry and music by establishing a corpus of archive records of unprecedented size and breath on the lives and careers of the minstrels who performed in the Crown of Aragon from the mid 13<sup>th</sup> to the mid 15<sup>th</sup> centuries. This new data will shed crucial light on the literary and musical repertoires circulating in the South of Europe in the late medieval period.

### Selected publications

- **Alberni A** 2017, *Dels trobadors a Ausiàs March: el patrimoni de la Biblioteca de Catalunya*, Biblioteca de Catalunya, Barcelona.
- **Alberni A** & Lannutti S 2017, "Lay ves França. Les structures formelles de la musique et de la poésie dans la lyrique catalane du Moyen Age", in C. Cazaux-Kowlaski, C. Chaillou-Amadiou, A.-Z. Rillon-Marne et F. Zinelli (ed), *Les noces de Philologie et Musicologie. Textes et musiques du Moyen Âge: Classiques Garnier* (Rencontres-Civilisation médiévale), Paris, pp. 269-399.
- **Alberni A** & Zinelli F 2017, 'The Last Song of the Troubadours: une recherche sur la poésie occitane et française dans l'espace catalan (résultats, problèmes d'édition, enjeux)', in R. Trachsler, F. Duval, L. Leonardi (ed.) *Actes du XXVIIe Congrès international de linguistique et de philologie romanes* (Nancy, 15-20 juillet 2013). Section 13 : Philologie textuelle et éditoriale. Nancy, ATILF.

### Selected research activities

ERC-CoG-2017 *Ioculator seu Mimus. Performing Music and Poetry in medieval Iberia* (MiMus)

Discussant in the International Conference *Ausiàs March e il canone europeo* (Siena, Università per Stranieri di Siena, 20-22 November 2017)

Attendance to the X Seminario internazionale di musicologia medievale "Clemente Terni" *The Nature of the End of the Ars Nova in Early Quattrocento Italy* (Florence, Fondazione Ezio Franceschini - Certaldo, Casa del Bocaccio, 14-16 December 2017)



Rosa María Albert  
 Universitat de Barcelona (UB)  
 Humanities

I defended my PhD in Archaeology at the U. of Barcelona in 1999 after 3 years at the Weizmann Inst of Science. I pioneered in applying quantitative and morphological phytolith analyses to Prehistoric sites to identify fuel and collecting strategies. In 2005 I received the Blecu Award (UB). Along these years I have focused on reconstructing the vegetation at different sites such as Olduvai Gorge (Tanzania), being one of the first to use a combined study of modern soils and plants to identify past vegetation. In 2011 I created PhytCore, the most extensive phytolith database to date. I have directed more than 20 research projects and written more than 100 papers and 76 technical reports. From 2005 until 2013 I founded and directed GEPEG recognized as Quality Research Group by Catalan Government. At present, I am responsible for the "Paleoenvironmental and paleovegetation" research area within ERAAUB.

### Research interests

Until December 2013 I conducted my research through GEPEG Research Group. Since January 2014 GEPEG was integrated into the Research Group for Archaeometry and Archaeology of the University of Barcelona (ERAAUB). From ERAAUB I will continue my research on: i) The study of Fire in Prehistory. ii) Paleoenvironmental reconstruction during African Human Evolution. iii) Agriculture and domestication practices in the Levant. iv) Plant uses and landscape at the Balearic Islands, collaborating with Prof. Miguel Ángel Cau on the roman site of Pollentia. iv) Anthropogenic impact on the environment. This is a new and most exciting line of research addressed to understand the effect of human activities on the surrounding landscape. v) Development of digital platforms to exchange databases to improve archaeological research. For this I developed PhytCore: [www.phytcore.org](http://www.phytcore.org), the most extensive database integrating different research centers and universities phytolith databases.

### Selected publications

- Esteban I, de Vinck J, Singles E, Vlok J, Marean CW, Cabanes D & **Albert RM** 2017, 'Modern soil phytolith assemblages used as proxies for paleoscape reconstruction on the South Coast of South Africa', *Quaternary International Journal*, 434, B, 160-179.
- Alonso-Eguíluz M, Fernández-Eraso J & **Albert RM** 2017, 'The first herders in the upper Ebro Basin at Los Husos II (Álava, Spain): microarchaeology applied to fougier deposits', *Vegetation History and Archaeobotany journal*, 26, 1, 143-157.
- Devos Y, Nicoisa C, Vrydaghs L, Speleers L, Van der Valk J, Marinova E, Claes B, **Albert RM**, Esteban I, Ball TB, Court-Picon M & Degraeve A 2017, 'An integrated study of Dark Earth from the alluvial valley of the Senne river (Brussels, Belgium)', *Quaternary International Journal*, 460, 175 - 197.
- Esteban I, Vlok J, Kotina E, Bamford M, Cowling R, Cabanes D & **Albert RM** 2017, 'Phytoliths in plants from the south coast of the Greater Cape Floristic Region (South Africa)', *Review of Palaeobotany and Palynology*, 245, pp 69-84.

### Selected research activities

- Member of the International Committee for Phytolith Taxonomy (2017)
- Research Associate of the Centre for Coastal Paleosciences of the Nelson Mandela Metropolitan University (NMMU)
- Organizer of the: Workshop on Diatoms: Biología y taxonomía de diatomeas: Bases para su uso en la reconstrucción ambiental. 12-16 de Junio de 2017. Course given by Prof. Carlos Alberto Rivera-Rondon (Universidad Pontificia Javeriana, Colombia).
- Organizer of the Round Table: Modern Human behavior. Archaeological evidence from Coastal South Africa and Iberian Peninsula. 27<sup>th</sup> October 2017. Talks given by Profs. Curtis Marean (Arizona State University, USA) and Joao Zilhao (ICREA, University of Barcelona).
- Participation in the field excavations at: Crevina-Stieja (Montenegro): May-June 2017; Pollentia (Alcúdia, Mallorca): 1-9 July 2017; Olduvai Gorge (Tanzania): 14-22 July 2017; Mughr el-Hamamah (Jordan): 23-30 July 2017



## Vassil Alexandrov

Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC - CNS)  
Experimental Sciences & Mathematics

Vassil Alexandrov is an ICREA Research Professor in Computational Science at BSC since September 2010. He holds a MSc in Applied Mathematics from Moscow State University, Russia (1984) and a PhD in Parallel Computing from Bulgarian Academy of Sciences (1995). He has held previous positions at the University of Liverpool, UK (Depts. of Statistics and Computational Mathematics and Computer Science, 1994-1999), the University of Reading, UK (School of Systems Engineering, 1999-2010, as Professor of Computational Science leading the Computational Science research group until September 2010, and as the Director of the Centre for Advanced Computing and Emerging Technologies until July 2010). He is an Editorial Board member and a Guest Editor of the Journal of Computational Science and Journal of Mathematics and Computers in Simulation. He has published over 120 papers in renowned refereed journals and international conferences in the area of his research expertise.

### Research interests

My expertise and research interests are in the area of Computational Science and High Performance Computing focusing on Data and Compute Intensive problems and encompassing stochastic modelling, Monte Carlo methods and algorithms, parallel algorithms, Parallel Computing, Scalable Algorithms for Large Scale Systems and Applications. In particular, the emphasis is on novel scalable stochastic and hybrid mathematical methods and algorithms such as scalable hybrid Monte Carlo algorithms for variety of supercomputing architectures for Linear Algebra, Optimization, Computational Finance, Environmental Models, Computational Biology, etc. In addition the research focuses on scalable, fault-tolerant and resilient algorithms for petascale and exascale computing paradigms. These are applied through various collaborations to applications in diverse areas.

### Selected publications

- Karaivanova A, **Alexandrov V**, Gurov T & Ivanovska S 2017, 'On the Monte Carlo Matrix Computations on Intel MIC Architecture', *Cybernetics And Information Technologies*, 17, 5, 49 - 59.
- Hervert-Escobar L & **Alexandrov V** 2017, 'Iterative Projection approach for solving the Territorial Business Sales optimization problem', *Procedia Computer Science*, V. 122, pp 1069-1076.
- Blokh I & **Alexandrov V** 2017, 'News clustering based on similarity analysis', *Procedia Computer Science*, V.122, pp 715-719.
- Hervert L & **Alexandrov V** 2017, 'Territorial Design Optimization for Business Sales Plan', *Lecture Notes in Computer Science*, vol. 10665, pp. 275-282.
- Espinosa-Oviedo JA, Vargas-Solar G, **Alexandrov V** & Zechinelli-Mertini JL 2017, 'Correlating digital footprints for discovering social connections in crowds', Data Analytics solutions for Real-Life Applications Workshop, (DARLI-AP 2017), *IEEE Computer Society Press*.

### Selected research activities

- Distinguished Visiting Professor in Computational Science at Tecnológico de Monterrey (ITESM), Mexico (January 2015 - present), providing research leadership and focusing on developing efficient methods and algorithms for data and compute intensive problems and applications.
- Participated and contributed to ETP4HPC Strategic Research Agenda III as part of Mathematics for Exascale ETP4HPC working group

### Conferences/Workshops Organization:

- 8th Scalable Algorithms for Large-Scale Systems Workshop at Supercomputing 2017, Denver, Nov. 2017, USA.
- 5th Solving Problems with Uncertainties Workshop on ICCS 2017, Zurich, Switzerland, June 2017.
- 4th Mathematical Methods and Algorithms for Extreme Scale Computing Workshop on ICCS 2017, Zurich, Switzerland, June 2017.
- 3rd Workshop/Special session on High Performance Data Analysis on ITQM, New Delhi, December 2017.

### Editorships/Memberships:

- Editorial Board member and Guest Editor of a special issue - Route to Exascale , Part II, of Journal of Computational Science, Elsevier.



## Núria Aliaga-Alcalde

Institut de Ciència de Materials de Barcelona (CSIC - ICMAB)  
Experimental Sciences & Mathematics

I completed my doctorate in 2003 at the University of Indiana (USA). Afterward, I carried out two post-doctorates: at the Max Planck Institut für Bioanorganische Chemie (MPI, Germany, 2003-2005) and at the Leiden University (The Netherlands, 2005-2007). In 2007 I started as ICREA Researcher in the Department of Inorganic Chemistry at the University of Barcelona (UB) and in September 2012 became ICREA Researcher Professor and moved to the Institut de Ciències dels Materials de Barcelona (ICMAB) where I am the group leader of "Functional Nanomaterials & Surfaces" since 2014 (FunNanoSurf, <http://departments.icmab.es/funnanosurf/>). My research focuses on multifunctional molecules and polymers, their nanostructuration and application of their magnetic, electronic and/or fluorescent properties in the bulk, on surfaces and as a components in nanodevices.

### Research interests

My work focuses on the relevance and necessity of molecular design in Nanoscience, where functional molecules play a key role since they provide homogeneous tunable nanometer-size units and properties ready to be exploited (as reliable sensors, switches, quantum computing materials or molecular electronics). Our key factors are the design of specific molecules and their control and organization on surfaces/nanodevices where their properties can be tuned. In my group, we synthesize different molecular systems (of porphyrinic, curcuminoid or polymeric natures with or without coordination to metal ions), characterize and study them on surfaces (eg.: graphene, gold, SWCNTs) and together with collaborators on nanodevices (transistors) we analyze their electronic behavior. So far, our work in progress has shown the advantages of our systems as (i) biomarkers (luminescent properties), (ii) transistors (gateable molecular junctions) and (iii) as Single-Molecule Magnets (SMMs).

### Selected publications

- Berlanga I, Etcheverry-Berrios A, Mella A, Jullian D, Gomez AV, **Aliaga-Alcalde N**, Fuenzalida V, Flores M & Soler M 2017, 'Formation of self-assembled monolayer of curcuminoid molecules on gold surfaces', *Applied Surface Science*, 392, 834 - 840.
- Lopez-Periago AM, Portoles-Gil N, Lopez-Dominguez P, Fraile J, Saurina J, **Aliaga-Alcalde N**, Tobias G, Ayllon JA & Domingo C 2017, 'Metal-Organic Frameworks Precipitated by Reactive Crystallization in Supercritical CO<sub>2</sub>', *Crystal Growth & Design*, 17, 5, 2864 - 2872.

### Selected research activities

- Member of Ph.D. committees (total of three).
- Invited talk (ESMoIna, El Escorial, Spain) and oral communication (ECME, Dresden, Germany).
- Management and administration of Tmol4TRANS ERC Consolidator grant.
- Member of the Gender commission and also of the Nanoquim platform at the ICMAB.





## Patrick Aloy

Institut de Recerca Biomèdica de Barcelona (IRB Barcelona)  
Life & Medical Sciences

Dr Patrick Aloy is an ICREA Research Professor and Principal Investigator of the Structural Systems Biology lab at the IRB. He has a BSc in Biochemistry and a MSc in Biotechnology from the Univ. Autònoma de Barcelona, Spain, and spent six years as postdoctoral researcher and staff scientist at the European Molecular Biology Laboratory, Heidelberg, Germany. For fifteen years, Dr Aloy has been developing and implementing new technologies and algorithms, applying state-of-the-art methods to specific problems and bridging the gap between theoretical models and experiments in different disciplines. In the last years, he has pioneered system-scale analyses of macromolecular assemblies and networks using high-resolution three-dimensional structures, which has become a new discipline in structure prediction. Dr Aloy has over 100 publications in first-rate journals, with over 9500 citations and remarkable press coverage, illustrating the scientific and social impact of the work.

### Research interests

The main goal of my laboratory is to combine computational and structural biology with interaction discovery experiments to unveil the basic wiring architecture of physio-pathological pathways. It is our believe that a deeper knowledge of the global topology of interactome networks related to human disease will have important bearings in the discovery of new drug targets and biomarkers, optimisation of preclinical models and understanding how biological networks change from the healthy state to disease.

### Selected publications

- Jaeger S, Igea A, Arroyo R, Alcalde V, Cánovas B, Orozco M, **Nebreda ÁR & Aloy P** 2017, 'Quantification of pathway crosstalk reveals nvel synergistic drug combinations for breast cancer', *Cancer Research*, 77, 2, 459 - 469.
- Mateo L, Guitart-Pla O, Pons C, Duran-Frigola M, Mosca R & **Aloy P** 2017, 'A PanorOmic view of personal cancer genomes', *Nucleic Acids Research*, 45, W1, W195-W200.
- Duran-Frigola M, Siragusa L, Ruppin E, **Barril X**, Cruciani G & **Aloy P** 2017, 'Detecting similar binding pockets to enable systems polypharmacology', *Plos Computational Biology*, 13, 6, e1005522.
- Duran-Frigola M, Mateo L & **Aloy P** 2017, 'Drug repositioning beyond the low-hanging fruits', *Current Opinion in Systems Biology*, 3:95-102.
- Weile J, Sun S, Cote AG, Knapp J, Verby M, Mellor JC, Wu J, Pons C, Wong C, van Lieshout N, Yang F, Tasan M, Tan G, Yang S, Fowler DM, Nussbaum R, Bloom JD, Vidal M, Hill DE, **Aloy P** & Roth FP 2017, 'A framework for exhaustively mapping of human missense variants', *Mol Syst Biol*. 13: 957

### Selected research activities

Organizer of the Structural Coputational Biology session of the 42nd FEBS Congress. Sep 2017. Jerusalem (IL).



## George Altankov

Institut de Bioenginyeria de Catalunya (IBEC)  
Experimental Sciences & Mathematics

I graduated from the Higher Medical Institute, Varna, Bulgaria in 1974 starting my research carrier as Assistant Perofessor in the Dept. of Physiology in the same Institute. After obtaining my PhD in 1984 I joined the Bulgarian Academy of Sciences (Institute of Biophysics Sofia) where I got my first habilitation as Associate Professor (1994) and grew up to Full Professor (2002), head of Department "Cell Adhesion" and Research Director. I am an interdisciplinary oriented scientist working in the field of cell-biomaterial interaction and tissue engineering. In 1991-1993 I got my postdoc in Southwestern Medical Center Dallas. During the following decade I spent more than 7 years as guest-scientist in Germany, and later almost 2 years in Spain as visiting Prfessor at UPC. Since April 2007 I am ICREA Research Professor at the Institute for Bioengineering of Catalonia (IBEC) heading the research group *Molecular Dynamics at Cell-Biomaterials Interface*.

### Research interests

I am working in the field of cell-biomaterials interaction and tissue engineering. On that topic I have published over 100 original papers and filed 5 patents. As ICREA Research Professor at IBEC I have created a new research group *Molecular dynamics at cell-biomaterials interface*, where we seek to understand the cellular mechanisms that determine biocompatibility of putative implant materials. My research interests might be summarized as follows: -Cell-biomaterials interaction -Tissue engineering -Development of provisional ECM at biomaterials interface -Nanofibers design and production via electrospinning -Controlled differentiation of mesenchymal stem cells - Endothelization and neovascularization of implants.

### Selected publications

- Bianchi MV, Awaja K & **Altankov G** 2017, 'Dynamic adhesive environment alters the differentiation potential of young and ageing mesenchymal stem cells', *Materials Science and Engineering: C*, vol. 78, pp 467-474.
- Nedjari S, Awaja F & **Altankov G** 2017, 'Three Dimensional Honeycomb Patterned Fibrinogen Based Nanofibers Induce Substantial Osteogenic Response of Mesenchymal Stem Cells', *Scientific Reports*, 7, 15947.
- Gugutkov D, Gustaysson J, Cantini M, Salmeron-Sanchez M & **Altankov G** 2017, 'Electrospun fibrinogen-PLA nanofibres for vascular tissue engineering', *Journal Of Tissue Engineering And Regenerative Medicine*, 11, 10, 2774 - 2784.
- Gugutkov D, Awaja F, Belemezova K, Keremidarska M, Krasteva N, Kuyrkchiev S, Gallego Ferrer G, Seker S, Elcin AE, Elcin YM & **Altankov G** 2017, 'Osteogenic Differentiation of Mesenchymal Stem Cells using Hybrid Nanofibers with Different Configurations and Dimensionality', *Journal of Biomedical Materials Research Part A*, 105, 7, 2065-2074.
- Hristova-Panusheva K, Keremidarska-Markova M, **Altankov G** & Krasteva N 2017, 'Age-related Changes in Adhesive Phenotype of Bone Marrow-derived Mesenchymal Stem Cells on Extracellular Matrix Proteins', *Journal of New Results in Science (JNRS)* 2017, vol 6 no.1 11-19.

### Selected research activities

**Coordinator** European Project: FP7-PEOPLE-2012-IAPP (2013-2016) -FIBROGELNET- "Network for Development of Soft Nanofibrous Construct for Cellular Therapy of Degenerative Skeletal Disorders"

**PI** National Project: MAT 2015 - 69315 -C3 (2015-2017) - MYOHEAL - *Muscle regeneration after injury. Engineered biodegradable ion-loaded scaffolds to promote muscle regeneration*. Collaborative Project funded by Spanish Ministry of Science and Innovation

**Associate Editor** *Journal of Biomaterials and Tissue Engineering*

**Member** European Society for Artificial Organs (ESAO)

**Director** 1 PHD and 1 Master Theses (sucesfully defended in 2017)



Ramón Álvarez-Puebla  
 Universitat Rovira i Virgili (URV)  
 Experimental Sciences & Mathematics

Ramón Álvarez Puebla is an ICREA Research Professor at the Universitat Rovira i Virgili and the Center for Chemical Technology of Catalonia, both in Tarragona. He studied Chemistry at the Universidad de Navarra and got his PhD from the Universidad Pública de Navarra in Surface Science. In 2004 he joined the group of Ricardo Aroca at the University of Windsor (Canada) where he remained in a cross appointment with the General Motors Research and Development center until the end of 2005. In 2006, Dr Álvarez was promoted to Research Officer at the National Center for Nanotechnology (NINT) belonging to the National Research Council of Canada. In 2008 he moved to Spain at the Universidad de Vigo, Spain. He joined ICREA in October of 2012.

### Research interests

Dr. Álvarez-Puebla is an expert in surface science and spectroscopy with emphasis on the fabrication and characterization of plasmonic particles and their integration into advanced "all optical" sensing devices for biomedicine, chemical biology and environmental monitoring. Currently he is interested in: - Design and development of plasmonic functional materials and their integration into real live "all optical" sensors. - Development of new technologies for pathogen/disease marker detection by using localized surface plasmon resonances, Raman and SERS. - In vivo intracellular monitoring and imaging of relevant cytoplasm metabolites under different conditions (health/disease). - Optical technologies for the ultrafast and ultrasensitive recognition of active compounds in combinatorial libraries.

### Selected publications

- Phan-Quang GC, Zi Wee EH, Yang F, Kwee Lee H, Phang IY, Feng X, **Alvarez-Puebla RA\*** & Ling XY\* 2017, 'On-line Flowing Colloidosomes: Seamless Sequential Multi-analyte and High Throughput SERS Analysis', *Angewandte Chemie*, International Edition 56, 5565-5569.
- Fernandez-Carrascal A, Garcia-Algar M, Nazareno M, Torres-Nuñez A, Guerrini L, Feliu N, Parak WJ, Garcia-Rico E & **Alvarez-Puebla RA** 2017, 'Metabolic pathway for the universal fluorescent recognition of tumor cells', *Oncotarget*, 8, 44, 76108-76115.
- Feliu N, Hassan M, Garcia-Rico E, Cui D, Parak W & **Alvarez-Puebla RA** 2017, 'SERS quantification and characterization of proteins and other biomolecules', *Langmuir* 33, 6639–6646. Invited Feature paper. Journal Cover (July 2017, Vol. 33, Issue 27).
- Guerrini L, Garcia-Rico E, Pazos-Perez N & **Alvarez-Puebla, RA** 2017, 'Smelling, Seeing, Tasting-Old Senses for New Sensing', *Acs Nano*, 11, 6, 5217-5222.
- Feliu N, Hassan M, Garcia-Rico E, Cui D, Parak W & **Alvarez-Puebla RA** 2017, 'SERS quantification and characterization of proteins and other biomolecules', *Langmuir* 33, 9711–9730
- Pelaz B et al. 2017, 'Diverse Applications of Nanomedicine', *ACS Nano* 11, 2313-2381. Invited ACS Nano Focus. Most Read article of ACS Nano 2017. Selected as ACS Editors' Choice.
- Feliu N, Sun X, **Alvarez-Puebla RA** & Parak WJ\* 2017, 'Quantitative particle-cell interaction - about some basic physicochemical pitfalls', *Langmuir* 33, 6639–6646. Invited Featured Paper.

### Selected research activities

Two international patents:

- **R.A. Alvarez-Puebla**, et al **Device and method for the preparation of platelet rich plasma**, PCT/EP17382271. Licensed by Medcom Science SA, Spain
- **R.A. Alvarez-Puebla**, et al. **Optofluidic device and method for detecting circulating tumour cells**, PCT/EP17382192; Licensed by Medcom Science SA, Spain

8 Plenary, keynote or invited talks in major conferences



## Isabelle Anguelovski

Universitat Autònoma de Barcelona (UAB)  
Social & Behavioural Sciences

Isabelle obtained a PhD in Urban Studies & Planning from MIT before returning to Europe in 2011 with a Marie Curie fellowship. Situated at the intersection of urban planning and policy, social inequality and development studies, her research examines the extent to which urban plans, policies, and socio-environmental interventions contribute to more just, resilient, healthy, and sustainable cities. She also studies how community groups in distressed neighborhoods contest the existence or exacerbation of environmental inequities as a result of urban (re)development processes. Based at the UAB-ICTA where she leads the research line on Cities and Environmental Justice, she is also an affiliated researcher at IMIM where she directs the **Barcelona Lab for Urban Environmental Justice and Sustainability**. Much of her work takes place in marginalized neighborhoods in Europe, the US, L. America, South Africa, and South East Asia.

### Research interests

I am a social scientist trained in urban and environmental planning (PhD, MIT, 2011), nonprofit management (Harvard University, 2004), international development (University de Paris-1 Sorbonne, 2001), and political studies (Science Po, 2000). Before starting my PhD in 2006, I held several positions in international development NGOs in France and the US. As part of collaborative EU and international research projects, I study 1) the extent to which environmental gentrification processes lead to new forms of green locally unwanted land uses (GREENLULUs - ERC Starting Grant (2016-2021) in historically marginalized neighborhoods, 2) how municipalities protect vulnerable communities from climate risks and inequality, 3) what opportunities and constraints exist to transitioning towards a low-carbon economy within European urban regions, 4) how the governance of urban nature-based solutions planning in Europe addresses (or exacerbates) environmental injustices.

### Selected publications

- Cole H, Shokry G, Connolly J, Perez del Pulgar C, Alonso J & **Anguelovski I** 2017 'Can Healthy Cities be made really healthy?', *Lancet Public Health*, 2 (9). 394-395.
- **Anguelovski I**, Brand AL, Chu E & Goh K 2017, 'Urban Planning, community (re)development, and environmental justice.' In R. Hollifield, G. Walker, and J. Chakraborty. *Handbook of Environmental Justice*. Routledge, London
- Sekulova F, **Anguelovski I** & Arguelles L 2017, 'A 'fertile soil' for community initiatives: A new analytical framework', *Environment and Planning A*. 49 (10). 2362-2382
- Cole H, Connolly J, Garcia-Lamarca M & **Anguelovski I** 2017, 'Are green cities healthy and equitable? Unpacking the relationship between health, green space and gentrification', *Journal of Epidemiology and Community Health*. 71 (11). 1118-1121.
- Arguelles L, **Anguelovski I** & Dinnie L 2017, 'Power and privilege in alternative civic practices: Examining imaginaries of change and embedded rationalities in community economies', *Geoforum*. 86. 30-41
- Pirro C & **Anguelovski I** 2017, 'Farming the urban fringes of Barcelona: Competing visions of nature and the contestation of a partial sustainability fix', *Geoforum*, 82, 53 - 65.

### Selected research activities

#### Grants:

- PI, ERC Starting Grant GreenLULUS
- UAB PI, H2020 Naturvation

**Director**, Barcelona Lab for Urban Environmental Justice and Sustainability ([www.bcnuej.org](http://www.bcnuej.org))



**Jose Apesteguia**  
Universitat Pompeu Fabra (UPF)  
Social & Behavioural Sciences

Jose Apesteguia received his PhD in Economics from the Public University of Navarra in 2001. Since then he has been at the University of Bonn as a post-doc and at the Universitat Pompeu Fabra, first as a "Ramón y Cajal" fellow and then as an ICREA Research Professor.

### Research interests

In my research I study individual decision-making with an emphasis on its psychological foundations. I use theoretical tools as well as adopt an empirical approach to try to better understand individual decision-making, and to improve the predictive power of the decision-making models in economic environments.

### Selected publications

- **Apesteguia J**, Ballester MA & Lu J 2017, 'Single-crossing Random Utility Models', *Econometrica*, 85, 2, 661 - 674.

### Selected research activities

-Invited Seminars: Paris School of Economics, November 2017; University of Pennsylvania, April 2017; Cornell University, March 2017; Barcelona GSE, March 2017.

-Short research visits: University of Oxford (March and November 2017) and University of Edinburgh (July 2017).

-Grants: "la Caixa" Foundation Research Grants on Socioeconomic Well-being (2017-2019).

-Organizer of the Barcelona GSE Summer Forum Workshop on "Stochastic Choice", June 2017.

-Conference: Bounded Rationality in Choice (BRIC). Queen Mary University, June 2017.

-Program Committee for the Spanish Economic Association Meeting, December 2017.

-Scientific Committee for the "Bounded Rationality in Choice" Annual Meetings.



## Jordi Arbiol

Institut Català de Nanociència i Nanotecnologia (ICN2)  
Engineering Sciences

Graduated in Physics at Universitat de Barcelona (UB) in 1997, where also obtained his PhD (European Doctorate and PhD Extraordinary Award) in 2001. He also worked as Assistant Professor at UB. From 2009 to 2015 he was ICREA Prof. at Institut de Ciència de Materials de Barcelona, ICMAB-CSIC. Since 2015 he is ICREA Prof. at Institut Català de Nanociència i Nanotecnologia (ICN2) and Leader of the Advanced Electron Nanoscopy Group. Since 2017 he is President of the Spanish Microscopy Society (SME), was Vice-President from 2013 to 2017 and since 2009 he is Member of its Executive Board. He is Scientific Supervisor of the Electron Microscopy Transversal Area at ICN2 and BIST (The Barcelona Institute of Science and Technology). He has been awarded with the EU40 Materials Prize 2014 (E-MRS), 2014 EMS Outstanding Paper Award and listed in the Top 40 under 40 Power List (2014) by The Analytical Scientist. >290 publications; h-index: 57 (WoS); 65 (GoS).

### Research interests

Exploring the limits of physical resolution in advanced electron microscopy and understanding the ultimate behavior of materials at the nanoscale and their related properties are the central aims of our research. Main research lines:

- 1) Single atom recognition and localization in embedded quantum and nanostructures. From the atomic resolution data we obtain in the aberration corrected electron microscopes we create 3D atomic models of the nanosystems studied to get full knowledge on their growth mechanisms.
- 2) Direct correlation between the structure and elemental composition at the atomic scale and the physical properties at sub-nanometer scale: study of the photonic, plasmonic and phononic properties of the nanomaterials, correlated to simulated theoretical models.
- 3) Development of in-situ / in-operando experiments in the TEM to understand the physical and chemical phenomena promoting energy mechanisms, correlating theoretical models with the in-situ TEM and Synchrotron experiments.

### Selected publications

- Tang PY, Xie HB, Ros C, Han LJ, Biset-Peiró M, He Y, Kramer W, Perez-Rodriguez A, Saucedo E, **Galan-Mascaros JR**, Andreu T, Morante JR & **Arbiol J\*** 2017, 'Enhanced Photoelectrochemical Water Splitting of Hematite Multilayer Nanowires Photoanode with Tuning Surface State via Bottom-up Interfacial Engineering', *Energy Environ. Sci.*, 10, 2124-2136. Including Journal Front Cover.
- Urbain F, Tang PY, Carretero NM, Andreu T, Gerling LG, Voz C, **Arbiol J** & Morante JR 2017, 'Prototype reactor for highly selective solar-driven CO<sub>2</sub> reduction to synthesis gas using nanosized earth-abundant catalysts and silicon photovoltaics', *Energy Environ. Sci.*, 10, 2256-2266.
- Masa J, Sinev I, Mistry H, Ventosa E, de la Mata M, **Arbiol J**, Muhler M, Roldan Cuenya B & Schuhmann W 2017, 'Ultrathin High Surface Area Nickel Boride (Ni<sub>3</sub>B) Nanosheets as Highly Efficient Electrocatalyst for Oxygen Evolution', *Advanced Energy Materials*, 7, 1700381.
- Hui HY, de la Mata M, **Arbiol J\*** & Filler MA\* 2017, 'Low-Temperature Growth of Axial Si/Ge Nanowire Heterostructures Enabled by Trisilane', *Chem. Mater.*, 29, 3397-3402.
- Oksenberg E, Martí-Sánchez S, Popovitz-Biro R, **Arbiol J** & Joselevich E 2017, 'Surface-Guided Core-Shell ZnSe@ZnTe Nanowires as Radial p-n Heterojunctions with Photovoltaic Behavior', *ACS Nano*, 11, 6155-6166.
- Lu X, de la Mata M, **Arbiol J** & Korgel BA 2017, 'Colloidal Silicon-Germanium Nanorod Heterostructures', *Chem. Mater.*, 29, 9786-9792.
- Genç A, Patarroyo J, Sancho-Parramon J, Bastús NG, **Puntes V** & **Arbiol J\*** 2017, 'Hollow metal nanostructures for enhanced plasmonics: synthesis, local plasmonic properties and applications', *Nanophotonics*, 6, 193-213.

### Selected research activities

- 16 Publications in 2017 with a mean IF of 10.7 (13 D1, 15 Q1)
- 3 Plenary Lectures (EMSI2017, ANNIC2017 & N&N2017)
- 2 Keynote Lectures
- 3 Invited Talks
- 3 Invited Seminars (Bremen Univ., URV, SCQ)
- President of the Spanish Microscopy Society
- Expert Panel Member for the FWO (Belgium) & FNP (Poland)



## Joaquín Arribas

Vall d'Hebron Institut d'Oncologia (VHIO)  
Life & Medical Sciences

Joaquín Arribas completed his undergraduate studies in biochemistry at the Universidad Autónoma de Madrid in 1987. At the same university he subsequently worked on the regulation of the catalytic activities of the proteasome and received his PhD in Biology in 1991. Sponsored by a fellowship from the Spanish Ministry of Education and Science, he joined the Memorial Sloan-Kettering Cancer Center, New York (USA), as a Postdoctoral Fellow to work with J. Massagué (1992-1996) on the proteolytic processing of transmembrane growth factors. In 1997 he joined the oncology department at Hospital Vall d'Hebron in Barcelona as a Staff Scientist, since then he has lead the research group on Growth Factors. Since 2010 he has served as Director of VHIO's Preclinical Research Program. His research has been recognized through an EMBO Young Investigator Programme (YIP) Award and the Beckman Coulter Award for the Best Young Spanish Investigator in Biochemistry and Molecular Biology.

### Research interests

- \* Determine the therapeutic value of the anti-p95HER2 antibodies to treat breast cancers.
- \* Analyze cellular heterogeneity of HER2-positive breast tumors.
- \* Explore the link between HER2-driven senescence and breast cancer invasion.

### Selected publications

- Pedersen K, Bilal F, Bernadó Morales C, Salcedo MT, Macarulla T, Massó-Vallés D, Mohan V, Vivancos A, Carreras M, Serres X, Abu-Suboh M, Balsells J, Allende E, Sagi I, **Soucek L**, Tabernero J & **Arribas J** 2017, 'Pancreatic cancer heterogeneity and response to Mek inhibition', *Oncogene*, 36, 40, 5639 - 5647.
- Ríos-Luci C, Garcia-Alonso S, Diaz-Rodriguez E, Nadal-Serrano M, **Arribas J**, Ocana A & Pandiella A 2017, 'Resistance to the Antibody-Drug Conjugate T-DM1 Is Based in a Reduction in Lysosomal Proteolytic Activity', *Cancer Research*, 77, 17, 4639 - 4651.
- Sabbaghi MA, Gil-Gomez G, Guardia C, Servitja S, Arpi O, Garcia-Alonso S, Menendez S, Arumi-Uria M, Serrano L, Salido M, Muntasell A, Martinez-Garcia M, Zazo S, Chamizo C, Gonzalez-Alonso P, Madoz-Gurpide J, Eroles P, **Arribas J**, Tusquets I, Lluch A, Pandiella A, Rojo F, Rovira A & Albanell J 2017, 'Defective Cyclin B1 Induction in Trastuzumab-emtansine (T-DM1) Acquired Resistance in HER2-positive Breast Cancer', *Clinical Cancer Research*, 23, 22, 7006 - 7019.
- Byrne AT et al. 2017, 'Interrogating open issues in cancer medicine with patient-derived xenografts', *Nature Reviews Cancer*, 17, 10.
- Martin-Perez R, Yerbes R, Mora-Molina R, Cano-Gonzalez A, **Arribas J**, Mazzone M, Lopez-Rivas A & Palacios C 2017, 'Oncogenic p95HER2/611CTF primes human breast epithelial cells for metabolic stress-induced down-regulation of FLIP and activation of TRAIL-R/Caspase-8-dependent apoptosis', *Oncotarget*, 8, 55, 93688 - 93703.



## Salvador A. Benitah

Institut de Recerca Biomèdica de Barcelona (IRB Barcelona)  
Life & Medical Sciences

Salvador Aznar Benitah is a group leader at the Institute for Research in Biomedicine (IRB Barcelona). He holds a BSc/MSc in Biochemistry from the University of McGill (Montreal, Canada), from where he moved to the Biomedical Research Institute (Madrid, Spain) to obtain a PhD in Molecular Biology. His professional career continued at the London Research Institute (Cancer Research UK) in the laboratory of Prof. Fiona Watt where he acquired extensive knowledge on adult stem cells. He started as a Junior ICREA researcher at the CRG in 2007 where he studied the role of adult stem cells in tissue homeostasis and cancer. Since September 2012 he is an ICREA Research Professor. In September 2013 he became a Senior Researcher in the Oncology Department at the Institute for Research in Biomedicine (IRB Barcelona).

### Research interests

Our global aim is to characterize the molecular pathways that regulate the behaviour of normal stem cells during homeostasis, and how they become deregulated during carcinogenesis and ageing. Research Lines: - What intrinsic mechanisms regulate adult stem cell function, and how are they deregulated during ageing and cancer? - How do adult stem cells communicate with their local environment and how is the system coordinated to dictate stem cell function? - What systemic cues communicate with adult stem cells and how do distant adult stem cells coordinate their function at the level of the whole organism? - How does deregulation of pathways that control stem cell behaviour contribute to the maintenance and progression of carcinomas?

### Selected publications

- Solanas G, Peixoto FO, Perdiguero E, Jardí M, Ruiz-Bonilla V, Datta D, Symeonidi A, Castellanos A, Welz PS, Caballero JM, Sassone-Corsi P, **Muñoz-Cánoves P & Benitah SA** 2017, 'Aged Stem Cells Reprogram Their Daily Rhythmic Functions to Adapt to Stress', *Cell*, 170(4):678-692.
- Sato S, Solanas G, Peixoto FO, Bee L, Symeonidi A, Schmidt MS, Brenner C, Masri S, **Benitah SA\*** & Sassone-Corsi P\* 2017, 'Circadian Reprogramming in the Liver Identifies Metabolic Pathways of Aging', *Cell*, 170(4):664-677 (\*co-corresponding)
- Pascual G, Avgustinova A, Mejetta S, Martín M, Castellanos A, Attolini CS, Berenguer A, Prats N, Toll A, Hueto JA, Bescós C, **Di Croce L & Benitah SA** 2017, 'Targeting metastasis-initiating cells through the fatty acid receptor CD36', *Nature*, 541(7635):41-45 (Article)
- Rinaldi L, Avgustinova A, Martín M, Datta D, Solanas G, Neus P & **Benitah SA** 2017, 'Loss of Dnmt3a and Dnmt3b does not affect epidermal homeostasis but promotes squamous transformation through PPAR-gamma', *Elife*, 6, e21697.
- Besson V, Kyryachenko S, Janich P, **Benitah SA**, Marazzi G & Sassoon D 2017, 'Expression Analysis of the Stem Cell Marker Pw1/Peg3 Reveals a CD34 Negative Progenitor Population in the Hair Follicle', *Stem Cells*, &

### Selected research activities

Bank Caja Rural National Award for Life Sciences

City of Barcelona Award for Life Sciences

Organizer of the Epigenetics in Skin Symposium (Salzburg)





## Àlex Bach

Institut de Recerca i Tecnologia Agroalimentàries (IRTA)  
Life & Medical Sciences

Àlex holds a Master and a PhD in Dairy Science from the University of Minnesota. After a few years working as a research manager of a multinational company, Dr. Bach returned to academia as ICREA Research Professor and Head of the Department of Ruminant Production of IRTA. He has received several awards in recognition to his research activities (the last one this year from the 'Royal Academy of Veterinary Sciences of Spain), has spoken at more than 100 international congresses, is author or co-author of more than 100 peer-reviewed publications, more than 90 extension articles, and more than 15 books (or book chapters). He has served as a scientific expert in several committees of the European Food Safety Authority. He is section editor and sits in the editorial boards of several scientific journals, and is member of various scientific committees.

### Research interests

Àlex Bach conducts research in ruminant production systems. His research focuses on optimizing the growth curve of dairy replacement heifers, as well as their management and housing systems (group size, behavior, stocking densities...). He also uses mathematical models to simulate work flows of ruminant production systems with the aim of helping the decision-making process in dairy enterprises. In addition, Àlex conducts basic research to understand the physiology and metabolism of ruminants with especial emphasis on the impact of nutrition and management during early development on future metabolic function.

### Selected publications

- **Bach A**, Aris A, Vidal M, Fabregas F & Terre M 2017, 'Influence of milk processing temperature on growth performance, nitrogen retention, and hindgut's inflammatory status and bacterial populations in a calf model', *Journal Of Dairy Research*, 84, 3, 355 - 359.
- **Bach A** & Cabrera V 2017, 'Robotic milking: Feeding strategies and economic returns', *Journal Of Dairy Science*, 100, 9, 7720 - 7728.
- **Bach A**, Khan MA & Miller-Cushon EK 2017, 'Managing and feeding the calf through weaning', In: *Large Dairy Herd Management*. 3rd Edition. Ed. D. Beede. American Dairy Science Association. ISBN: 978-0-9634491-2-2. Pages 421-430
- **Bach A**, Aris A & Guasch I 2017, 'Consequences of supplying methyl donors during pregnancy on the methylome of the offspring from lactating and non-lactating dairy cattle', *Plos One*, 12, 12, e0189581.



## Joan Bagaria

Universitat de Barcelona (UB)  
Experimental Sciences & Mathematics

Born on 17 August 1958 in Manlleu (Catalonia). Fulbright Fellow at Univ. of California, Berkeley, 1985-87. PhD in Logic and the Methodology of Science, UC Berkeley, 1991. Postdoctoral researcher, UC Berkeley, 1991-92. Associate Professor at several Catalanian universities, 1992-2001. ICREA Research Professor at Univ. of Barcelona, since 2001. Invited researcher at UC Berkeley, Kobe Univ., National Univ. of Singapore, Kurt Gödel Research Center (Vienna), Univ. Paris VII, CalTech, Mittag-Leffler Institut, Hebrew Univ., Harvard Univ., etc. First President of the European Set Theory Society, 2007-11; ICREA Director's Scientific Advisor, since 2005; Chairman of the INFTY ESF-Research Networking Programme, 2009-14; Simons Foundation Fellow at Isaac Newton Institute, Cambridge, UK, Aug. to Dec. 2015. Director of the Barcelona research group on set theory (BCNSETS) and PI of the UB-based Group in Logic.

### Research interests

I am a mathematical logician working mainly in set theory, an extremely general mathematical theory whose objects of study are the abstract infinite sets. Set theory is the strongest and most encompassing theory ever developed. It is both the mathematical theory of infinity and the standard foundation for mathematics, in the sense that virtually all of mathematics can be formally reduced to it. I help to develop and apply sophisticated theories and techniques, such as forcing and large cardinals, towards the solution of hard problems in set theory itself and in other areas of logic and mathematics. More interestingly, it is sometimes possible to prove that a given problem cannot be solved using standard mathematical tools, which are embodied in the ZFC axioms of set theory, and therefore new axioms are required for its solution. Finding and classifying new axioms, and thereby expanding the frontiers of mathematical reasoning, is also an essential part of set theory, and of my work.

### Selected publications

- **Bagaria J**, Gitman V & Schindler R 2017, 'Generic Vopenka's Principle, remarkable cardinals, and the weak Proper Forcing Axiom', *Archive For Mathematical Logic*, 56, 1-2, 1 - 20.

### Selected research activities

#### Invited talks

*Generalized Provability Logics and Large Cardinals*. Keynote speaker at the XVIII Brazilian Logic Conference. 8-12 May 2017. Pirenópolis (Brazil).

*Large cardinals as reflection principles. A survey*. XXI Congreso Colombiano de Matemáticas. 5-9 June 2017. Bogotá (Colombia).

*Symmetries in the Set-Theoretic Universe and the Higher Infinite*. Keynote speaker at Symmetry 2017. The First International Conference on Symmetry. Barcelona, 16 - 18 October 2017.

*Strong Reflection Principles and the Hierarchy of Large Cardinals*. British Logic Colloquium 2017. University of Sussex. 8-9 September 2017.

*Large Cardinals beyond Choice*. 6th European Set Theory Conference. Alfréd Rényi Institute of Mathematics, Budapest. 3-7 July 2017.

*Large Cardinals beyond Choice*. XXVI incontro dell'Associazione Italiana di Logica e sue Applicazioni. Padova (Italy). 25-28 September 2017.

*Symmetries of Infinity*. On the Infinite. Institut Henri Poincaré and Sorbonne, Paris. 18 - 21 October 2017.

#### Advanced courses given in international conferences

*An Introduction to Hyperstationary Sets*. 3 one-hour lectures. Winter School in Abstract Analysis (WS2017). 28 January - 4 February, 2017. Hejnice (Czech Republic).

*Large Cardinals as Reflection Principles: A General Framework*. 4 one-hour lectures. New directions in the Higher Infinite. ICMS, Edinburgh. 10-14 July 2017.



## Pau Baizán

Universitat Pompeu Fabra (UPF)  
Social & Behavioural Sciences

Pau Baizán is ICREA Research Professor at Pompeu Fabra University, where he teaches demography. Previously, he was research scientist at the Max Planck Institute for Demographic Research (2000-2002), doctoral student and teaching assistant at the University of Louvain (1996-1999), where he obtained his PhD in Demography, and research associate at the University of Cambridge (1994-1995).

### Research interests

My research focuses in two main areas: a) the study of the trends and patterns of family formation dynamics and, b) the changing patterns and determinants of migration. I explore several theoretical perspectives to explain the observed behaviour and apply quantitative techniques to disentangle the relationships between processes. For instance, I investigate questions such as "To what extent do employment insecurity and de-standardisation of work patterns affect the likelihood to enter a partnership and to have a child?", "How does this impact vary across countries, regions and different welfare state regimes?", "What is the impact of changing gender roles on fertility behaviour?", "What are the causes of African migration?", "How migration influences family behaviour?".

### Selected research activities

- Co-PI of the MINECO project *Socio-Demographic Consequences of the Great Recession: Altered Class and Gender Relations?* (CSO2016-80484-R).

- Co-PI of the project *Low Fertility, Labor Market, and Family: Factors, Outcomes, and Policy Implications*. East-West Center (Honolulu, USA) and Korea Institute for Health and Social Affairs.

### Courses:

"*Demographic Changes and Social Dynamics*" and "*Migration and Society*". Master in Sociology and Demography, UPF.

### PhD thesis supervised and defended in 2017:

Natalia Malancu, "*Policy, Social Capital and Health: The Multiple Implications of Immigrant Economic Incorporation*", UPF.

Daniel Ciganda, "*Understanding the Fertility Gap. New Modelling Approaches to Reproductive Decision-Making*", UPF.

Elisabeth Kraus, "*Family dynamics of international migrants and their descendants*", UPF.

### Talks:

"Welfare regime patterns in the social class-fertility relationship: second births in France, Italy, Norway, and United Kingdom", conference "*Low Fertility, Labor Market, and Family: Factors, Outcomes, and Policy Implications*", East-West Center and the Korea Institute for Health and Social Affairs, Honolulu, November.

"When are migrant networks relevant? A comparison of the role of networks in the Mexico-US (MMP) and Senegal-Europe (MAFE) migration systems". *Population Association of America*, Chicago, April, and *IUSSP International Population Conference*, Cape Town, November.

"Social class inequalities, economic insecurity, and fertility in Spain", *IUSSP International Population Conference*, Cape Town, November.

"International migration and family change". *Lecture Series on Postgraduate Program in Demography*, Center for Humanities and Social Sciences (CSIC). Madrid, June .

"Educational expansion and fertility of the Spanish birth-cohorts 1901-1950". Seminar *Twenty-Five Years of the Spanish Socio-Demographic Survey*, Center for Humanities and Social Sciences, Spanish National Research Council and Asociación de Demografía Histórica. Madrid, February.



**Pablo Ballester Balaguer**  
Institut Català d'Investigació Química (ICIQ)  
Experimental Sciences & Mathematics

Pablo Ballester studied Chemistry at the University of the Balearic Islands (UIB) where he also completed the PhD degree in 1986. In 1987 he was post-doctoral Associate with Prof. J. Rebek Jr. at the University of Pittsburgh. In 1988 after a post-doctoral stay at UIB he decided to return to Pittsburgh and moved to MIT in 1989. From 1991 to 2002 he held the positions of Assistant and Associate Professor at UIB and served as Secretary of the Chemistry Department, Vice-dean of the Faculty of Sciences and Head of Studies of Chemistry at UIB. In 2003 and while enjoying a sabbatical leave at the Scripps Research Institute (USA) with the rank of Associate Professor of Research he got an ICREA Research Professorship and joined ICIQ as Group Leader in 2004. He is the recipient of the 2012 Janssen Cilag Organic Chemistry Prize awarded by the Spanish Royal Society of Chemistry. Since February 2016 he serves as ICIQ Vice-Director for BIST affairs.

### Research interests

My scientific background lies in the areas of organic chemistry (making molecules) and supramolecular chemistry (study how molecules fit together). My research is mainly focused in the design, synthesis, study and characterization of functional molecular aggregates. I consider myself a mixture between a molecular architect and a molecular engineer. We study matter but we also produce matter and new materials. We work in trying to understand molecular self-assembly processes (non-covalent synthesis) as a methodology to construct large and functional supramolecular assemblies, i.e., molecular machines. A second area of interest resides in the design and application of molecular containers. These are molecular or supramolecular structures with an internal cavity sufficiently large to include or encapsulate other molecules. Unfortunately, although we construct monumental and even artistic structures they are not visible to the naked eye due to their reduced nanometer size.

### Selected publications

- Diaz-Moscoso A, Hernandez-Alonso D, Escobar L, Arroyave FA & **Ballester P** 2017, 'Stereoselective Synthesis of Lower and Upper Rim Functionalized Tetra-alpha Isomers of Calix[4]pyrroles', *Org. Lett.*, 19, 1, 226 - 229.
- Diaz-Moscoso A & **Ballester P** 2017, 'Light-responsive molecular containers', *Chem. Commun.*, 53, 34, 4635 - 4652.
- Mejuto C, Escobar, Guisado-Barríos G, **Ballester P**, Gusev D & Peris E 2017, 'Self-Assembly of Di-N-Heterocyclic Carbene-Gold-Adorned Corannulenes on C-60', *Chem. Eur. J.*, 23, 44, 10644 - 10651.
- Escudero-Adan EC, Bauza A, Hernandez-Eguia LP, Wuerthner F, **Ballester P** & Frontera A 2017, 'Solid-state inclusion of C-60 and C-70 in a co-polymer induced by metal-ligand coordination of a Zn-porphyrin cage with a bis-pyridyl perylene derivative', *CrystEngComm*, 19, 33, 4911 - 4919.
- Korom S & **Ballester P** 2017, 'Attachment of a Ru-II Complex to a Self-Folding Hexaamide Deep Cavitand', *J. Am. Chem. Soc.*, 139, 35, 12109 - 12112.
- Galan A, Escudero-Adan E C & **Ballester P** 2017, 'Template-directed self-assembly of dynamic covalent capsules with polar interiors', *Chem. Sci.*, 8, 7746-7750.
- Romero JR, Aragay G & **Ballester P** 2017, 'Ion-pair recognition by a neutral [2]rotaxane based on a bis-calix[4]pyrrole cyclic component', *Chem. Sci.*, 8, 491-498.
- Frontera A & **Ballester P** 2017, 'Anion- $\pi$  Interactions: Theoretical Studies, Supramolecular Chemistry and Catalysis', In *Aromatic Interactions: Frontiers in Knowledge and Application*, The Royal Society of Chemistry, p 39-97.
- Aguilera-Sigalat J, Saenz de Pipon C, Hernandez-Alonso D, Escudero-Adan EC, **Galan-Mascaros JR** & **Ballester P** 2017, 'A Metal Organic Framework Based on a Tetra-Arylextended Calix[4]pyrrole Ligand: Structure Control through the Covalent Connectivity of the Linker', *Cryst. Growth. Des.*, 17, 3, 1328 - 1338.

### Selected research activities

- Theses: Ramón Romero (PhD-URV), Daniel Hernández (PhD-URV).
- Scientific consultant for the Henkel-ICIQ research unit.
- Member of the COST Actions CM1402 and CA16215.



## Xavier Barril

Universitat de Barcelona (UB)  
Experimental Sciences & Mathematics

Xavier Barril's research focuses on the discovery of bioactive molecules exploiting unusual mechanisms of action through a combined use of computational and experimental techniques. His group also develops new computational tools (druggability predictions, docking, dynamic undocking) and strives to improve the molecular understanding of pharmacologically important biological events (e.g. binding kinetics, allostereism). Prof. Barril received his Ph.D. from the Barcelona University (UB) in 2001 for theoretical studies on the molecular recognition processes. He then joined Vernalis (Cambridge, UK), where he was involved in a range of drug discovery projects. In 2005 he was appointed ICREA Research Professor and went back to the UB. Prof. Barril has co-authored more than 70 scientific publications as well as 8 patents. He is also co-founder of Minoryx Therapeutics, a company focusing in the development of new treatments for rare diseases.

### Research interests

We are interested in discovering bioactive molecules (chemical probes) as a means to validate new points of pharmacological intervention. We aim to expand the so-called druggable genome by targeting so-far unexploited sites that elicit a biological response through non-standard mechanisms of action, such as conformational trapping, stabilisation of protein-protein complexes or allostereism. To achieve this objective we employ a multi-disciplinary and question-driven approach that combines computational, biophysical and biological techniques. We are particularly strong in computer-aided drug design and we develop new computational approaches that enable us to tackle such novel and difficult targets with confidence.

### Selected publications

- Ruiz-Carmona S, Schmidtke P, Luque FJ, Baker L, Matassova N, Davis B, Roughley S, Murray J, Hubbard R & **Barril X** 2017, 'Dynamic undocking and the quasi-bound state as tools for drug discovery', *Nature Chemistry*, 9, 201-206.
- Arcon JP, Defelipe LA, Modenutti CP, Lopez ED, Alvarez-Garcia D, **Barril X**, Turjanski AG & Marti MA 2017, 'Molecular Dynamics in Mixed Solvents Reveals Protein-Ligand Interactions, Improves Docking, and Allows Accurate Binding Free Energy Predictions', *Journal of Chemical Information and Modeling*, 57, 4, 846-863.
- Duran-Frigola M, Siragusa L, Ruppin E, **Barril X**, Cruciani G & **Aloy P** 2017, 'Detecting similar binding pockets to enable systems polypharmacology', *Plos Computational Biology*, 13, 6, e1005522.
- Arimany-Nardi C, Claudio-Montero A, Viel-Oliva A, Schmidtke P, Estarellas C, **Barril X**, Bidon-Chanal A & Pastor-Anglada M 2017, 'Identification and Characterization of a Secondary Sodium-Binding Site and the Main Selectivity Determinants in the Human Concentrative Nucleoside Transporter 3', *Molecular Pharmaceutics*, 14, 6, 1980-1987.
- Westermaier Y, Ruiz-Carmona S, Theret I, Perron-Sierra F, Poissonnet G, Dacquet C, Boutin JA, Ducrot P & **Barril X** 2017, 'Binding mode prediction and MD/MMPBSA-based free energy ranking for agonists of REV-ERB alpha/NCoR', *Journal Of Computer-aided Molecular Design*, 31, 8, 755-775.
- Radusky LG, Ruiz-Carmona S, Modenutti C, **Barril X**, Turjanski AG & Martí MA 2017 'LigQ: a WebServer to select and prepare ligands for virtual screening', *Journal of Chemical Information and Modelling*, 57, 8, 1741-1746
- **Barril X** 2017, 'Computer-aided drug design: time to play with novel chemical matter', *Expert Opinion On Drug Discovery*, 12, 10, 977-980.

### Selected research activities

**Research stay:** Five months stay in the group of Prof. Kodadek at the Scripps Research Institute (Jupiter, FL) - Fulbright program.

**PhD thesis supervisor** of S. Ruiz Carmona, "VS for novel mechanisms of action: applications and methodological developments" (UB). 20 Jan 2017



## Frederic Bartumeus

Centre de Recerca Ecològica i Aplicacions Forestals (CREAF) &  
Centre for Advanced Studies of Blanes (CSIC - CEAB)  
Life & Medical Sciences

Frederic Bartumeus is an ICREA Research Professor in Computational and Theoretical Ecology at the Centre for Advanced Studies of Blanes (CEAB-CSIC) since November 2013. He also holds the same status at CREAM since 2016. He holds a MSc in Plankton Ecology (1997), and a PhD in Biological Sciences (2005) from the University of Barcelona, Spain, where he applied random walk and generalized diffusion theory to develop animal search theory. He joined the Department of Ecology and Evolutionary Biology at Princeton University, USA (2006-2009), where he went in depth on the stochastic modeling of animal movement and dispersal. Back to Spain, he completed his postdoctoral research on vector-borne diseases at the Institut Català del Clima (IC3). With a Ramón y Cajal position (2010) he founded his own lab, the Movement Ecology Laboratory, focused on animal movement (including humans) and search strategies, disease vectors, and computational ecology.

### Research interests

My research is focused in the emerging field of movement ecology, which aims to reveal the complex forces that drive movement and dispersal patterns of animals (including humans). Improved tracking technology (GPS, bio-loggers, smart-phones) demands an integrative view, with new computational tools and modeling frameworks to understand unprecedented levels of detail from a constantly growing number of species. I am contributing to this scientific revolution based on a broad, highly collaborative and interdisciplinary research program, founded solidly on statistical physics and quantitative ecology. A central question in my research is how animals use information and their motor properties to optimize search strategies. The mechanistic linkage between behavioral processes and movement patterns is also key to understanding globalised problems such as the perpetuation of social inequality among humans or the spread of vector-borne infectious diseases.

### Selected publications

- Palmer JRB, Oltra A, Collantes F, Delgado JA, Lucientes J, Delacour S, Bengoa M, Eritja R & **Bartumeus F** 2017, 'Citizen science provides a reliable and scalable tool to track disease-carrying mosquitoes', *Nature Communications*, 8, 916.
- Eritja R, Palmer JRB, Roiz D, Sanpera-Calbet I & **Bartumeus F** 2017, 'Direct Evidence of Adult *Aedes albopictus* Dispersal by Car', *Scientific Reports*, 7, 14399.
- Cai E, Marchuk K, Beemiller P, Beppler C, Rubashkin MG, Weaver VM, Chen B-C, Betzig E, **Bartumeus F** & Krummel MF 2017, 'Visualizing dynamic microvillar search and stabilization during ligand detection by T cells', *Science*, 356, eaal3118.
- Aspillaga E, **Bartumeus F**, Starr RM, López-Sanz A, Linares C, Díaz D, Garrabou J, Zabala M & Hereu B 2017, 'Thermal stratification drives movement of a coastal apex predator', *Scientific Reports*, 7, 526.
- Campos D, **Bartumeus F** & Méndez V 2017, 'Nonstationary dynamics of encounters: Mean valuable territory covered by a random searcher', *Phys Rev E*, 96, 032111.
- de Grissac S, **Bartumeus F**, Cox SL & Weimerskirch H 2017, 'Early life foraging: Behavioural response of newly fledged albatrosses to environmental conditions', *Ecol Evol*, 00, pp 1-13.
- Millet J-P et al. & Zika Working Group in Barcelona (including **Bartumeus F**) 2017, 'Imported Zika Virus in a European City: How to Prevent Local Transmission?', *Frontiers in Microbiology*, 8, 1319.
- Farina S, Oltra A, Boada J, **Bartumeus F**, Romero J & Alcoverro T 2017, 'Generation and maintenance of predation hotspots of functionally important herbivore in a patchy habitat mosaic', *Funct Ecol*, 00, pp. 1-10.

### Selected research activities

- Member of *The Global Mosquito Alert Consortium*: A United Nations and ECSA initiative to promote citizen-based monitoring of disease-carrying mosquitoes at global scales.
- Participation at ICREA-CCCB Debates. *Planeta 2050: Nou clima, noves malalties?*
- 1 PhD. Thesis (UB); 2 Masters Thesis (UAB).
- 1 Visiting Researcher Jackelyn Kembro (IIByT CONICET) for 8 months.



## Quique Bassat

Institut de Salut Global Barcelona (ISGlobal)  
Life & Medical Sciences

Quique Bassat is an ICREA Research Professor at the Barcelona Institute of Global Health (ISGlobal). He has a degree in Medicine from the Universitat de Barcelona (UB, 1999), a specialization in pediatrics (UaB, 2004), and Masters in Tropical Medicine and International Health (UB, 2004) and Epidemiology (LSHTM, 2008). He obtained his PHD in the year 2009 (UB) with work on the treatment and clinical characterization of malaria in Africa. He has been based for several years at the Centro de Investigação em Saúde de Manhiça (CISM), in Mozambique, where he currently conducts most of his research, although in recent years he has started projects in other countries, including Morocco, Papua New Guinea, Brazil or Bhutan.

### Research interests

As a paediatrician, my research is based on the premise that there is no greater public health intervention than that which can reduce child mortality, particularly in poor contexts. To do these, I have worked in low and middle-income countries to understand and prevent malaria, yaws and other infectious diseases that most impact child survival. I have investigated in Mozambique, Morocco, Papua New Guinea, Brazil and now Bhutan, the epidemiology, aetiology and clinical characteristics of malaria, pneumonia, diarrhea, neonatal sepsis, Yaws and other infectious diseases significantly affecting child's health. I'm interested in biomarkers of host response as diagnostic and prognostic tools to help triage children and better target antibiotics. For malaria and yaws, my research is contributing to develop and test the new paradigm of disease eradication, by assessing the impact of drugs to specifically interrupt their transmission. More recently, my research has focused on improving the poor existing data on the causes of child mortality. An important contribution has been the validation of a radically innovative minimally invasive autopsy (MIA) sampling protocol.

### Selected publications

- Menéndez C et al. 2017, 'Validity of a minimally invasive autopsy for cause of death determination in stillborn babies and neonates in Mozambique: An observational study', *Plos Medicine*, 14, 6, e1002318.
- **Bassat Q** et al. 2017, 'Validity of a minimally invasive autopsy tool for cause of death determination in pediatric deaths in Mozambique: An observational study', *Plos Medicine*, 14, 6, e1002317.
- Mitjà O et al. 2017, 'Effectiveness of single-dose azithromycin to treat latent yaws: a longitudinal comparative cohort study', *Lancet Global Health*, 5, 12, E1268 - E1274.
- Galatas B, Nhamussua L, Candrinho B, Mabote L, Cistero P, Gupta H, Rabinovich R, Menendez C, Macete E, Saute F, Mayor A, Alonso P, **Bassat Q** & Aide P 2017, 'In-Vivo Efficacy of Chloroquine to Clear Asymptomatic Infections in Mozambican Adults: A Randomized, Placebo-controlled Trial with Implications for Elimination Strategies', *Scientific Reports*, 7, 1356.

### Selected research activities

1. Investigating the use of biomarkers for diagnostic and prognostic purposes
2. Defining the role of drugs as part of elimination strategies of infectious diseases (Malaria and yaws)
3. Conducting mortality surveillance with robust minimally invasive post-mortem methods
4. Development and validation of innovative methods for the diagnosis of health problems in resource-constrained countries



## Eduard Batlle

Institut de Recerca Biomèdica de Barcelona (IRB Barcelona)  
Life & Medical Sciences

Eduard Batlle joined the Institute for Research in Biomedicine (IRB Barcelona) as ICREA Research Professor and Head of the Oncology Program in 2004. His research activity has focused on the mechanisms that drive colorectal cancer (CRC) initiation and progression. Amongst other findings, his research originally identified the transcription factor Snail as a repressor of E-Cadherin gene expression during the EMT (2000); the connection between intestinal stem cells and CRC (2002-2011); and more recently a key role for TGF-beta signaling in stromal cells during metastatic colonization (2012-2015). His track record has been recognised through several awards/honours such as the Sabadell Banc Award for Biomedical Research (2010), Josef Steiner Award (2013), ERC Starting and Advanced Grants (2007, 2013), the Pezcoller foundation-EACR award (2014), the Lilly Foundation Award for Pre-clinical research (2016) and the Carmen & Severo Ochoa Foundation Prize (2016).

### Research interests

The inner layer of the intestinal tube, the intestinal epithelium, is in a constant process of renewal. Hundreds of millions of terminally differentiated intestinal cells are replaced by new cells every day during the life of an adult organism. This tremendous regenerative power is ultimately sustained by a small population of intestinal stem cells. It is believed that alterations in the functioning of intestinal stem cells account for the pathophysiology of various bowel disorders. Our laboratory studies the connection between the biology of Intestinal Stem Cells and Colon Cancer. We are also interested in the process of metastasis, the cause of death of most colorectal cancer (CRC) patients. Neither conventional chemotherapy nor current targeted therapies offer significant benefits once the disease has spread to distant organs. Furthermore, current CRC staging based on histopathology and imaging has a limited ability to predict the evolution of the disease. We have recently discovered that vast majority of genes that distinguish poor prognosis CRC subtypes are expressed by stromal cells rather than by epithelial tumor cells. It appears that metastasis relies on a tumor cell non-autonomous program driven by TGF-beta in the tumor microenvironment.

### Selected publications

- Tauriello DVF, Calon A, Lonarzo E & **Batlle E** 2017, 'Determinants of metastatic competency in colorectal cancer', *Molecular Oncology*, Volume 11, Issue 1, Pages 97-119.
- Barriga FM, Montagni E, Mana M, Mendez-Lago M, Hernando-Momblona X, Sevillano M, Guillaumet-Adkins A, Rodriguez-Esteban G, Buczaccki SJ, Gut M, Heyn H, Winton DJ, Yilmaz OH, Attolini CS, Gut I & **Batlle E** 2017, '**Mex3a Marks a Slowly Dividing Subpopulation of Lgr5+ Intestinal Stem Cells**', *Cell Stem Cell.*, 20(6):801-816.e7.
- Cortina C, Turon G, Stork D, Hernando-Momblona X, Sevillano M, Aguilera M, Tosi S, Merlos-Suárez A, Stephan-Otto Attolini C, Sancho E, **Batlle E** 2017, 'A genome editing approach to study cancer stem cells in human tumors', *EMBO Mol Med.* 9, 7, 869 - 879.
- **Batlle E** & Clevers H 2017, 'Cancer stem cells revisited', *Nature Medicine*, 23, 10, 1124 - 1134.
- Rodríguez-Franco P, Brugués A, Marín-Llauradó A, Conte V, Solanas G, **Batlle E**, Fredberg JJ, Roca-Cusachs P, Sunyer R & **Trepat X** 2017, '**Long-lived force patterns and deformation waves at repulsive epithelial boundaries.**', *Nat Mater.*, 16(10):1029-1037.

### Selected research activities

XI Premio Fundación Francisco Cobos





## Maria Carme Belarte

Institut Català d'Arqueologia Clàssica (ICAC)  
Humanities

PhD in Geography and History (1995), University of Barcelona, for my research work on proto-historic societies in Catalonia through the analysis of their domestic architecture. From 1996 to 1998 I was a post-doctoral researcher at the CNRS (Unité Mixte de Recherche 5140 - Lattes, France). From 1999 to 2003, I worked at the University of Barcelona as a post-doctoral researcher. In 2004, I took a position at the ICAC to start a research programme about the protohistoric societies and to create a research group specialized in this period. I joined ICREA in 2006; since then, I develop my research at the ICAC in collaboration with researchers of Catalan, French and Tunisian Institutions. In 2013, I received Positive Assessment from the AQU Catalunya (Catalan Evaluation Agency) in order to apply for a university full professor position.

### Research interests

The general goal of my research is to study the complex societies of the first millennium BC in western Mediterranean. I am interested in the processes leading to the formation of these societies during the Late Bronze Age as well as their social organisation during the Iron Age (first millennium BC). From a geographical point of view, my research is conducted in North-eastern Iberian Peninsula, South of France and North of Africa. More particularly, my current research focuses on two main issues. On the one hand, the study of settlement patterns, domestic architecture and social use of space. On the second hand, the analysis of rituals, mortuary practices and use of funerary space. The combined analysis of settlement and burial sites enables the understanding of social organisation, and yields information about the appearance of social differences and hierarchy in the Iron Age communities.

### Selected publications

- Portillo M, **Belarte MC**, Ramon J, Kallala N, Sanmartí J, Albert RM 2017, 'An ethnoarchaeological study of livestock dung fuels from cooking installations in northern Tunisia', *Quaternary International*, 431, A, pp 131-144.
- **Belarte MC**, Canela J, Euba I, López D, Valenzuela S 2017, '¿Depósito votivo o destrucción de necrópolis?: el silo protohistórico de El Pontarró (La Secuita, Tarragona)', *Trabajos de Prehistoria*, 74, 2, pp 355-374.
- **Belarte MC** 2017, 'The Iberian house', in De Prado G & Rovira MC, *Northern Iberians. Life, death and rituals beyond the Pyrenees*, Archaeological Museum in Zagreb, Zagreb, pp 17-21.
- Sanmartí J, Kallala N, **Belarte MC**, Ramon J, Maraoui-Telmini B, Ben Moussa M, Tarradell N, Bel Haj Nasr Loum Z, Revilla V, Jornet R, Campillo J, Montanero D, Chérif S, Fadrique T, López D, Portillo M, Valenzuela S, Cantero F, Torchani M, Jenène M, Hatmi M 2017, 'El projecte de recerca arqueològica a Althiburos i els seus encontorns (El Kef, Tunísia)', *Tribuna d'Arqueologia*, 2013-2014, pp 345-364.

### Selected research activities

- PI: *Caracterización de los asentamientos urbanos en la costa de la Iberia septentrional (Siglos VI-III a.C.): teledetección, documentación y restitución de estructuras constructivas* (Mineco HAR2015-67946-C2-2-P).
- PI: *Formes d'ocupació del territori i evolució del poblament a la Cessetània occidental durant la protohistòria (Ier mil·lenni aC)* (Dept. Cultura: 2014/100926).
- PI: *The socialization of research in the digital age: the case of the Iberian archaeology* (DIGIBERS). CERCA Institution (SUMA Programme).
- Teaching at the URV-UAB-ICAC Classical Archaeology Master.
- Member of the Organizing and Scientific Committees of the V International Congress of Experimental Archaeology. Tarragona (Spain), October 2017.
- Invited talk: 'Espacios domésticos, familia y sociedad en el mundo ibérico septentrional'. *II Jornadas de Arqueología pre y protohistórica MÁS ALLÁ DE LAS CASAS. Familias, linajes y comunidades en la protohistoria peninsular*. Cáceres (Spain). October 2017.



## Verónica Benet-Martínez

Universitat Pompeu Fabra (UPF)  
Social & Behavioural Sciences

Before joining ICREA and Universitat Pompeu Fabra in 2010, I held faculty positions at the University of California (Riverside) and the University of Michigan (Ann Arbor). I obtained a PhD in Psychology from the University of California (Davis) and was a funded Postdoctoral Research Fellow at the University of California (Berkeley). I am an appointed Fellow of the Society for Personality and Social Psychology, was an Associate Editor for the "Journal of Personality and Social Psychology" (2009-2015), and I am an Editorial Board Member for several top-tier psychology journals. My research has been funded by government and private grants from the U.S., Catalonia, and the EU, and by intramural funds from the University of Michigan, the University of California, and Universitat Pompeu Fabra.

### Research interests

Using correlational and experimental research designs and different types of data (survey, behavioral, social network) I examine the following issues: ACCULTURATION/MULTICULTURALISM: Dynamics and socio-cognitive correlates of managing two or more cultural affiliations and identities; Individual differences in bicultural identity structure; Biculturalism and social-networks; Consequences of biculturalism (social, cognitive, and adjustment-related). CULTURE AND SELF-CONCEPT: Identification and measurement of culture-specific and -general personality constructs; Interplay of cultural values and personality in predicting well-being; Bilingualism and self-schemas. CROSS-CULTURAL RESEARCH METHODS: Cultural/linguistic issues in the development and adaptation of psychological scales and tests; Combined emic-etic methodology; Psychometrics of multi-group cultural comparisons.

### Selected publications

- Repke L & **Benet-Martínez V** 2017, 'Conceptualizing the dynamics between bicultural identification and personal social networks. Special Issue: Multiple Identities Management: Effects on (of) Identification, Attitudes, Behaviour and Well-being', *Frontiers in Psychology*, 8, 469.
- Naumann L, **Benet-Martínez V** & Espinoza P 2017, 'Correlates of political ideology among US-born Mexican Americans: Cultural identification, acculturation attitudes, and socioeconomic status', *Social Psychological and Personality Science*, Vol. 8(1) 20-28.
- Schwartz S, Birman D, **Benet-Martínez V** & Unger J 2017, 'Biculturalism: Negotiating multiple cultural streams', In Schwartz S & Unger J (Eds.), 'The Oxford handbook of acculturation and health', New York, NY: *Oxford University Press*.
- Medeiros M, Fournier P & **Benet-Martínez V** 2017, 'The language of threat: Linguistic perceptions and intergroup relations', *Acta Politica*, Volume 52, Issue 1, pp 1-22.

### Selected research activities

- 6 *invited talks* (London School of Economics, UK; University of Newcastle, Australia; Universitat Autònoma de Barcelona, Spain; IESE Business School, Spain; VU Amsterdam, The Netherlands; University of Lleida, Spain).
- 5 *conference presentations* (18<sup>th</sup> convention of Society for Personality and Social Psychology, San Antonio, TX; 2<sup>nd</sup> International Convention of Psychological Science, Vienna, Austria; 18<sup>th</sup> Meeting of the European Association of Social Psychology, Granada, Spain; European regional congress of the International Association for Cross-Cultural Psychology, Warsaw, Poland; EASP-SPSSI Small Group Meeting, Utrecht, The Netherlands).
- *Grant & Applicant Reviewer*: European Research Council; Flanders Research Foundation; MINECO; LaCaixa.



## Jens Biegert

Institut de Ciències Fotòniques (ICFO)  
Experimental Sciences & Mathematics

Jens Biegert received his PhD from the TU Munich in 2001, and headed research on ultrafast pulse generation and strong field physics at ETH Zurich from 2001 until 2006. In 2007 he was appointed ICREA Research Professor and established the Attoscience and Ultrafast Optics group at ICFO. He has over 130 journal publications, authored 7 book chapters (2 chapters are published in encyclopedias), given over 100 invited talks and edited one book. He has served on several conference and editorial panels and became Associate Editor of AIP Photonics in 2015. He is fellow of the German National Academic Foundation, was recipient of a Marie Curie Fellowship in 2001, the OSA Allen Price in 2004, was named Research Assistant Professor in the USA in 2001, Research Professor in 2012 and was elected Fellow of the Optical Society of America OSA in 2015.

### Research interests

The aim of our research is the investigation of ultrafast events that are caused by electrons inside atoms, molecules, solids and biological matter. The power of attoscience and ultrafast optics lies in the incredible time resolution that gives access to observing the triggering events that are caused by electronic rearrangement and ultimately lead, to molecular dissociation, chemical reactions, excitonic energy transfer or even biological function. Our research is diverse and includes pioneering development of new light sources that are key enablers for coherent soft-X-ray generation across the water window (300-500 eV) and attosecond emission below the atomic unit of time (24 as). These sources enable element selective and time resolved measurements, lensless imaging as well as using electron recollision to image bond distances in molecules. In 2016, we succeeded in taking the first snapshots of how a bond breaks in a single molecule and how one of its protons gets ejected. The measurement demonstrated tracking all atoms of an individual molecule thereby achieving a combined sub-atomic spatial and attosecond temporal resolution. Moreover, we established the first source of isolated attosecond soft X-ray pulses which achieves real-time measurements of electronic dynamics on the attosecond scale in combination with the element selectivity of X-rays. A first investigation shows correlated electron dynamics of a 2D material in real time.

### Selected publications

- Suarez N, Chacon A, Perez-Hernandez JA, **Biegert J**, Lewenstein M & Ciappina MF 2017, 'High-order-harmonic generation in atomic and molecular systems', *Physical Review A*, 95, 3, 033415.
- Pullen MG, Wolter B, Wang X, Tong X; Sclafani M, Baudisch M, Pires H, Schroeter CD; Ullrich J, Pfeifer T, Moshhammer R, Eberly JH & **Biegert J** 2017, 'Transition from nonsequential to sequential double ionization in many-electron systems', *Physical Review A*, 96, 3, 033401.
- Elu U, Baudisch M, Pires H, Tani F, Frosz MH, Koettig F, Ermolov A, Russell PSJ & **Biegert J** 2017, 'High average power and single-cycle pulses from a mid-IR optical parametric chirped pulse amplifier', *Optica*, 4, 9, 1024 - 1029.
- Cousin SL, Di Palo N, Buades B, Teichmann SM, Reduzzi M, Devetta M, Kheifets A, Sansone G & **Biegert J** 2017, 'Attosecond Streaking in the Water Window: A New Regime of Attosecond Pulse Characterization', *Physical Review X*, 7, 4, 041030.



## Bart Bijmens

Universitat Pompeu Fabra (UPF)  
Engineering Sciences

MSc in Electronic Engineering and PhD in Medical Sciences (1997, KU Leuven, Belgium). Associate Professor of Cardiovascular Imaging and Cardiac Dynamics at the Faculty of Medicine in Leuven (1998-2004). He supervised clinical research at St. George's Hospital in London (2005-2006). In 2007, he was resident Visiting Professor at the University of Zagreb, Croatia. Since Sept. 2008, he is an ICREA Research Professor at the Department of Information and Communication Technologies of the Universitat Pompeu Fabra.

B. Bijmens is recognised as international expert in pathophysiological concepts and technical implementation in assessing CV diseases, with a reputation of being able to explain basic pathophysiology principles and to put technical developments in context. This resulted in many invitations to lecture at major International Conferences and in leading Research Centres. He is requested by centres all over the world for advice on research projects and papers.

### Research interests

Translational Cardiovascular Pathophysiology, focussing on assessing cardiac function and understanding and recognising the changes induced by disease and how treatment strategies can be used to modulate this remodelling. This is approached by integrating information handling and processing techniques, combined with basic knowledge on cardiovascular pathophysiology in order to advance clinical sciences. This implies defining the research approach from the basic understanding of the disease towards the clinical study; selecting/designing the appropriate investigational tools to assess the relevant clinical parameters; quantifying the diagnostic information (from clinical information to imaging data) to extract the most pertinent information and interpreting the results and relate them to the pathophysiological knowledge.

Recent projects include the combination of computational modelling approaches with machine learning in order to find interpretable and easy to implement/deploy techniques for the identification of patients at risk for adverse events, especially mothers and fetuses in lower-income countries.

### Selected publications

- Gonzalez-Tendero A, Zhang C, Balicevic V, Cardenes R, Loncaric S, Butakoff C, Paun B, Bonnin A, Garcia-Canadilla P, Munoz-Moreno E, Gratacos E, Crispi F & **Bijmens B** 2017, 'Whole heart detailed and quantitative anatomy, myofibre structure and vasculature from X-ray phase-contrast synchrotron radiation-based micro computed tomography', *European Heart Journal-cardiovascular Imaging*, 18, 7, 732 - 741.
- Garcia-Canadilla P, Rodriguez JF, Palazzi M, Gonzalez-Tendero A, Schonleitner P, Balicevic V, Loncaric S, Luiken JJFP, Ceresa M, Camara O, Antoons G, Crispi F, Gratacos E & **Bijmens B** 2017, 'A 2D electromechanical model of a cardiomyocyte to assess intra-cellular regional mechanical heterogeneities', *Plos One*, 12, 8, e0182915.
- Sanchez-Martinez S, Duchateau N, Erdei T, Fraser AG, **Bijmens BH** & Piella G 2017, 'Characterization of myocardial motion patterns by unsupervised multiple kernel learning', *Medical Image Analysis*, 35, 70 - 82.
- Paun B, **Bijmens B**, Iles T, Iazzo PA & Butakoff C 2017, 'Patient independent representation of the detailed cardiac ventricular anatomy', *Medical Image Analysis*, 35, 270 - 287.
- Sarvari SI, Sitges M, Sanz M, Tolosana Viu JM, Edvardsen T, Muri Stokke T, Mont L & **Bijmens B** 2017, 'Left ventricular dysfunction is related to the presence and extent of a septal flash in patients with right ventricular pacing', *Europace*, 19, 2, 289 - 296.
- Sarvari SI, Rodriguez-Lopez M, Nunez-Garcia M, Sitges M, Sepulveda-Martinez A, Camara O, Butakoff C, Gratacos E, **Bijmens B** & Crispi F 2017, 'Persistence of Cardiac Remodeling in Preadolescents With Fetal Growth Restriction', *Circulation-cardiovascular Imaging*, 10, 1, e005270.



**David Block**  
 Universitat de Lleida (UdL)  
 Humanities

I am ICREA Research Professor in Sociolinguistics in the Departament d'Anglès i Lingüística, Universitat de Lleida. There I am a member of the Cercle de Lingüística Aplicada. I am also Fellow of the Academy of the Social Sciences (UK); Visiting Professor at University College London, Institute of Education; and editor of the Routledge book series Political Economy and Applied Linguistics. I joined ICREA in September 2012 after 16 years at the University College London Institute of Education, where I was Professor of Languages in Education. Prior to that, I worked in Barcelona for 18 years as an English teacher in centres such as ESADE, and as a Lecturer in Applied Linguistics at the Universitat de Barcelona and the Universitat Autònoma de Barcelona. I completed my PhD in Applied Linguistics at the University Lancaster (UK) in 1995.

### Research interests

I have published articles, chapters and books on a variety of topics in applied linguistics, including second language identities, bi/multilingualism and language in society. At present, I am incorporating into my work past and present thinking in political economy (from Smith and Marx to Piketty and Harvey), as I develop conceptual frameworks for understanding globalization, internationalisation, multiculturalism, bi/multilingualism, identity and social movements. In my most recent work I have focussed on neoliberalism as the dominant ideology/rationality in contemporary societies, inequality in 21st century societies, and class as a key dimension of being in the world. This orientation is reflected in three books, *Neoliberalism and Applied Linguistics* (Routledge, 2012; co-authored, with John Gray and Marnie Holborow), *Social Class in Applied Linguistics* (Routledge, 2014) and *Political Economy in Sociolinguistics* (Bloomsbury, 2018), as well as numerous articles and chapters appearing in 2017, 2018 and 2019. I am currently working on a book entitled *Post-truth, Ignorance and Corrupt Discourses* for Palgrave Macmillan.

### Selected publications

- **Block D** 2017, 'Political economy in applied linguistics research', *Language Teaching*, vol. 50, no. 1, pp 32-64.
- **Block D** 2017, 'Discourses in conflict: resource inequality, class warfare and home repossessions', *Social Semiotics*, 27, 3, 255 - 264.
- **Block D** 2017, 'Migration, language and social class', in Canagarajah S (ed) *Routledge handbook on migration and language*, Routledge, London, pp. 133-148.
- **Block D** 2017, 'Researching language and social class in education', in King K & Lai YJ (eds) *Research methods. Encyclopedia of language and education, Volume 10*, 3rd edition, Springer, New York, pp. 159-169.
- **Block D** 2017, 'Journey to the centre of language teacher identity', in G. Barkhuizen (ed.) *Reflections on language teacher identity research*, Routledge, London, pp. 31-36.
- **Block D** 2017, 'Positioning theory and life-story interviews: discursive fields, gaze and resistance', In Bagga-Gupta S, Lyngvaer Hansen A & Feilberg J (eds) *Identity revisited and reimagined. Empirical and theoretical contributions on embodied communication across time and space*. Berlin: Springer, pp. 25-40.

### Selected research activities

- \* Co-PI, MINECO Project FFI2016-76383-P, 2016-2019: *Towards an empirical assessment of the impact of English-medium instruction at university: language learning, disciplinary knowledge and academic identities*(ASSEMID)
- \* Post-doc tutor, Juan de la Cierva. IJCI-2015-25191, 2017-2019: Victor Corona. Exploring the class and race-based subjectivities of the children of immigrants in Catalonia
- \* 11 conference papers given in 2017
- \* Finished the book *Political Economy in Sociolinguistics: Neoliberalism, Inequality and Social Class* for Bloomsbury (to appear in January 2018)
- \* Ongoing PhD supervision (5 students)
- \* Editor, Routledge book series *Language, Society and Political Economy*
- \* Associate Editor, *Applied Linguistics Review*
- \* Reviewing academic journal articles, grant proposals and book proposals



## Cedric Boeckx

Universitat de Barcelona (UB)  
Humanities

Cedric Boeckx is Research Professor at the Catalan Institute for Advanced Studies (ICREA), a member of the Universitat de Barcelona Institute for Complex Systems, and a member of the section of General Linguistics at the Universitat de Barcelona. Before joining ICREA, he was Associate Professor of Linguistics at Harvard University. He is the author of numerous books, including *Islands and Chains* (2003), *Linguistic Minimalism* (2006), *Bare Syntax* (2008), *Language in Cognition* (2009), *Syntactic Islands* (2012), *Elementary Syntactic Structures* (2014), and the editor of numerous volumes. He is also the founding co-editor of the Open Access journal *Biolinguistics*, and the founding editor of the Oxford University Press monograph series 'Oxford Studies in Biolinguistics'.

### Research interests

My current research focuses on developing new ways of advancing the biolinguistic program, a growing interdisciplinary enterprise seeking to uncover the biological foundations of the human language faculty, a critical part of 'human cognitive biology'. My graduate training and early career were in theoretical linguistics, but my more recent work has a more explicit biological orientation. My current projects are all intended to facilitate integration among disciplines (linguistics, neuroscience, evolutionary biology, and genetics), and lead to better experimental testing of theoretical hypotheses, as well as to more solid interpretations of experimental findings. I also seek to exploit the full pluralism characteristic of the life sciences to force a rethinking of long-held assumptions in theoretical linguistics and other domains of cognitive science.

### Selected publications

- **Boeckx C** 2017, 'Language Evolution', In *Human Brain Evolution (Evolution of Nervous Systems series, vol. 4)*, ed. T. Preuss, 325-339. London: Elsevier.
- **Boeckx C** 2017, 'The language-ready head: Evolutionary considerations', *Psychonomic Bulletin & Review*, 24, 1, 194 - 199.
- Theofanopoulou C, **Boeckx C** & Jarvis ED 2017, 'A hypothesis on a role of oxytocin in the social mechanisms of speech and vocal learning', *Proceedings Of The Royal Society B-biological Sciences*, 284, 1861, 20170988.
- Theofanopoulou C, Gastaldon S, O'Rourke T, Samuels BD, Messner A, Martins PT, et al. 2017, 'Self-domestication in *Homo sapiens*: Insights from comparative genomics', *PLoS ONE* 12(10): e0185306.
- Samuels B, **Boeckx C** & Hauser M 2017, 'Looking for UG in animals: a case study in phonology', In *Oxford handbook of Universal Grammar*, ed. I. Roberts, 527-546. Oxford: Oxford University Press.
- **Boeckx C**, Martins PT & Leivada E 2017, 'Biolinguistics', In *The Cambridge handbook of historical syntax*, ed. I. Roberts and A. Ledgeway, 629-641. Cambridge: Cambridge University Press.
- Samuels B, Martins PT & **Boeckx C** 2017, 'Linguistic knowledge by descent: an evolutionary approach to stress typology', *Journal of the Phonetic Society of Japan*, 21, 71-78.
- **Boeckx C** 2017, 'A conjecture about the neural basis of recursion in light of descent with modification', *Journal of Neurolinguistics*, 43, B, 193 - 198.

### Selected research activities

In the course of 2017, Cedric Boeckx was a member of the international advisory board and research team of a major grant "Studies of language evolution for co-creative human communication" sponsored by the Ministry of Education, Culture, Sports, Science and Technology-Japan, 2017-2022. He was also a visiting Fellow at Max Planck Institute for Psycholinguistics, and coordinated (Language Evolution project), and coordinated a new project funded by the Spanish Ministry of Economy and Competitiveness.



## Luca Bonatti

Universitat Pompeu Fabra (UPF)  
Social & Behavioural Sciences

I graduated in Philosophy at the University of Milan, Italy, and received my PhD in Philosophy of Mind at Rutgers, N.J.. I have been a member of the *Laboratoire de Sciences Cognitives et Psycholinguistique*, Paris, where I learned the little experimental psychology I know of, thanks to the help of friends and colleagues. I then entered the University of Paris 8, France as an associate professor. I moved to Italy at SISSA, Trieste, then to the University of Nantes, France, as a full professor, and finally to Barcelona, at the Universitat Pompeu Fabra, as an ICREA professor. I have also been visiting professor at the University of Budapest, Hungary, at the University of the Balearic Islands, Spain, and at New York University.

### Research interests

I am fascinated by *thinking*, by the very fact that we conceive structured states of mind that can be true or false, that can be imaginary or real. I am fascinated by how pervasively thinking populates our mental life. We reason when we read, or when we speak, but also when we walk around, or when we dream. Indeed, thinking is at the roots of the unique cognitive place humans have in the animal kingdom. Yet, the nature and origin of human thought, and with it, of our ability to acquire and communicate knowledge, is one of the outstanding mysteries in the cognitive sciences. I investigate its early structure, finding ways to describe the potential primitives of the scaffoldings supporting the combinatorial structure of human thought. I try to reveal bits and pieces of the representations underlying our abilities to come to conclusions, to form expectations, or to find what happens next, both when we deal with the physical world around us and the psychological world inside us. I approach these issues with a mix of experimental techniques, with adults and infants. When time allows, I also work on how infants and adults find linguistic structure in speech, and how we can pack so much conceptual information inside those tiny and odd bits of sounds that we call words.

### Selected publications

- Endress AD, Korbjovkov I & **Bonatti LL** 2017, 'Category-based grouping in working memory and multiple object tracking', *Visual Cognition*, 25, 9-10, 868 - 887.

### Selected research activities

#### Selected Invited Conferences

- Jan 10-11, McDonnell Foundation Grant Focused Seminar on Logical Thinking, Budapest, Jan 2017. Co-Organizer and speaker
- Jan 26, DTIC Integrative Research Seminars, Universitat Pompeu Fabra: Invited speaker
- Mar 18, University of Verona, Italy Master in Early Infancy, Invited speaker
- May 3, University of Bristol, Psychology Department. Invited speaker
- June 11-14, McDonnell Foundation Grant Plenary Conference, San Diego, June 2017. Co-organizer and discussant
- Sept 8, Università di Venezia Ca' Foscari, Venice, Linguistic Department. Invited speaker.



## Christian Brander

Institut de Recerca de la Sida - IrsiCaixa (IrsiCaixa)  
Life & Medical Sciences

Christian Brander obtained his PhD in Immunology from the University of Bern in 1994 for his studies on T-cell hypersensitivity to Penicillin and work on the mechanisms of exogenous antigen re-presentation on HLA class I. He completed his post-doctoral training at Massachusetts General Hospital in Boston focusing on T cell immunity to HIV and studying the impact that host genetics have on these immune responses. He was Associate Professor at Harvard Medical School before joining ICREA in 2008 with an appointment at the IrsiCaixa AIDS Research Institute to continue his work on cellular immunity to viral infections (HIV, HCV and herpesviruses), especially also in the transplantation setting. He is a co-inventor of the HIV "HTI" immunogen, which is developed clinically by Aelix Therapeutics Inc. where he is a co-founder and CSO. He serves as the scientific director of the HIVACAT program and holds an Associate Professor position at the University of Vic and Central Catalonia.

### Research interests

Our group's aim is to understand the cellular immunity to viral infections in the immune compromised host, including HIV infected subjects and individuals undergoing organ transplantation. Using complementary sets of immune analyses and integrated -omics approaches, we seek to identify functional correlates of virus control and to explore their underlying cellular and molecular mechanisms. A main focus lies on the definition of biomarkers of controlled HIV infection, for which we have established unique cohorts of HIV-infected and HIV-exposed, yet uninfected individuals. We developed and apply new ("boosted") flow cytometry tools and combine methylome and communicome analyses to assess to what degree and at what stages of HIV infection the effector function profiles of virus-specific T cells are epigenetically controlled. Our studies aim to refine our future clinical trials of therapeutic HIV vaccination and to guide clinical management of viral infections in transplanted individuals

### Selected publications

- Hartigan-O'Connor D-J & **Brander C** 2017, 'Chapter 6: Immunology, *Fundamentals of HIV Medicine*.
- Ruiz-Riol M, Berdnik D, Llano A, Mothe B, Galvez C, Perez-Alvarez S, Oriol-Tordera B, Olvera A, Silva-Arrieta S, Meulbroek M, Pujol F, Coll J, Martinez-Picado J, Ganoza C, Sanchez J, Gomez G, Wyss-Coray T, **Brander C**. Identification of Interleukin-27 (IL-27)/IL-27 Receptor Subunit Alpha as a Critical Immune Axis for In Vivo HIV Control. *J. Virol*, 2017: 91:16, UNSP e00441-17.
- Olvera A, Martinez JP, Casadellà M, Llano A, Rosàs M, Mothe B, Ruiz-Riol M, Arsequel G, Valencia G, Noguera-Julian M, Paredes R, Meyerhans A, **Brander C**. 2017. Benzyl-2-acetamido-2-deoxy- $\alpha$ -D-galactopyranoside increases human immunodeficiency virus replication and viral outgrowth efficacy in vitro. *Frontiers in Immunology*, in press
- Oriol-Tordera B, Llano A, Ganoza C, Cate S, Hildebrand W, Sanchez J, Calle ML, **Brander C** & Olvera A 2017, 'Impact of HLA-DRB1 allele polymorphisms on control of HIV infection in a Peruvian MSM cohort', *HLA*, 90(4):234-237.
- Rosas-Umbero M, Mothe B, Noguera-Julian M, Bellido R, Puertas MC, Carrillo J, Rodriguez C, Perez-Alvarez N, Cobarsi P, Gomez CE, Esteban M, Luis Jimenez J, Garcia F, Blanco J, Martinez-Picado J, Paredes R, **Brander C**. Virological and immunological outcome of treatment interruption in HIV-1-infected subjects vaccinated with MVA-B. *Plos One*, 2017: 12, 9, e0184929.

### Selected research activities

- Deputy Editor, Journal of Translational Medicine
- Editor, Los Alamos National Laboratories, HIV Immunology Database
- Scientific Dir. of the Catalan program for the development of HIV vaccines (HIVACAT)
- Program Organizing Committee R4P, Madrid 2018
- Scientific Advisory Board for EU- and EDCTP-funded projects (PEACHI, GREAT)
- PhD thesis advisor/examiner in Oxford, Basel, Cape Town, Barcelona
- Invited plenary talks at GeSIDA (Vigo), ENABLE (BCN), CITBM (Lima), Vall d'Herbon (BCN), World Immune Profiling Congress 2017 (BCN), NIH Grant Workshop (BCN)





Stefan T. Bromley  
Universitat de Barcelona (UB)  
Engineering Sciences

Stefan Bromley (1971) is an ICREA Research Professor at the Institute of Theoretical and Computational Chemistry at the University of Barcelona (IQTC-UB) where he heads the Nanoclusters and Nanostructured Materials group. He obtained his PhD in Computational Physics (University of Southampton, UK) in 1997 and has held research posts in the UK (Postdoctoral fellow, Royal Institution), the Netherlands (Associate Professor, Delft University of Technology) and Spain (Ramón y Cajal fellow, UB). He has published ~150 WoS-listed articles and 8 book chapters, which have received over 4000 citations (h-index = 33), and has given many invited talks about his work at international conferences and academic institutions. He is also editor of a book on "Computational Modelling of Inorganic Nanomaterials".

### Research interests

With the constant technological drive for device miniaturisation, materials are increasingly being used at scales of only a few 100s or 1000s of atoms (i.e. the nanoscale). Such nanomaterials often display novel size-dependent properties compared to materials at everyday length scales. Using powerful supercomputers and both atomistic and quantum modelling methods, we aim to provide a detailed predictive understanding of the structural, electronic and chemical properties of nanomaterials. Our focus is on how nanomaterials evolve with increasing size, and designing new materials from nanoscale building blocks. Our research follows three main themes: (i) nanoclusters and nanostructured materials for energy applications (e.g. TiO<sub>2</sub>, ZnO), (ii) nucleation and properties of astronomically important nanomaterials (e.g. TIC, silicates), (iii) design of nanostructured materials using organic molecular building blocks for electronics/spintronics.

### Selected publications

- Ko KC, **Bromley ST**, Lee JY & Illas F 2017, 'Size-Dependent Level Alignment between Rutile and Anatase TiO<sub>2</sub> Nanoparticles: Implications for Photocatalysis', *Journal Of Physical Chemistry Letters*, 8, 22, 5593 - 5598.
- Alcon I, Vines F, Moreira IPR & **Bromley ST** 2017, 'Existence of multi-radical and closed-shell semiconducting states in post-graphene organic Dirac materials', *Nature Communications*, 8, 1957.
- Alcon I, Reta D, Moreira IPR & **Bromley ST** 2017, 'Design of multi-functional 2D open-shell organic networks with mechanically controllable properties', *Chemical Science*, 8, 2, 1027 - 1039.
- Franco C, Mayorga Burrezo P, Lloveras V, Caballero R, Alcon I, **Bromley ST**, Mas-Torrent M, Langa F, Lopez Navarrete JT, Rovira C, Casado J, Veciana J 2017, 'Operative Mechanism of Hole-Assisted Negative Charge Motion in Ground States of Radical-Anion Molecular Wires', *Journal Of The American Chemical Society*, 139, 2, 686 - 692.
- Lamiel-Garcia O, Cuko A, Calatayud M, Illas F & **Bromley ST** 2017, 'Predicting size-dependent emergence of crystallinity in nanomaterials: titania nanoclusters versus nanocrystals', *Nanoscale*, 9, 3, 1049 - 1058.
- Kerkeni B, Bacchus-Montabonel M-C & **Bromley ST** 2017, 'How hydroxylation affects hydrogen adsorption and formation on nanosilicates', *Molecular Astrophysics*, 7, 1 - 8.
- Vines F, Lamiel-Garcia O, Illas F & **Bromley ST** 2017, 'Size dependent structural and polymorphic transitions in ZnO: from nanocluster to bulk', *Nanoscale*, 9, 28, 10067 - 10074.
- Mora-Fonz D, Lazauskas T, Woodley SM, **Bromley ST**, Catlow CRA & Sokol AA 2017, 'Development of Interatomic Potentials for Supported Nanoparticles: The Cu/ZnO Case', *Journal Of Physical Chemistry C*, 121, 31, 16831 - 16844.



## Sandra Bruçet

Universitat de Vic - Universitat Central de Catalunya (UVic)  
Experimental Sciences & Mathematics

I was born in Girona in 1976. I graduated in 1998 and obtained my PhD in Biology in 2003 at University of Girona. After that I was a postdoc at the University of Oslo (2006) and the National Environmental Institute of Denmark (2006-2008). From 2009 to 2012, I worked as a research scientist at the European Commission-Joint Research Centre (Italy). I was also a Visiting Scientist at the Middle East Technical University, Turkey. In 2012, I was hired at University of Vic to set up a research group on aquatic ecology from scratch. In 2013, I obtained a Marie Curie Intra European Fellowship to work at the University of Aarhus (Denmark). In September 2015, I was appointed ICREA Research professor at University of Vic. Currently, I am heading the Research Group on Aquatic Ecology (GEA) that hosts ten members. GEA researchers are members of the newly created Chair on Water, Nature and Wellness.

### Research interests

The research of our group focuses on the response of aquatic ecosystems and their biodiversity to global changes, such as eutrophication, habitat destruction or global warming. We used the organisms' size structure as an alternative to taxonomical approaches to assess biodiversity and ecosystem processes. We are also interested in basic and applied aspects of ecological theories relating organisms' body size, metabolism and temperature. Our research is holistic including the whole trophic structure from phytoplankton to fish. We focus on different aquatic ecosystems (lakes, rivers, ponds, wetlands) and use complementary approaches such as experiments, latitudinal comparisons and models. Ultimately, we aim to apply our research results to solving problems related with the conservation of aquatic ecosystems, especially those affecting autochthonous species and degraded habitats.

### Selected publications

- Benejam L, Teixeira-de Mello F, Meerhoff M, Loureiro M, Jeppesen E & **Bruçet S** 2016, 'Assessing effects of change in land use on size-related variables of fish in subtropical streams'\*, *Canadian Journal of Fisheries and Aquatic Sciences*. 73, 4, 547 - 556.
- Mehner T, Keeling C, Emmrich M, Holmgren K, Argillier C, Volta P, Winfield I & **Bruçet S** 2016, 'Effects of fish predation on density and size spectra of prey fish communities in lakes'\*, *Canadian Journal of Fisheries and Aquatic Sciences*. 73, 4, 506 - 518.
- **Bruçet S**, Tavşanoğlu ÜN, Özen A, Levi EE, Bezirci G, Çakıroğlu Aİ, Jeppesen E, Svenning J-C, Ersoy Z & Beklioğlu M 2017, 'Size-based interactions across trophic levels in food webs of shallow Mediterranean lakes', *Freshwater Biology*, 62, 1819-1830.
- Ersoy Z, Jeppesen E, Sgarzi S, Arranz I, Cañedo-Argüelles M, Quintana XD, Landkildehus F, Lauridsen TL, Bartrons M & **Bruçet S** 2017, 'Size-based interactions and trophic transfer efficiency are modified by fish predation and cyanobacteria blooms in Lake Mývatn, Iceland', *Freshwater Biology*, 62, pp 1942-1952.
- Cañedo-Argüelles M, Sgarzi S, Arranz I, Quintana XD, Ersoy Z, Landkildehus F, Lauridsen TL, Jeppesen E & **Bruçet S** 2017, 'Role of predation in biological communities in naturally eutrophic sub-Arctic Lake Mývatn, Iceland', *Hydrobiologia*, 790, pp 213-223.
- Cañedo-Argüelles M, **Bruçet S** et al. 2017, 'Effects of potash mining on river ecosystems: an experimental study', *Environmental pollution*, 224, pp 759 - 770.

\*Both publications came out in 2017 with 2016 date.

### Selected research activities

- PhD thesis Ignasi Arranz: The body size structure of lake fish and its response to biotic interactions and environmental variation
- Project Fundació Andrena: Management and restoration of temporary ponds and wetlands in Can Torres (Alt Empordà, Spain).
- Plenary talk at International Conference Fresh Blood for FreshWater: Ecological impacts of global warming and water abstraction on lakes.



## Francesc Burjachs

Institut Català de Paleoecologia Humana i Evolució Social (IPHES)  
Humanities

Born on 3rd August 1955 in Blanes, Catalonia. Dissertation on Paleopalynology, Autonomous University of Barcelona (UAB, 1985). DEA on Quaternary, MNHN-IPH, Paris (1986). PhD in Biological Sciences (UAB, 1990). Contributor of the Botany Department (UAB, 1979-1990). Director and co-director of several archaeological excavations. Hired researcher at Institute of Earth Sciences Jaume Almera, CSIC, Barcelona (1990-1998). Research Assistant at Catholic University of Louvain-La-Neuve (1994). Associate Professor at University Rovira i Virgili (URV), Tarragona since 1998. ICREA Research Professor at URV (2001-2007) and at the Catalan Institute of Human Palaeoecology and Social Evolution (IPHES) since 2008. Training stages of palynological research abroad: CRA, Sophia Antipolis, France (1978) with Prof. M. Girard; IPH, Paris (1985-1987) with Prof. J. Renault-Miskovsky, and University La Sapienza, Roma (1991) with Prof. M. Follieri. He has published more than 340 papers and reports.

### Research interests

My investigation seeks to understand the climatic changes that happened along human evolution. This information is important to appreciate some of the factors which have influenced our evolution towards the current species. More precisely, my work is developed in the science of Palynology, which basically consists in the study of the fossil pollen trapped in the soil that our ancestors stepped on. In this way, we can describe the landscape in which they lived, the climate they endured, the vegetables they ate, etc.

### Selected publications

- **Burjachs F**, Pérez-Obiol R, Picornell LI, Revelles J, Servera G, Expósito I & Yll EI 2017, 'Overview of environmental changes and human colonization in the Balearic Islands (Western Mediterranean) and their impacts on vegetation composition during the Holocene', *Journal of Archaeological Science: Reports*, vol 12, 782-793.
- Revelles J, **Burjachs F**, Morera N et al 2017, 'Use of space and site formation processes in a Neolithic lakeside settlement. Pollen and non-pollen palynomorphs spatial analysis in La Draga (Banyoles, NE Iberia)', *Journal of Archaeological Science*, vol. 81, pp 101-115.
- Expósito I, **Burjachs F** & Alluè E 2017, 'Filling the gaps: the Non Pollen Palynomorphs contribution to the knowledge of Sierra de Atapuerca caves local environment during the Pleistocene', *Quaternary International*, vol. 433, pp. 224-242.
- Expósito I, **Burjachs F** & Vergès JM 2017, 'Human trace on the landscape during the Holocene at El Mirador Cave (Sierra de Atapuerca, Spain): The palynological evidence', *The Holocene*, vol 27 (8), 1201-1213.
- Sánchez-Goñi MF, Desprat S, Daniau A-L, Bassinot F, Blaauw M, **Burjachs F** et al 2017, 'The ACER pollen and charcoal database: a global resource to document vegetation and fire response to abrupt climate changes during the last glacial period', *Earth System Scientific Data*, 9, 679-695.
- **Hardy K**, Radini A, Buckley S, Blasco R, Copeland L, **Burjachs F**, Girbal J, Yll R, Carbonell E & Bermúdez-de Castro JM 2017, 'Diet and environment 1.2 million years ago revealed through analysis of dental calculus from Europe's oldest hominin at Sima del Elefante, Spain', *The Science of Nature - Naturwissenschaften*, vol 104, no. 1, pp 2.
- Huguet R, Vallverdú J, Rodríguez XP, Terradillos M, Bargalló A, Lombera A, Menéndez L, Modesto M, Van der Made J, **Burjachs F**, Bermúdez-de Castro JM, Carbonell et al 2017, 'Level TE9c of Sima del Elefante (Sierra de Atapuerca, Spain): A comprehensive approach', *Quaternary International*, vol 433, 278-295.



## Andreu Cabot

Institut de Recerca en Energia de Catalunya (IREC)  
Engineering Sciences

I graduated in Physics in 1998, and in 2003 I received my PhD from the University of Barcelona. I then worked from 2004 to 2007 as a postdoctoral researcher in the University of California at Berkeley and in the Lawrence Berkeley National Laboratory, under Prof. A. Paul Alivisatos' guidance. I returned to the Electronics Department of the University of Barcelona in 2007, and in 2009 I joined the Catalonia Institute for Energy Research - IREC to create the Functional Nanomaterials Group. Now, as ICREA Research Professor, I lead a team of approximately 15 people devoted to the preparation and characterization of metal and semiconductor nanostructures, the assessment of their functional properties and their bottom-up assembly to fabricate high efficiency and cost-effective energy conversion and storage devices.

### Research interests

My research focuses on the design, production and manipulation of nanocrystals and nanomaterials, their functional characterization and their technological application in the energy field. I use solution-based processes to produce these nanocrystals and to assemble them to the macroscale. Solution-based methods allow both a unique control over composition and crystal phase at the nanometer scale and a high versatility in the development of socially and economically-relevant technologies. From an application point of view, I have centered my work in the development of materials for energy conversion and storage. In particular, my group develops solution-processed solar cells using spray deposition technologies, thermoelectric nanocomposites from the bottom-up assembly of colloidal nanocrystals and multi-metallic and metal-metal oxide nano-heterostructures for catalysis, including photo and electrocatalysis.

### Selected publications

- Ibanez M, Hasler R, Liu Y, Dobrozhan O, Nazarenko O, Cadavid D, **Cabot A** & Kovalenko MV 2017, 'Tuning p-Type Transport in Bottom-Up-Engineered Nanocrystalline Pb Chalcogenides Using Alkali Metal Chalcogenides as Capping Ligands', *Chemistry Of Materials*, 29, 17, 7093 - 7097.
- Carvalhaes Dias P, Morais F, Duarte L, Franca M, Spengler A & **Cabot A** 2017, 'Measurement of the Electric Energy Storage Capacity in Solar Thermoelectric Generators Energy Harvesting Modules', *International Journal of Distributed Sensor Networks*, 13, 4, 1550147716685423.
- Sui S, Liao Y, Xie Y, Wang X, Li L, Luo Z, Zhou W, Wang G, Pan K & **Cabot A** 2017, 'High Catalytic Activity of W18O49 Nanowire-Reduced Graphite Oxide Composite Counter Electrode for Dye-Sensitized Solar Cells', *Chemistryselect*, 2, 28, 8927 - 8935.
- Coughlan C, Ibanez M, Dobrozhan O, Singh A, **Cabot A** & Ryan KM 2017, 'Compound Copper Chalcogenide Nanocrystals', *Chemical Reviews*, 117, 9, 5865 - 6109.
- Ortega S, Ibanez M, Liu Y, Zhang Y, Kovalenko MV, Cadavid D & **Cabot A** 2017, 'Bottom-up engineering of thermoelectric nanomaterials and devices from solution-processed nanoparticle building blocks', *Chemical Society Reviews*, 46, 12, 3510 - 3528.
- Cadavid D & **Cabot A** 2017, 'Oxidation at the atomic scale', *Science*, 356, 6335, 245 - 245.
- Berestok T, Guardia P, Blanco J, Nafria R, Torruella P, Lopez-Conesa L, Estrade S, Ibanez M, de Roo J, Luo Z, Cadavid D, Martins JC, Kovalenko MV, Peiro F & **Cabot A** 2017, 'Tuning Branching in Ceria Nanocrystals', *Chemistry Of Materials*, 29, 10, 4418 - 4424.

### Selected research activities

- 1 graduated PhD student
- 4 new PhD students
- 1 new collaborative project with Heilongjiang Univesrity, China
- Joined editorial board of *Nanomaterials*



## Jordi Cabot

Universitat Oberta de Catalunya (UOC)  
Engineering Sciences

Jordi Cabot received his PhD degree in Computer Science from Universitat Politècnica de Catalunya (UPC) in 2006 and his Habilitation (French HdR) from the École Doctorale in Nantes in 2012. He has been a visiting researcher in Milan (Politecnico di Milano) and Toronto (University of Toronto) and an Associate Professor and Inria International Chair at École des Mines de Nantes where he led an Inria Research team in Software Engineering. Since May 2015, he is an ICREA Research Professor at Internet Interdisciplinary Institute (IN3), a research center of the Universitat Oberta de Catalunya (UOC) where he leads the SOM (Systems, Software and Models) research lab. Beyond his core research activities, he tries to book some time for blogging and other dissemination and technology transfer actions.

### Research interests

My research falls into the broad area of systems and software engineering, especially promoting the rigorous use of software models and engineering principles in all software engineering tasks while keeping an eye on the most unpredictable element in any project: the people involved in it. Current research topics include the development of pragmatic formal verification techniques to assess the quality and security of software systems, the analysis and data mining of open source projects (and the communities around them) to optimize their collaboration and organizational structures and the study of scalability challenges in the design and deployment of large systems.

### Selected publications

- Cosentino V, Cánovas Izquierdo JL & **Cabot J** 2017, 'A Systematic Mapping Study of Software Development With GitHub', *IEEE Access* 5: 7173-7192.
- Gwendal D, Jouault F, Sunyé G & **Cabot J** 2017, 'Gremlin-ATL: a scalable model transformation framework', *ASE 2017*: 462-472
- Cánovas Izquierdo JL, Cosentino V & **Cabot J** 2017 'An Empirical Study on the Maturity of the Eclipse Modeling Ecosystem', *MoDELS*, 292-302.
- Brambilla M, **Cabot J**, Cánovas Izquierdo JL & Mauri A 2017, 'Better call the crowd: using crowdsourcing to shape the notation of domain-specific languages', *SLE, Proceedings of the 10th ACM SIGPLAN International Conference on Software Language Engineering*, 129-138.
- Martinez S, Cosentino V & **Cabot J** 2017, 'Model-based analysis of Java EE web security misconfigurations', *Computer Languages Systems & Structures*, 49, 36 - 61.
- Gwendal, D, Sunye G, Benelallam A, Tisi M, Vernageau Y, Gomez A & **Cabot J** 2017, 'NeoEMF: A multi-database model persistence framework for very large models', *Science Of Computer Programming*, 149, 9 - 14.
- Brambilla M, **Cabot J** & Wimmer M 2017, *Model-Driven Software Engineering in Practice*, Second Edition. *Synthesis Lectures on Software Engineering*, Morgan & Claypool Publishers.

### Selected research activities

PC Chair of 17th International Conference on Web Engineering

Co-Supervised the thesis "Efficient Persistence, Query and Transformation of Very Large Models" defended at the École nationale supérieure des mines de Nantes

Start of the "Open Data for All" National RETOS project - TIN2016-75944-R

Start of the H2020 ECSEL JU Project MegaM@art2 with 27 partners and 16.5 M of overall budget

Keynote speaker at the RuleML+RR 2017 and GDR GPL 2017 conferences

Edited the Special Issue "Negative results in Software Engineering" for the Empirical Software Engineering Journal

Organized the first edition of the Grand Challenges in Modeling Workshop



## Xavier Cabré

Universitat Politècnica de Catalunya (UPC)  
Experimental Sciences & Mathematics

Born in 1966 in Barcelona. PhD in Mathematics (area: Partial Differential Equations), Courant Institute, New York University, 1994. Kurt Friedrichs Prize, New York University, 1995. Member of the Institute for Advanced Study, Princeton, 1994-95. Habilitation à diriger des recherches, Université Pierre et Marie Curie-Paris VI, 1998. Harrington Faculty Fellow, The University of Texas at Austin, 2001-02. Tenure Associate Professor, The University of Texas at Austin, 2002-03. ICREA Research Professor at the Universitat Politècnica de Catalunya since 2003. Fellow of the American Mathematical Society, inaugural class, 2013.

### Research interests

My research field is the mathematical analysis of Partial Differential Equations. These equations arise in mathematical physics, differential geometry, finance, and biology. My focus is on elliptic and parabolic equations, and on the analytical understanding of the regularity, symmetry, and other qualitative properties of their solutions. This often involves the use of geometric tools such as isoperimetric inequalities, whose study is an important part of my research. My main current project concerns a recently flourishing area: reaction problems for fractional diffusions associated to jump or Lévy processes. These are the so called 'anomalous diffusions', well noticed in the last decades in some reaction and biological fronts, as well as in mathematical finance.

### Selected publications

- **Cabre X** 2017, 'Isoperimetric, Sobolev, and Eigenvalue Inequalities via the Alexandroff-Bakelman-Pucci Method: A Survey', *Chinese Annals Of Mathematics Series B*, vol. 38, no. 1, pp 201-214.
- **Cabre X** 2017, 'Boundedness of stable solutions to semilinear elliptic equations: a survey', *Advanced Nonlinear Studies*, vol. 17, no. 2, pp 355-368.

### Selected research activities

- Editor of the 'Journal of the European Mathematical Society' and of 'Publicacions Matemàtiques'.
- Adviser of three PhD students and four Postdocs. Director of two 2017 Master Theses.
- Former Ph.D. student Xavier Ros-Oton (graduated 2014): Premio José Luis Rubio de Francia 2017 (RSME), Premio Antonio Valle 2017 (SEMA), and Premio Vicent Caselles 2015 (RSME).
- Scientific Committee: Llavefest, A broad perspective on finite and infinite dimensional Dynamical Systems. Barcelona, June 2017.
- Organizer of the Summer School JSD2017 (CRM, Bellaterra, June 2017) and of a thematic session in the BMD2017 (SCM, IEC Barcelona, April 2017).

### Plenary Talks

11 plenary addresses and 4 colloquia and seminars. Most relevant:

- 'SIAM Conference on Analysis of Partial Differential Equations'. Baltimore, USA. December 9-12, 2017.
- 'Nonlocal PDEs. Clay Research Conference'. Oxford, UK. September 25-29, 2017.
- 'Advanced School & Workshop on Nonlocal Partial Differential Equations and Applications to Geometry, Physics and Probability'. International Centre for Theoretical Physics, Trieste, Italy. May 22-June 2, 2017.



## Mario Cáceres

Universitat Autònoma de Barcelona (UAB)  
Life & Medical Sciences

Mario Cáceres obtained his PhD at the Universitat Autònoma de Barcelona (UAB) working on *Drosophila* chromosomal rearrangements (1995-2000). He then moved to the USA as a postdoc at the Salk Institute for Biological Studies (2001-2003) and Emory University (2003-2006), where his research shifted to the use of novel genomic techniques to compare gene-expression levels in humans and non-human primates, as a way to study human unique characteristics. In 2006 he got a Ramón y Cajal position at the Centre for Genomic Regulation in Barcelona, and focused on the identification of genomic changes with potential functional consequences in the human lineage, such as those associated with expression differences and structural variants, especially inversions. In 2010 he joined ICREA and since then leads the Comparative and Functional Genomics group at the Institut de Biotecnologia i de Biomedicina (IBB) of the UAB.

### Research interests

The genomic revolution has unveiled extraordinary possibilities unthought-of before. In particular, two important questions in biology today are understanding genomic structural variation and gene-expression changes, and how they relate to individual and species differences. To address these questions, we use humans as a model and take a multidisciplinary approach that combines new genomic methods and bioinformatic analysis of the great wealth of data available, generating results of interest to many diverse fields. One of our main lines of research is the evolutionary and functional analysis of polymorphic inversions in the human genome, which aims to investigate the biological significance of this type of changes at a global scale. In addition, we are also carrying out an analysis of the genomic determinants of gene-expression changes in the human brain to find out their molecular causes and the role of natural selection in their fixation.

### Selected publications

- Vicente-Salvador D, Puig M, Gayà-Vidal M, Pacheco S, Giner-Delgado C, Noguera I, Izquierdo D, Martínez-Fundichely A, Ruiz-Herrera A, Estivill X, Aguado C, Lucas-Lledó JI & **Cáceres M** 2017, 'Detailed analysis of inversions predicted between two human genomes: errors, real polymorphisms, and their origin and population distribution', *Human Molecular Genetics*, 26, 3, 567 - 581.

### Selected research activities

- Carla Giner Delgado Doctoral Thesis. Title: Large-scale evolutionary analysis of polymorphic inversions in the human genome. Universitat Autònoma de Barcelona, December 19, 2017.
- Teresa Soos Master Thesis. Title: Validation of polymorphic human inversions and setting up of high-throughput genotyping assays. University of Natural Resources and Life Sciences, Vienna, April 28, 2017.
- Jorge de los Santos Castela Master Thesis. Title: Mosaicism detection in human inversions. Universitat Autònoma de Barcelona, July 11, 2017.
- Juan Ochoteco Asensio Master Thesis. Title: Re-annotation of the *Drosophila buzzatii* genome. Universitat Autònoma de Barcelona, September 8, 2017.
- Co-organizer of the V Bioinformatics and Genomics Symposium of the Societat Catalana de Biologia. December 20, 2017. Barcelona, Spain.
- Coordinator of the Genomics and Proteomics Section of the Societat Catalana de Biologia.
- BMC Genomics Associate Editor.
- Genes journal Associate Editor.



## Caterina Calsamiglia Costa

Institute for Political Economy and Governance (IPEG)  
Social & Behavioural Sciences

Currently a Research Professor at IPEG and affiliate researcher at CEPR. She obtained her PhD from the Department of Economics at Yale University in 2005. She was an assistant and associate professor at UAB until 2015. In 2014 she obtained an ERC Starting Grant to work on understanding the importance of the design of school choice procedures for the educational landscape. Since 2011 she is a member of the Human Capital and Economic Opportunity group at the University of Chicago. In 2015 she moved to CEMFI as a Research Professor, where she remains an affiliate researcher. She recently started working on measuring and assessing non cognitive traits by leading an interdisciplinary group of researchers. She's the scientific advisor of Escola Nova 21, an alliance of schools and other public and civil society institutions for an advanced education system.

### Research interests

Her research focuses on Public Economics with an emphasis on school choice, educational policies, affirmative action, measurement of non-cognitive skills and welfare economics in general. Her work includes theoretical, experimental and empirical analysis.

### Selected research activities

Professor Calsamiglia started as an ICREA Researcher at IPEG on October 1, 2017. Before that she was at CEMFI, in Madrid, where she started working on her ERC Starting Grant on the design of school choice procedures and its impact on the segregation and equity properties of the education system. She also started collaborating as the Scientific Advisor of Escola Nova 21, an alliance of schools and other public and civil society institutions for an advanced education system. In particular she is leading an interdisciplinary group of researcher that are aiming at measuring the outcomes in schools through richer set of tools that shall capture non only cognitive, but also non cognitive skills that students may develop in schools. This shall help school progress towards new educational systems by providing an evaluation of the impact that their innovations may have. Professor Calsamiglia was invited to give a Lecture at the ECNAIS conference "Modern soft skills in value based school programmes. The independent schools' response to the challenge of improving the social and economic future of young people." She was also invited to give a talk at the European Economics Association Meeting on "New Administrative Data and New Research Designs in Economics" and has been invited to be a member of the EEA Research Committee to facilitate data access to researcher throughout Europe.





## Paula Casal

Universitat Pompeu Fabra (UPF)  
Humanities

Paula Casal is an ICREA Professor at the Law Department of Universitat Pompeu Fabra. She was previously a Lecturer and a Reader in Moral and Political Philosophy at Reading University (2004-8), and a Lecturer at Keele University (1996-2004). She was also Fellow in Ethics at Harvard University (1999-2000), Keele Junior Research Fellow, also at Harvard (2000-1), Hoover Fellow at Université Catholique de Louvain (2001-02), and Leverhulme Research Fellow at Oxford University (2002-4). Her work has appeared in such journals as *Ethics*, *Economics and Philosophy*, *Journal of Medical Ethics*, *Journal of Political Philosophy*, *Hypatia*, *Political Studies* and *Utilitas*. She is an Associate Editor of *Politics, Philosophy and Economics*, co-editor of *LEAP*, President of the Great Ape Project-Spain, Academics Stand Against Poverty-Spain, and co-director of the UPF Center for Animal Ethics.

### Research interests

I work on how social institutions should distribute resources. This requires assessing the general principles (such as equality, priority, and sufficiency) governing distributive decisions as well as more specific policies designed to promote social or global justice. I am particularly concerned with policy responses to global poverty, climate change and gender inequality, including various forms of taxation. I am also interested in the intersection between ethics and primatology, including the origins of empathy and resource-sharing as well as violence and gender inequality, the moral status of non-human animals, and the distinction between natural and social inequality. I have also written about how the costs of raising children should be distributed, sea-access for landlocked states, the moral limits to religious accommodation, and the difference medical ethics draws between therapy and enhancement.

### Selected publications

- Casal P 2017, 'Mill, Rawls and Cohen on Incentives and Occupational Freedom', *Utilitas*, vol. 29, no. 4, pp 375 - 397.
- Casal P 2017, 'Peter Singer' in *Key Thinkers on the Environment*, ed. J Palmer, Routledge, London, pp 374-81.

### Selected research activities

- Organized *Evolutionary Science, Family Structures and Human Rights*, event with Robert Trivers, T Bosch, J Bertranpetit, R Nagel and M Santos, 28/11.
- Delivered talks: 'Cruelty and Culture', Globalizing Minority Rights Conference, Tromsø, 14/3; 'Social Justice, Gender Equality and Social Publicity', LOGOS UB, 20/4 'Sea Access for the Landlocked', Carlos III University, Madrid, 5/5; 'The Egalitarian Trilemma', Jerusalem University, 17/4; 'Distributive Justice and Female Longevity', Marie Curie Conference on Ageing, UPF, 12/7; 'Conservative Sufficiency and Future Generations' Fracture Conference, Center for Advanced Studies *Justitia Amplificata* and Goethe University, Frankfurt, 13/7; 'Climate Change and Human Rights' One Young World Conference, Barcelona 14/7; 'Sufficiency and Future Generations', Future Generations Conference, UB, 30/6; 'Conservative and Conservationist Sufficiency' Princeton-UPF Conference in Political Theory, 2/11; 'Cambio climático: el conflicto social y cultural', CCCB 21/11, 'Justice and Biology', UPF 28/11.
- Supervised: J Moawad's MA Thesis 'Gender Equality and Sport', R Bravo's MA Thesis 'Liberty, Equality and Sufficiency', M Vallés' 'Against Non-Medical Sex-Selective Abortion', L Marani's MA Thesis, 'Regulations Up in Smoke. Spain's Medical Cannabis Law as a Social Justice Failure'.
- Evaluated: J Kapembwa's PhD 'Wildlife Rights and Human Obligations', Reading University, 26/4, MINECO Grants, La Caixa Grants.
- Other: Co-directed with N Almiron UPF Center for Animal Ethics, co-edited *LEAP* and *PPE*, served on board of *Ethical Theory and Moral Practice*, and *Public Reason*, and founding board of Global Justice Program, School of Transnational Affairs, Delhi; and *The Journal of Controversial Ideas*.



## Gustau Catalán

Institut Català de Nanociència i Nanotecnologia (ICN2)  
Experimental Sciences & Mathematics

Gustau Catalán graduated in Physics at the Universitat de Barcelona (1997) and gained his PhD, also in Physics, at the Queen's University of Belfast (2001). This was followed by a one-year round-the-world climbing expedition, the highlights of which were the setting up of a new route in the Dogon country of Mali ("The man with no name", 6c-250 metres, Ouro N'guérou) and the first ascent of a peak in the Indian Himalayas (Draoich Parvat, 6200m, Garwhal). Upon returning to research, he worked at the Mediterranean Institute for Advanced Studies (2002-2004), at the University of Groningen (2004-2005) and at the University of Cambridge (2005-2009). He joined ICREA in 2009 as a Research Professor and leader of the Oxide Nanophysics group at the Institut Català de Nanociència i Nanotecnologia (ICN2).

### Research interests

The main focus of my research are the physical properties of oxides at the nanoscale. The interest in these materials stems from their combination of structural simplicity with a vast array of exciting and often unique electronic properties, including ferroelectricity and piezoelectricity, magnetoelectricity, magnetoresistance or metal-insulator transitions. A common denominator of my work is the search for original physics and emerging effects at the nanoscale.

Recently, most of my research has focused on the effects of strain gradients on electrical polarization (flexoelectricity, project funded by the ERC). In parallel, I have also worked on the physics of domain walls (domain wall nanoelectronics), antiferroelectricity and giant photovoltaic effects in polar materials.

### Selected publications

- Zubko P, Lu H, Bark C-W, Martí X, Santiso J, Eom C-B, **Catalan G** & Gruverman A 2017, 'On the persistence of polar domains in ultrathin ferroelectric capacitors', *Journal of Physics: Condensed Matter*, vol. 29, pp. 284001
- Domingo N, Farokhipoor S, Santiso J, Noheda B & **Catalan G** 2017, 'Domain wall magnetoresistance in BiFeO<sub>3</sub> thin films measured by scanning probe microscopy', *Journal Of Physics-condensed Matter*, 29, 33, 334003.
- Cordero-Edwards K, Domingo N, Abdollahi A, **Sort J** & **Catalan G** 2017, 'Ferroelectrics as smart mechanical materials', *Adv. Mat.*, vol.29, p. 1702210.

### Selected research activities

- Invited talks:
  - International Conference on Advanced Materials and Devices (ICAMD), Jeju (Korea): "Bending Oxides"
  - Trans-pyrenean Encounter on Advanced Materials (TEAM1), Sete (France): "Flexoelectricity: from semiconductors to memory devices"
  - MANEP School on Quantum Materials at the Nanoscale, Saas Fee (Switzerland): "Functional Oxides and Their Physics"
- The discovery of semiconductor flexoelectricity was shortlisted among the top-8 scientific highlights of the year for the Spanish "La Vanguardia de la Ciencia" award. The PhD thesis containing this discovery, written by Dr Jackeline Narvaez and supervised by Prof. Gustau Catalán, won the prize to the best PhD thesis in Experimental Solid State Physics in Spain (Premio GEFES a la mejor tesis doctoral de 2016).
- Article in La Vanguardia: *El Rector Copión y la Mancha Española*.



**Miguel Ángel Cau**  
 Universitat de Barcelona (UB)  
 Humanities

I am an archaeologist focused on the Late Antique Mediterranean and on archaeometry of ceramics. After obtaining my PhD (1998) (University of Barcelona), I was a postdoctoral TMR-EU Research Fellow (1998-2001) at the University of Sheffield (UK). I returned to Catalonia with an AGAUR Return Grant (2001-2002) and as a researcher for the EU project CERAMED (2003). I am ICREA Research Professor since 2003. I am the director of the Equip de Recerca Arqueològica i Arqueomètrica, University of Barcelona (ERAAUB). I have participated in national and EU projects, such as GEOPRO, CERAMED and Progetto Classe at the World Heritage site of Ravenna. I have been Visiting Professor at the universities of Cagliari, Sassari (Italy) and Brown (USA). I am a co-founder of the international conference LRCW, and of the series Roman and Late Antique Mediterranean Pottery and Limina/Limites: Archaeologies, histories, islands, and borders in the Mediterranean(365-1556).

### Research interests

I am a Mediterranean archaeologist with a major focus on Roman and Late Antique Archaeology, and in pottery studies especially in the analysis of coarse and cooking wares. One of my main interests is to investigate the transformation of the Roman world with a particular interest in Mediterranean islands. I am scientific director of excavations, surveys, and ceramic ethnoarchaeology expeditions in the Balearics and Sardinia. I am leading the excavations at the Roman and Late Antique city of Pollentia and the Early Christian complexes of Son Peretó (Mallorca) and Illa del Rei (Menorca). I have specialised in the study of archaeological ceramics to investigate their provenance, technology of production, distribution and consumption using physico-chemical, mineralogical and petrographic techniques. I have a broad interest in the analytical study of ceramic materials including the theoretical foundations of the discipline and in the study of living pottery-making traditions.

### Selected publications

- Albero Santacreu D & **Cau Ontiveros MÁ** 2017, 'Technological Choices in Hand-Made Indigenous Pottery from Western Mallorca (Balearic Islands, Spain) (C.1200-75 BC): An Archaeometric Approach', *Archaeometry*, 59 (4): 642 – 666.
- **Cau MÁ**, Van Strydonck M, Boudin M, Mas Florit C, Mestres JS, Cardona F, Chávez M<sup>º</sup>E & Orfila M 2017, 'Christians in a Muslim World? Radiocarbon dating of the cemetery over the forum of Pollentia (Mallorca, Balearic Islands)', *Archaeological and Anthropological Sciences*, 9 (7): 1529-1538.
- Fantuzzi L & **Cau Ontiveros MÁ** 2017, 'Investigating the provenance of Baetican Amphorae Dressel 23: new archaeometric evidence from Late Roman consumption centres', *Mediterranean Archaeology and Archaeometry*, 17 (1): 47 – 68.
- Giame M, Morhange C, **Cau Ontiveros MÁ**, Fornós J, Vacchi M & Marriner N 2017, 'In search of southern Pollentia's harbor: geoarchaeological evidence from the bay of Alcúdia', *Paleo3, Palaeogeography, Palaeoclimatology, Palaeoecology*, 466, 184-201.
- Olcese G, **Cau Ontiveros MÁ**, Fantuzzi L, Razza A, Surace DM & Tsantini E 2017, 'Le anfore del contesto augusteo della ruota idraulica di Ostia Antica: archeologia e archeometria', *Archeologia Classica*, LXVIII: 197-224.
- Tsantini E, **Cau Ontiveros MÁ**, Montana G & Randazzo L 2017, 'The production of traditional building materials in Oristano (Sardinia, Italy)', *Archaeological and Anthropological Sciences*, 9 (7): 1495 – 1513.
- Valenzuela A, **Cau Ontiveros MÁ** & León M<sup>º</sup>J 2017, 'Broadening the scope of bone anvils: direct AMS 14C dating from the island of Menorca (Balearic Islands, Western Mediterranean)', *Radiocarbon*, 59 (1): 61-67.
- Valenzuela A, Alcover JA & **Cau MA** 2017, 'The impact of Roman conquest on the pattern of livestock exploitation on the Balearic Islands', *Archaeofauna*, 26, 127 – 142.

### Selected research activities

- Director of ERAAUB, Consolidated Research Group.
- PI of the project LRPWESTMED.
- Archaeological excavations at the Roman city of Pollentia, and the late antique site of Son Peretó (Mallorca, Spain).



## Andrea Cerutti

Institut Hospital del Mar d'Investigacions Mèdiques (IMIM)  
Life & Medical Sciences

Andrea Cerutti, MD, is an ICREA Research Professor since 2010 and leads the B Cell Biology Group at IMIM, which is a research center located in the PRBB complex. He serves as grant reviewer for the European Research Council and the National Institutes of Health, and as manuscript reviewer for journals such as *Science*, *Nature*, *Immunity*, *Nature Immunology*, *Nature Medicine*, *Nature Communications*, *The Journal of Experimental Medicine* and *The Journal of Immunology*. He is a member of The American Society for Clinical Investigation, The American Association of Immunologists, and The Henry Kunkel Society and serves as Associate Editor of *Mucosal Immunology* and *ImmuneHorizons*. He contributed to the organization of the 2014 and 2016 Keystone Symposium meetings, published over 100 research articles in top-ranked immunology journals, and regularly lectures in international meetings as well as American or European universities.

### Research interests

The splenic marginal zone and gut mucosa can be viewed as interfaces between the immune system and the circulation or external environment, respectively. My group studies how B cells strategically positioned at these interfaces make antibodies against circulating or intraluminal antigens, including intestinal microbes. We are particularly interested in the mechanism whereby splenic stromal cells or splenic innate immune cells, including neutrophils, dendritic cells, macrophages and innate lymphoid cells, facilitate the activation of splenic marginal zone B cells. We are also analyzing how intestinal B cells generate antibodies to commensal bacteria and how these antibodies shape the composition of the gut microbiota. Finally, we study the alterations of B cells in patients with primary antibody deficiency, including selective IgA deficiency and common variable deficiency. Our research is relevant to infections, inflammation, autoimmunity, immunodeficiency and vaccine development.

### Selected publications

- Magri G, Comerma L, Pybus M, Sintès J, Llige D, Segura-Garzon D, Bascones S, Yeste A, Grasset EK, Gutzeit C, Uzzan M, Ramanujam M, van Zelm MC, Albero-Gonzalez R, Vazquez I, Iglesias M, Serrano S, Marquez L, Mercade E, Mehandru S & **Cerutti A** 2017, 'Human Secretory IgM Emerges from Plasma Cells Clonally Related to Gut Memory B Cells and Targets Highly Diverse Commensals', *Immunity*, 47, 1, 118.
- Sintès J, Gentile M, Zhang S, Garcia-Carmona Y, Magri G, Cassis L, Segura-Garzon D, Ciociola A, Grasset EK, Bascones S, Comerma L, Pybus M, Llige D, Puga I, Gutzeit C, He B, DuBois W, Crespo M, Pascual J, Mensa A, Arostegui JI, Juan M, Yague J, Serrano S, Lloreta J, Meffre E, Hahne M, Cunningham-Rundles C, Mock BA & **Cerutti A** 2017, 'mTOR intersects antibody-inducing signals from TAC1 in marginal zone B cells', *Nature Communications*, 8, 1462.
- Huang B, Faucette AN, Pawlitz MD, Pei B, Goyert JW, Zhou JZ, El-Hage NG, Deng J, Lin J, Yao F, Dewar RS 3rd, Jassal JS, Sandberg ML, Dai J, Cols M, Shen C, Polin LA, Nichols RA, Jones TB, Bluth MH, Puder KS, Gonik B, Nayak NR, Puscheck E, Wei WZ, **Cerutti A**, Colonna M & Chen K 2017, 'Interleukin-33-induced expression of PIBF1 by decidual B cells protects against preterm labor', *Nature Medicine*, vol. 23, no. 1, pp 128-135.



## Miguel Chillón

Universitat Autònoma de Barcelona (UAB) & Vall d'Hebron  
Institut de Recerca (VHIR)  
Life & Medical Sciences

Born in Barcelona in 1966. PhD in Genetics at Hospital Duran i Reynals and Universitat de Barcelona, 1994. National Award in Human Genetics by the Spanish Association of Human Genetics in 1995. HHMI postdoctoral fellow on Gene Therapy for Cystic Fibrosis, at the Internal Medicine Dept, University of Iowa, USA (1994-1997). EMBO fellow in Genethon III (Evry, France) (1997-1999) on Development of viral vectors for Gene Therapy. Postdoctoral fellow on Gene Therapy (2000-2001) at the Universitat Autònoma de Barcelona (UAB). ICREA Research Professor at the UAB since 2001. Director of the Vector Production Unit, a technological platform to produce viral vectors, since 2004. Assistant Professor of the Biochemistry and Molecular Biology Dept. at the UAB since 2005. Co-founder of two spin-off companies in biotechnology, NanoTherapix in 2009, and Kogenix Therapeutics in 2016. He has published more than 70 papers and generated 7 patents in viral vectors.

### Research interests

Medicine still has many challenges to solve specially on complex diseases where a large number of both, genetic and environmental factors, are involved. Among them, autoimmune disorders have attracted attention because there are no effective curative treatments for them. Some of these autoimmune diseases affect the central nervous system, which in addition, is difficult to access and to manipulate with classical pharmacological treatments. To address these problems we have focused our research interests in three main objectives: (1) gene therapy strategies for autoimmune diseases; (2) gene therapy strategies for diseases affecting the nervous system, such as neuromuscular and neurodegenerative disorders, and (3) development of more efficient and less immunogenic viral vectors.

### Selected publications

- Ontiveros M, Miravet S, Piedra J, Penalva C & **Chillon M** 2017, 'Vector production unit: A technological platform for the production of customised high quality viral vectors', *Human Gene Therapy*, 28, 12, A116 - A117.
- Pages G, Gimenez-Llort L, Garcia-Lareu B, Ariza L, Sanchez-Osuna A, Puig M, Navarro M, Ruberte J, Casas C, **Chillon M** & Bosch A 2017, 'Intrathecal AAVrh10 corrects biochemical and histological hallmarks of mucopolysaccharidosis VII mice and improves behaviour and survival', *Human Gene Therapy*, 28, 12, A68 - A68.
- Masso A, Sanchez A, Bosch A, Blanch R, Espinosa JF, Gimenez-Llort L & **Chillon M** 2017, 'Long-term expression of secreted-klotho protects against cognitive decline in aged animals', *Human Gene Therapy*, 28, 12, A4 - A4.
- Garcia-Lareu B, Ariza L, Cobiauchi S, **Chillon M**, Navarro X & Bosch A 2017, 'CHARACTERIZATION OF A TRANSGENIC MOUSE MODEL OVEREXPRESSIONING TNF ALPHA IN MYELINATING SCHWANN CELLS', *Journal Of The Peripheral Nervous System*, 22, 3, 288 - 288.
- Leal-Julia M, Pages G, Casas C, **Chillon M** & Bosch A 2017, 'CHARACTERIZING IN VITRO MODELS OF TYPE 2 DIABETIC PERIPHERAL NEUROPATHY', *Journal Of The Peripheral Nervous System*, 22, 3, 326 - 327.
- Miralles M, Eixarch H, Tejero M et al. 2017, 'Clinical and histopathological amelioration of experimental autoimmune encephalomyelitis by AAV vectors expressing soluble IL23 receptor', *Neurotherapeutics*, 4 (4), 1095-1106.

### Selected research activities

\* Cofounder of Kogenix Therapeutics and Member of Governing Board.



**Paul Christou**  
 Universitat de Lleida (UdL)  
 Life & Medical Sciences

BS Chemistry & PhD Plant Biochemistry, University College London. Senior Scientist at Agracetus Inc., Madison, WI, USA, where he developed genetic transformation technology that led his group to generate the first commercial crop sold by Monsanto (Roundup Ready Soybean). Subsequently Head of Molecular Biotechnology Unit, John Innes Centre, Norwich, UK-led the Tropical Maize and Rice Biotechnology Laboratory sponsored by the Rockefeller Foundation. Head Crop Genetics & Biotechnology Department, Fraunhofer Institute Molecular Biotechnology & Applied Ecology, Aachen, Germany. Currently at Universitat de Lleida as an ICREA Professor & Head of the Applied Plant Biotechnology Laboratory. Founding Director Agrotecnio CERCA Center, 2013-2015. Recipient of ERC Advanced Grant BIOFORCE and ERC PoC Grant Multinutrient Maize. Received 2 Bill & Melinda Gates' grants, one ongoing. PI in 12 EU projects over past 25 years 2 as coordinator and 2 as deputy coordinator

### Research interests

Our programs rely on our unique multi-gene/multi-pathway engineering capabilities to generate plants with high value recombinant pharmaceuticals for human health and veterinary medicine; cereals with enhanced nutrition, and novel strategies of sustainable agriculture with emphasis on developing countries, poverty alleviation and food security. More recently we established 3 active collaborations with industry which have led to one patent application filed in Nov 2017 (in the process of being licensed to an industrial collaborator) and 2 other patent applications in preparation. A recent major focus is plant synthetic biology and genome editing. Our group is heavily involved in training and capacity building in plant biotechnology focusing on developing countries. We also develop tools, methodology and a comprehensive understanding of the essential mechanisms underpinning the creation and performance of genome edited plants for the application of synthetic biology to major crops.

### Selected publications

- Zhu C, Bortesi L, Baysal C, Twyman RM, Fischer R, Capell T, Schillberg S & **Christou P** 2017, 'Characteristics of genome editing mutations in cereal crops', *Trends in Plant Sci*, 22: 38-52.
- Díaz-Gómez J, Twyman RM, Zhu C, Farré G, Serrano JCE, Portero-Otin M, Muñoz P, Sandmann G, Capell T & **Christou P** 2017, 'Biofortification of crops with nutrients: factors affecting utilization and storage', *Current Opinion in Biotechnol*, 44: 115-123.
- Banakar R, Alvarez Fernández A, Abadía J, Capell T & **Christou P** 2017, 'The expression of heterologous Fe (III) phyto siderophore transporter *HvYS1* in rice increases Fe uptake, translocation and seed loading and excludes heavy metals by selective Fe transport', *Plant Biotechnol J* 15: 423-432.
- Berman J, Zorrilla-López U, Medina V, Farré G, Sandmann G, Capell T, **Christou P** & Zhu C 2017, 'The Arabidopsis *ORANGE (AtOR)* gene promotes carotenoid accumulation in transgenic corn hybrids derived from parental lines with limited carotenoid pools', *Plant Cell Reports*, 36:933-945.
- Díaz-Gómez J, Moreno JA, Angulo E, Sandmann G, Zhu C, Ramos AJ, Capell T, **Christou P** & Nogareda C 2017, 'High-carotenoid biofortified maize is an alternative to color additives in poultry feed', *Animal Feed Sci and Technol*, 231: 38-46.
- Banakar R, Alvarez Fernandez A, Díaz-Benito P, Abadía J, Capell T & **Christou P** 2017, 'Phyto siderophores determine thresholds for iron and zinc accumulation in biofortified rice endosperm while inhibiting the accumulation of cadmium', *J Exp Bot*, 68: 4983-4995.

### Selected research activities

Graduated 10 PhD and 12 MS thesis in the past 5 years. Funding well in excess of € 5.2 million in the 2013-2017 period. Delivered 44 keynote/ plenary/ invited lectures in the past 5 years. Active in dissemination and public perception of GMOs with 28 popular lectures and 26 interviews in national and international media (newspaper, radio, TV) in the past 5 years. Two issued Spanish patents (currently at PCT) and one filed US patent (November 2017).



**Antonio Ciccone**  
Universitat Pompeu Fabra (UPF)  
Social & Behavioural Sciences

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I was born in Italy but grew up in Germany where I also started studying economics at university. I got my first degree from the London School of Economics and my PhD in economics from Stanford University. I have been an editor of *The Economic Journal* and on the editorial board of the *Review of Economic Studies*. I have been the scientific chair of both the main Spanish and the main European annual meetings of academic economists, as well as the director of the economic growth group of the main European network of academic economists. My main university appointments have been at the University of California, Berkeley, at the Universitat Pompeu Fabra, and at the University of Mannheim.

### Research interests

My current research interests are diverse. A main line of research is the extent to which girls benefit from being in a classroom with girls rather than boys in primary school. To answer this question, I have developed a new empirical methodology and assembled two large datasets with the necessary information. A second main line of research is the role of economic factors in the outbreak of civil wars around the world. Currently, I am focusing on the effect of economic shocks due to international commodity price fluctuations. A third main line of research is in international macroeconomics, where I am developing and applying a methodology to learn about the drivers of economic growth from cross-county firm and industry data.

### Selected research activities

In 2017, I have given key note lectures or invited research seminars at (in chronological order) the University of Oxford, the University of Southampton, the University of Frankfurt, the University of Lausanne, the University of Heidelberg, and the University of Naples.

I also developed a large research grant application that turned out to be successful and will allow me to hire scientific support staff to collect additional data for the project on gender peer effects.



## Alejandro Coroleu

Universitat Autònoma de Barcelona (UAB)  
Humanities

After studying Classics and Renaissance Studies at the Universitat de Barcelona, I undertook postdoctoral research at The Warburg Institute (University of London). I taught and researched at the University of Nottingham between 1995 and 2008. I have also been Visiting Lecturer at the University of Cambridge and at the University of Salzburg. In 2009 I accepted a Research Professorship at ICREA in the Department of Catalan at the Universitat Autònoma de Barcelona where I am conducting research on Renaissance literary culture. Since 1 March 2012 I am also an Honorary Senior Research Fellow, attached to the Department of Spanish, Portuguese and Latin American Studies (University of Nottingham).

### Research interests

Classical and Comparative Literature: Latin literary culture in Europe (1500-1780). Intellectual History and Renaissance Studies: Hispanic, Italian and European Humanism. The reception of Greek and Roman literatures in Catalunya (1480-1750).

### Selected publications

- 'Brief Forms in Medieval and Early Modern Hispanic Literature', 2017, (eds) Taylor B & **Coroleu A**, Newcastle upon Tyne: *Cambridge Scholars Publishing*.
- **Coroleu A** 2017, 'A note on the circulation of Virgil's *Eclogues* in Renaissance Spain, 1496-1601', in *Latin and Vernacular in Renaissance Iberia, V: Pastoral from the Middle Ages to the Baroque*, (eds) Taylor B & Coroleu A, Special issue of *Bulletin of Spanish Studies*.
- **Coroleu A** 2017, 'Notes sobre la difusió dels textos clàssics a la Catalunya del Sis-cents', in *Els clàssics i la llengua literària*, ed. Jufresa. Barcelona: IEC. pp. 71-85.
- **Coroleu A** & Taylor B 2017, '**Robert Brian Tate**', in *Biographical Memoirs of Fellows of the British Academy*, XVI, 303-21.
- **Coroleu A** 2017, 'Review of A. Severi, *Filippo Beroaldo il Vecchio un maestro per l'Europa. Da commentatore di classici a classico moderno* (Bologna, 2015)', in *International Journal Of The Classical Tradition*, 24, 1, 144-46.

### Selected research activities

I delivered the Twelfth Jozef IJsewijn Lecture at the Katholieke Universiteit. I have given two papers at international conferences held in Barcelona, and Baeza, and a lecture within the SCEC. I contributed a paper to the *Jornades docents: traduir dels clàssics avui*, UAB

I co-organised the colloquium *Traduccions catalanes dels clàssics (1800-1950)* at the IEC

I have peer-reviewed five articles for *Revista Manuscrits*, *Anuario de Historia de la Iglesia*, *Humanistica Lovaniensia*, *Bulletin of Hispanic Studies*, and *Bulletin of Spanish Studies*

I have sat on the scientific committee of an international conference held in Girona

I have sat on the editorial board of *ITACA: Quaderns de Cultura Clàssica* (Universitat de Barcelona), *Futuro Classico* (Università di Bari) and *Studia Aurea* (Universitat de Girona)

Secretary of the *Societat Catalana d'Estudis Clàssics*

Member of the Editorial Advisory Group (Classical Literature) for Cambridge Scholars Publishing

Guest lecturer: University of Portland (Salzburg Program and Universitat de Girona)





## Alfred Cortés

Institut de Salut Global Barcelona (ISGlobal)  
Life & Medical Sciences

After obtaining a PhD for work on *Drosophila* DNA binding proteins (CID-CSIC, Barcelona), he gave a strong turn to his career to apply his molecular biology skills to study malaria parasites. He worked for four years as Head of the Molecular Parasitology lab at the Papua New Guinea IMR, where his research mainly focused on basic malaria parasite biology, but also on epidemiological aspects of the disease. Back to Europe, he worked for over two years at the MRC-NIMR (London) on epigenetic regulation of gene expression and invasion of erythrocytes by malaria parasites. In 2006 he moved to IRB Barcelona with an ICREA jr contract. In 2011 he joined CRESIB-ISGlobal, and in 2012 he was appointed ICREA Research Professor. His current research focuses on epigenetic regulation of gene expression in malaria parasites, which plays a key role in their adaptation to changes in the environment and in the control of sexual conversion, among other host-parasite interactions.

### Research interests

We recently found that the malaria parasite *Plasmodium falciparum* regulates at the epigenetic level the expression of a multitude of genes that participate in host-parasite interactions (clonally variant genes). These genes can be found in either an active or a silenced state, which is clonally transmitted from one generation to the next. Spontaneous transitions between the two states occur at low frequency. At the malaria epigenetics lab we study the chromatin-based mechanisms involved in the epigenetic regulation of clonally variant and mutually exclusive gene expression in malaria parasites. Another major interest of the lab is characterizing how these parasites adapt to changes in their environment using stochastic transcriptional variation and other strategies. We combine studies at a genome-wide level with studies on specific clonally variant genes that control important processes such as sexual conversion, which is necessary for malaria transmission, or solute uptake.

### Selected publications

- Cortés A & Deitsch KW 2017, 'Malaria Epigenetics', *Cold Spring Harbor Perspectives In Medicine*, 7, 7, a025528. Note: This review is also published as a chapter in the book *Malaria: Biology in the Era of Eradication*, (ISBN 978-1-621821-22-9), Cold Spring Harbor Laboratory Press, USA.
- Mira-Martínez S, van Schuppen E, Amambua-Ngwa A, Bottieau E, Affara M, Van Esbroeck M, Vlieghe E, Guetens P, Rovira-Graells N, Gómez-Pérez GP, Alonso PL, D'Alessandro U, Rosanas-Urgell A & Cortés A 2017, 'Expression of the *Plasmodium falciparum* clonally variant *clag3* genes in human infections', *J. Infect. Dis.*, 215, 6, 938 - 945.

### Selected research activities

- Invited speaker at the Keystone symposia "Malaria: From Innovation to Eradication", Kampala, Uganda.
- External advisor for the DELGEME African training network, focusing on capacity building (predoctoral and postdoctoral) in the field of high-throughput (omics) malaria research. Participation in the Project development workshop (Bamako, Mali).
- Co-organizer of the ISGlobal annual scientific retreat.
- Outreach activity: conference for secondary school students. Part of "Dia de la Ciència a les Escoles" (science at schools day) organized by the Catalan government.
- Two new PhD students started working in the team this year, with fellowships from AGAUR (Catalan Government, FI fellowship) and Marie Curie - Erasmus Mundus (European Union, TransGlobalHealth fellowship).



## Pia Cosma

Centre de Regulació Genòmica (CRG)  
Life & Medical Sciences

ICREA Research Professor and Senior Scientist at Centre for Genomic Regulation (CRG), Barcelona, since Sep. 2010. From 2009-2015 Honorary Associate Investigator at CNR . 2003-2010 Associate Investigator at TIGEM, Naples. 2004-2010 Lecturer at European School of Molecular Medicine. 1997-2000 Marie Curie Postdoc at IMP, Vienna. PhD in Cellular and Molecular Genetics, Univ. Federico II of Naples, 2000. Visiting Scientist in many Universities in USA. She has given invited talks at major international conferences and Research Institutes. She has been awarded several prizes including: EMBO Young Investigator (YIP) in 2003, Marie Curie Excellence Award in 2005, "Vanguardia de la Ciència" prize in 2014 and City of Barcelona prize in 2015. She is Order of Merit of the Italian Republic; grade: Knight in 2007. She is ERC Starting Grant awardee, 2009 and HFSP Grant awardee, 2010. She was elected EMBO Member in 2010. She is coordinator of H2020 FET-Open from 2016.

### Research interests

Main interests of Cosma's group are to dissect mechanisms and factors controlling somatic cell reprogramming and tissue regeneration in mammals. We showed that activation of the Wnt/ $\beta$ -catenin signalling pathway enhances reprogramming of somatic cells after their fusion with embryonic stem cells. We are dissecting gene networks and reprogramming factors controlled by the activation of Wnt/ $\beta$ -catenin pathway. Furthermore, by using super resolution microscopy we are investigating on the remodelling of the chromatin fiber during the reprogramming process. Remarkably, the activation of Wnt pathway also controls regeneration in response to damage in lower and higher vertebrates. Our goal is to determine whether activation of Wnt/ $\beta$ -catenin signalling controls cell-fusion-mediated regeneration in mammals. We recently showed that in vivo reprogramming of neurons and hepatocytes after fusion with hematopoietic stem and progenitor cells is a mechanism for tissue regeneration.

### Selected publications

- Pedone E, Oltenau V-A, Marucci L, ... & **Cosma MP** 2017, 'Modeling Dynamics and Function of Bone Marrow Cells in Mouse Liver Regeneration', *Cell Reports*, 18, 107-121
- De Jaime-Soguero A, Alicino F, Ertaylan G, Griego A, Cerrato A, Tallam A, del Sol A, \***Cosma MP** & \*Luis F 2017, 'Wnt/Tcf1 pathway restricts embryonic stem cell cycle through activation of the Ink4/Arf locus', *Plos Genetics*, 13, 3, e1006682. \*co-last and co-corresponding authors.
- Theka I, Sottile F, Alicino F, Castells Garcia A & **Cosma MP** 2017, 'Reduced expression of Paternally Expressed Gene-3 enhances somatic cell reprogramming through mitochondrial activity perturbation', *Scientific Reports*, 7, 9705.
- Ricci MA, \***Cosma MP** & \*Lakadamyali M 2017, 'Super resolution imaging of chromatin in pluripotency, differentiation, and reprogramming', *Current Opinion In Genetics & Development*, 46, 186 - 193. \* co-last and co-corresponding authors
- **Cosma MP** 2017, 'The nanoscale structure of chromatin fibers in somatic and stem cells', *Molecular Cytogenetics*, 10.
- Kieffer-Kwon KR, Nimura K, .... **Cosma MP**, .... Casellas R 2017, 'Myc Regulates Chromatin Decompaction and Nuclear Architecture during B Cell Activation', *Molecular Cell* Aug 17;67(4):566-578.e10.

### Selected research activities

#### Invited talks :

- 3rd International Summit of Stem Cell Therapy for Eye diseases/Chongqing, China
- Environmental epigenetic, KAUST, Saudi Arabia
- The 3D/4D organization of chromatin, Barcelona
- SIBBM conference, Milan, Italy
- Guangzhou Institutes of Biomedicine and Health, China
- University of Zurich, Switzerland
- Humanitas, Milan, Italy
- GMI, Vienna, Austria



**Albert Costa Martínez**  
 Universitat Pompeu Fabra (UPF)  
 Social & Behavioural Sciences

Born in 1970, I received my PhD in psychology in 1997 (Universitat de Barcelona). In 1998, I started my post-doctoral career at the Brain and Cognitive Sciences department at MIT, thanks to the funding from the Catalan Government. From 1999 to 2000, I was a post-doctoral fellow at the Cognitive Neuropsychology laboratory at Harvard University with a Fulbright scholarship. In 2001, I moved to the Cognitive Neuroscience department at the International School for Advanced Studies in Trieste. From 2002 to 2005 I was a Ramón y Cajal research fellow at the UB, and in 2006 I became an Associate Professor in the Department of Psychology of the same university. Since 2008 I am ICREA Research Professor, and currently a member of the Center for Brain and Cognition at Universitat Pompeu Fabra.

### Research interests

I study the cognitive and neural underpinnings of language processing, and in particular how two languages are represented and processed in the brain. I seek answers to various questions related to bilingual language processing such as: what are the neural structures involved in the ability of bilinguals to keep two languages apart during speech production?, what are the effects of neurodegenerative diseases for the two languages of a bilingual?, is there any linguistic cost and attentional advantage linked to bilingualism?, how learning a second language affects the first language processing? More recently, I have started working on how language context (foreign vs. native) can affect people's preferences, judgments and decisions. I address these issues by conducting experiments using both experimental psychology techniques and brain imaging and electrophysiological techniques, exploring the performance of both brain-damaged individuals (Alzheimer and Parkinson) and healthy ones.

### Selected publications

- **Costa A**, Pannunzi M, **Deco G** & Pickering MJ 2017, 'Do Bilinguals Automatically Activate Their Native Language When They Are Not Using It?', *Cognitive Science*, 41, 6, 1629 - 1644.
- Baus C & **Costa A** 2017, 'Second Language Processing: Why Another Special Issue?', *Language Learning*, 66 (S2), 7-12.
- **Costa A**, Vives M-L & Corey JD 2017, 'On Language Processing Shaping Decision Making', *Current Directions In Psychological Science*, 26, 2, 146 - 151.
- Ivanova I, Branigan HP, McLean JF, **Costa A** & Pickering MJ 2017, 'Do you what I say? People reconstruct the syntax of anomalous utterances', *Language, Cognition and Neuroscience*, 32(2), 175-189.
- Calabria M, Cattaneo G, Marne P, Hernandez M, Juncadella M, Gascon-Bayarri J, Sala I, Lleo A, Ortiz-Gil J, Ugas L, Blesa R, Rene R & **Costa A** 2017, 'Language deterioration in bilingual Alzheimer's disease patients: A longitudinal study', *Journal Of Neurolinguistics*, 43, A, 59 - 74.
- Hayakawa S, Tannenbaum D, **Costa A**, Corey JD & Keysar B 2017, 'Thinking More or Feeling Less? Explaining the Foreign-Language Effect on Moral Judgment', *Psychological Science*, 28, 10, 1387 - 1397.
- Principe A, Calabria M, Campo AT, Cruzat J, Conesa G, **Costa A** & Rocamora R 2017, 'Whole network, temporal and parietal lobe contributions to the earliest phases of language production', *Cortex*, 95, 238 - 247.
- Lacoza S, **Costa A** & Dunabeitia AJ 2017, 'What do your eyes reveal about your foreign language? Reading emotional sentences in a native and foreign language', *Plos One*, 12, 10, e0186027.

### Selected research activities

- Book for general audience "El cerebro bilingüe" (Ed. debate).
- Director of the Barcelona Summer School on Bilingualism (UPF).
- Evaluator for several national and international research institutions.
- Branch coordinator of an European Project.



## Josep Dalmau

Institut d'Investigacions Biomèdiques August Pi i Sunyer  
(IDIBAPS)  
Life & Medical Sciences

Dr. Dalmau received his MD and PhD from the Autònoma University of Barcelona. He trained in Neuro-oncology at Memorial Sloan-Kettering Cancer Center in New York, after which he joined the faculty. After 11 years at Memorial, he became co-director of Neuro-oncology at the University of Arkansas. In 2002 he was appointed Professor of Neurology at the University of Pennsylvania. He is currently ICREA Research Professor at the Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS), Clinic Hospital, Barcelona, Associate Professor of Medicine, University of Barcelona, Adjunct Professor of Neurology, University of Pennsylvania, and Guest Researcher, National Institutes of Health, USA. He is Editor of *Neurology: Neuroimmunology and Neuroinflammation*. Dr. Dalmau is a member of many academic societies including the National Academy of Medicine, USA and has received numerous awards, including the Premio Rey Jaime I, Spain.

### Research interests

My research focuses on the study of immune-mediated diseases of the nervous system. Although this work initially focused on cancer associated (paraneoplastic) disorders, it evolved with our discovery of a group of immune-mediated disorders of memory, behavior, cognition and psychosis. These disorders, known as autoimmune encephalitis, occur in association with immune-responses to neuronal cell-surface proteins or synaptic receptors involved in synaptic transmission and plasticity. Dysfunction of these receptors has been related to schizophrenia, psychosis, epilepsy, abnormal movements, and cognitive decline. My research group carries out translational studies including the identification of novel autoimmune encephalitis, the development of diagnostic tests and treatment strategies, as well as basic studies aimed at elucidating the cellular and molecular mechanisms underlying the immune-mediated brain dysfunction.

### Selected publications

- **Dalmau J**, Geis C & Graus F 2017, 'Autoantibodies to synaptic receptors and neuronal cell-surface proteins in autoimmune diseases of the central nervous system', *Physiol Rev.*, 97: 839-887.
- Gaig C, Graus F, Compta Y, Höggl B, Bataller L, Bruggemann N, Giordana C, Heidebreder A, Kotschet K, Lewerenz J, Macher S, Martí MJ, Montojo T, Perez-Perez J, Puertas I, Seitz C, Simabukuro M, Tellez N, Wandinger K-P, Iranzo A, Ercilla G, Sabater L, Santamaria J & **Dalmau J** 2017, 'Clinical manifestations of the anti-IgLON5 disease', *Neurology*, 88: 1736-1743.
- Spatola M, Petit-Pedrol M, Simabukuro MM, Armangue T, Castro FJ, Barcelo Artigues MI, Julia Benique MR, Benson L, Gorman M, Felipe A, Caparo Oblitas RL, Rosenfeld MR, Graus F & **Dalmau J** 2017, 'Investigations in GABA(A) receptor antibody-associated encephalitis', *Neurology*, 88:1012-1020.
- Hara M, Ariño H, Petit-Pedrol M, Sabater L, Titulaer MJ, Martínez-Hernández E, Schreurs MW, Rosenfeld MR, Graus F & **Dalmau J** 2017, 'PPX-antibody associated encephalitis: main syndrome and antibody effects', *Neurology*, 88:1340-1348.



## Xavier Daura

Universitat Autònoma de Barcelona (UAB)  
Life & Medical Sciences

I studied Biological Sciences at UAB, Barcelona, where I graduated in 1991 and obtained the PhD in 1996. I then moved to the lab of WF van Gunsteren at ETH Zurich, a main reference in the field of computational modelling and simulation of biomolecular systems. These were extraordinary years in which we performed seminal work on the simulation of polypeptide folding by molecular-dynamics methods. In 2002 I was appointed as ICREA Research Professor and returned with this position to the Institute of Biotechnology and Biomedicine (IBB) of UAB, starting a new group in Computational Biology. Today, we focus our efforts on the identification and development of new strategies to combat infections by multidrug-resistant bacteria, using a range of computational and experimental approaches. In 2005 I was appointed Adjunct Professor at UAB to combine my research activities as an ICREA Professor with teaching at the post-graduate level. In the period 2011-2017 I served as Director of IBB.

### Research interests

The main objective of our research group is the development of new strategies to combat infections by multidrug-resistant (MDR) bacteria, in particular of the Gram-negative (GN) group. The increasing emergence and spread of MDR pathogens constitutes at present one of the major threats to public health. The shortage of effective antimicrobials for treatment of MDR GN infections is particularly critical as cases of pan-resistance accumulate. The discovery of new drug targets and modes of action (MoA), less propitious to the evolution of resistance, has therefore become a pressing need. In parallel, the development of effective vaccines may offer a solution for high-risk population groups. Our team combines a range of computational and experimental techniques for the identification of antimicrobial-target candidates with new MoA and vaccine candidates eliciting prescribed responses. Much of this is in collaboration with the group of Bacterial Molecular Genetics of IBB, led by I. Gibert.

### Selected publications

- Sanchez-Garcia L, Serna N, Mattanovich M, Cazzanelli P, Sanchez-Chardi A, Conchillo-Solé O, Cortés F, **Daura X**, Unzueta U, Mangues R, Villaverde A & Vázquez E 2017, 'The fusogenic peptide HA2 impairs selectivity of CXCR4-targeted protein nanoparticles', *Chemical Communications*, 53(33): 4565-4568.
- Huguet C, Fietz S, **Rosell-Melé A**, **Daura X** & Costenaro L 2017, 'Molecular dynamics simulation study of the effect of glycerol dialkyl glycerol tetraether hydroxylation on membrane thermostability', *Biochimica et Biophysica Acta - Biomembranes*, 1859(5): 966-974.
- Scholz EM, Marcilla M, **Daura X**, Arribas-Layton D, James EA & Alvarez I 2017, 'Human leukocyte Antigen (HLA)-DRB1\*15:01 and HLA-DRB5\*01:01 Present Complementary Peptide Repertoires', *Frontiers in Immunology*, 8: 984.
- van Gunsteren WF, **Daura X**, Hansen N, Mark AE, Oostenbrink C, Riniker S & Smith LJS 2017, 'Validation of Molecular Simulation: An Overview of Issues', *Angewandte Chemie International Edition*, 56: 2-21.

### Selected research activities

Caixalmpulse award ("la Caixa" Foundation & Caixa Capital Risk, ref. CI17-00021) to conduct the valorisation project "AMB Advanced Therapeutics: Potentiating current antibiotics against life-threatening resistant hospital-acquired infections".



**Gustavo Deco**  
 Universitat Pompeu Fabra (UPF)  
 Engineering Sciences

Gustavo Deco is Research Professor at ICREA and Professor (Catedrático) at the Pompeu Fabra University where he leads the Computational Neuroscience group. He is Director of the Center of Brain and Cognition (UPF). In 1987 he received his PhD in Physics for his thesis on Relativistic Atomic Collisions. In 1987, he was a postdoc at the University of Bordeaux in France. From 1988 to 1990, he was postdoc of the Alexander von Humboldt Foundation at the University of Giessen in Germany. From 1990 to 2003, he led the Computational Neuroscience Group at Siemens Corporate Research Center in Munich, Germany. He obtained in 1997 his Habilitation (maximal academical degree in Germany) in Computer Science (Dr. rer. nat. habil.) at the Technical University of Munich for his thesis on Neural Learning. In 2001, he received his PhD in Psychology at the Ludwig-Maximilians-University of Munich. He was awarded with the ERC Advanced Grant.

### Research interests

Perceptions, memories, emotions, and everything that makes us human, demand the flexible integration of information represented and computed in a distributed manner. Normal brain functions require the integration of functionally specialized but widely distributed brain areas. The main aim of my research is to elucidate precisely the computational principles underlying higher brain functions and their breakdown in brain diseases. My research allows us to comprehend the mechanisms underlying brain functions by complementing structural and activation based analyses with dynamics. We integrate different levels of experimental investigation in cognitive neuroscience (from the operation of single neurons and neuroanatomy, neurophysiology, neuroimaging and neuropsychology to behaviour) via a unifying theoretical framework that captures the neural dynamics inherent in the computation of cognitive processes.

### Selected publications

- Insabato A, Pannunzi M & **Deco G** 2017, 'Multiple choice neurodynamical model of the uncertain option task', *PLOS Computational Biology*, 13(1): e1005250.
- **Deco G**, Cabral J, Woolrich MW, Stevner AB, van Hartevelt TJ & Kringelbach ML 2017, 'Single or multiple frequency generators in on-going brain activity: A mechanistic whole-brain model of empirical MEG data', *Neuroimage*, 152:538-550.
- Adhikari MH, Hacker CD, Siegel JS, Griffa A, Hagmann P, **Deco G** & Corbetta M 2017, 'Decreased integration and information capacity in stroke measured by whole brain models of resting state activity', *Brain*, 140, 4, 1068 - 1085.
- Naik S, Banerjee A, Bapi RS, **Deco G** & Roy D 2017, 'Metastability in Senescence', *Trends in Cognitive Science*, 21 (7), 509-521.
- **Deco G**, Kringelbach ML, Jirsa VK & Ritter P 2017 'The dynamics of resting fluctuations in the brain: metastability and its dynamical cortical core', *Scientific Reports*, 7(1):3095.
- **Deco G** & Kringelbach ML 2017, 'Hierarchy of Information Processing in the Brain: A Novel 'Intrinsic Ignition' Framework', *Neuron*, 94 (5), 961-968.
- Saenger VM, Kahan J, Foltynie T, Friston K, Aziz TZ, Green AL, van Hartevelt TJ, Cabral J, Stevner ABA, Fernandes HM, Mancini L, Thornton J, Yousry T, Limousin P, Zrinzo L, Hariz M, Marques P, Sousa N, Kringelbach ML & **Deco G** 2017, 'Uncovering the underlying mechanisms and whole-brain dynamics of deep brain stimulation for Parkinson's disease', *Scientific Reports*, 7, 9882.
- **Deco G**, Tagliazucchi E, Laufs H, Sanjuán A, Kringelbach ML 2017, 'Novel Intrinsic Ignition Method Measuring Local-Global Integration Characterizes Wakefulness and Deep Sleep', *eNeuro*, 4(5), UNSP e0106-17.



## Ruth de Diego-Balaguer

Universitat de Barcelona (UB)  
Social & Behavioural Sciences

After my Degree in Psychology I specialised at the University of Barcelona (UB) in Psycholinguistics and Cognitive Neuroscience during my PhD. After that, I spent three years as a post-doc at the INSERM U955 (Université Paris Est, Créteil, UPEC) where I studied the involvement of the striatum in the learning new rules in language. I also was maître de conférences (tenured) at the Ecole Normale Supérieure in Paris. After an ICREA Researcher period, I am currently an ICREA Research Professor at the UB. My research is mainly focused on the cognitive functions and neural circuits engaged in the extraction of grammatical rules while learning a new language.

### Research interests

My research combines information from brain-damaged patients, developmental populations and brain-imaging in healthy individuals to understand whether words and rules of language require different neural and cognitive mechanisms to be acquired since the earliest stages of contact with a new language. I am particularly interested in i) the role of the attentional systems in the acquisition of different aspects of language; ii) the role of the striatum as a brain structure that could make the interface between language and other cognitive functions necessary in the learning process; and iii) how is the acquired information consolidated and modified when we learn new additional information.

### Selected publications

- Packard P, **Rodríguez-Fornells A**, Bunzeck N, Nicolás B, **de Diego-Balaguer R** & Fuentemilla L 2017, '**Semantic congruence accelerates the onset of the neural signals of successful memory encoding**', *Journal of Neuroscience*. 37(2):291-301
- García-Gorro C, Càmara E & **de Diego-Balaguer R** 2017, 'Neuroimaging as a tool to study the sources of phenotypic heterogeneity in Huntington's disease', *Current Opinion in Neurology*. 30(4):398-404
- Oyarzún JP, Morís J, Luque D, **de Diego-Balaguer R** & Fuentemilla LI 2017, 'Targeted memory reactivation during sleep adaptively promotes the strengthening or weakening of overlapping memories', *Journal of Neuroscience*. 37, 32, 7748 - 7758.
- López-Barroso D & **de Diego-Balaguer R** 2017, '**Language learning variability within the dorsal and ventral streams as a cue for compensatory mechanisms in aphasia recovery**', *Frontiers in Human Neuroscience*. 11:476
- Martínez-Alvarez A, Pons F & **de Diego-Balaguer R** 2017, '**Endogenous temporal attention in the absence of stimulus-driven cues emerges in the second year of life**', *PLOS ONE*. 12(9):e0184698

### Selected research activities

- Organisation of the International Workshop "Beyond Language Learning", 29-30 September, Barcelona, UPF
- Invited Talks: CFIN, Aarhus, Denmark; Univ. of Utrecht, The Netherlands; Keynote Speaker RECA conference, Baeza.
- La Caixa Post-graduate Fellowships committee (interviews)
- Award to the best publication 2016 (SEPEX)
- Member of the Internal Scientific Committee IDIBELL
- PhD Thesis Defense. Javiera Oyarzún. Shaping the memory engram through learning overlapping memory events.
- Supervision of 3 international Master Thesis (Univ. of Strasbourg, Uni. of Caen, Vrije Univ Amsterdam)
- 2 Thesis committees: University of Utrecht (The Netherlands), Lund University (Sweden)
- Short research training for undergraduates (2 month): Erim Kizildere, Koç University, Turkey; Patricia Stumpf, University of Vienna; Deirdre Lanski, The Royal College of Surgeons, Ireland; Audrey DePaepe, Pomona College, USA



Gianni De Fabritiis  
Universitat Pompeu Fabra (UPF)  
Experimental Sciences & Mathematics

ICREA research professor at Universitat Pompeu Fabra (UPF) and group leader of the computational biophysics laboratory and associate professor at UPF.

I have a bachelor degree in applied mathematics (1997, University of Bologna) and a PhD in computational chemistry (2002, Queen Mary University of London). I have worked at the CINECA supercomputing center (1998-1999), at University College London (2003-2006) and later I won a 5 year Ramon y Cajal tenure-track fellowship at University Pompeu Fabra and the I3 program, before becoming ICREA Professor.

I have published 80 articles in international journals (PNAS, JACS, Nat. Chem., Nat. Commun., etc). My h-index is 30 with over 3200 citations. In the last four years I gave 30 oral presentations at international conferences (18 as invited speaker) and lectures in many pharmaceutical companies. I am associate editor of "In-silico pharmacology".

### Research interests

My group research interests are centered in the application of computing as a fundamental methodology to problem solving. In particular simulations in biomedicine, machine learning of biological data and machine intelligence.

### Research lines

**Biomedicine.** We use large distributed computational resources (GPUGRID.net) with thousands of GPUs for molecular dynamics simulations, binding prediction, binding kinetics, Markov state models, online sampling methods (ACEMD, HTMD). The approach is computational driven but we like to collaborate with experimental laboratories and pharmaceutical companies.

**Machine Intelligence.** In this research line we develop machine learning approaches applied to biological data. We are particularly interested in behavioral intelligence, artificial neural networks, sparse coding, deep and hierarchical learning.

### Selected publications

- Martinez-Rosell G, Giorgino T & **De Fabritiis G** 2017, 'PlayMolecule ProteinPrepare: A Web Application for Protein Preparation for Molecular Dynamics Simulations', *Journal Of Chemical Information And Modeling*, 57, 7, 1511 - 1516.
- Martinez-Rosell G, Giorgino T, Harvey MJ & **de Fabritiis G** 2017, 'Drug Discovery and Molecular Dynamics: Methods, Applications and Perspective Beyond the Second Timescale', *Current Topics In Medicinal Chemistry*, 17, 23, 2617 - 2625.
- Plattner N, Doerr S, **De Fabritiis G** & Noe F 2017, 'Complete protein-protein association kinetics in atomic detail revealed by molecular dynamics simulations and Markov modelling', *Nature Chemistry*, 9, 10, 1005 - 1011.
- Jimenez J, Doerr S, Martinez-Rosell G, Rose A & **De Fabritiis G** 2017, 'DeepSite: protein-binding site predictor using 3D-convolutional neural networks', *Bioinformatics*, 33, 19, 3036 - 3042.
- Doerr S, Giorgino T, Martinez-Rosell G, Damas JM & **De Fabritiis G** 2017, 'High-Throughput Automated Preparation and Simulation of Membrane Proteins with HTMD', *Journal Of Chemical Theory And Computation*, 13, 9, 4003 - 4011.
- Kapoor A, Martinez-Rosell G, Provasi D, **de Fabritiis G** & Filizola M 2017, 'Dynamic and Kinetic Elements of mu-Opioid Receptor Functional Selectivity', *Scientific Reports*, 7, 11255.

### Selected research activities

- We have obtained an EU innovation grant INUMED and one Torres Quevedo fellowship
- Member of the EU CompBioMed project with both UPF and Acellera
- Received 80K euro of private donations
- Director and chief science officer of the company Acellera ltd which I co-founded in 2006, I direct the R&D of the company and collaborate with several research organizations and pharmaceutical companies towards the goal of computerized drug discovery
- GPUGRID.net remains one of the largest worldwide distributed computing projects
- We have launched playmolecule.org





## Coen de Graaf

Universitat Rovira i Virgili (URV)  
Experimental Sciences & Mathematics

Graduated in Chemistry in 1993 at the University of Amsterdam. PhD student at the University of Groningen, the Netherlands, from 1994 to 1998 (supervisors: Prof. Wim Nieuwpoort and Prof. Ria Broer). Post-Doc in the group of Prof. Francesc Illas of the University of Barcelona with a Marie Curie fellowship from 1998-2000 (subject: magnetism in low-dimensional Heisenberg systems). Post-Doc in the Quantum Chemistry group of the University Rovira i Virgili (2000-2005) with a Ramón y Cajal fellowship. Presently ICREA Research Professor in the same group.

### Research interests

Changing properties of materials by shining light on it is an interesting phenomenon. It becomes even more exciting when the initial state can be repopulated by irradiation with light of different wave length. The material becomes then switchable and technological applications appear at the horizon. Insight in the mechanisms of light-induced properties may eventually lead to new materials. We apply techniques from computational chemistry to obtain information about the light-induced electronic state and the deactivation to the final state. The interplay between the electronic structure and the movement of the nuclei plays an important role in the deactivation. We aim to go beyond the traditional static description by introducing the dynamics of the nuclear movement and obtain a more complete picture of the switching mechanism.

### Selected publications

- Spivak M, Arcisauskaitė V, López X, McGrady JE & de **Graaf C** 2017, 'A multiconfigurational approach to the electronic structure of trichromium extended metal atom chains', *Dalton Trans.* 46, 6202-6211.
- Spivak M, Vogiatzis KD, Cramer CJ, **de Graaf C** & Gagliardi L 2017, 'Quantum Chemical Characterization of Single Molecule Magnets Based on Uranium', *Journal Of Physical Chemistry A*, 121, 8, 1727 - 1734.
- Casellas J, Alcover-Fortuny G, **de Graaf C** & Reguero M 2017, 'Phenylazopyridine as switch in photo- chemical reactions. A detailed computational description of the mechanism of its photoisomerization', *Materials* 10, 1342.
- Kozłowski P, Notario-Estévez A, **de Graaf C**, López X & Monakhov KY 2017, 'Reconciling the valence state with magnetism in mixed-valent polyoxometalates: the case of a VO<sub>2</sub>F<sub>2</sub>@V<sub>2</sub>O<sub>5</sub> cluster', *Phys. Chem. Chem. Phys.* 19, 29 767-29 771 (2017).
- Sousa C, **de Graaf C**, Rudavskiy A & Broer R 2017, 'Theoretical Study of the Light-Induced Spin Crossover Mechanism in [Fe(mtz)<sub>6</sub>]<sup>2+</sup> and [Fe(phen)<sub>3</sub>]<sup>2+</sup>', *J. Phys. Chem.* 121, 51, 9720 - 9727.
- Spivak M, Arcisauskaitė V, López X & de **Graaf C** 2017, 'Backbone flexibility of extended metal atom chains. Ab initio molecular dynamics for Cr<sub>3</sub>(dpa)<sub>2</sub>X<sub>2</sub> (X = NCS, CN, NO<sub>3</sub>) in gas and crystalline phases', *Dalton Trans.* 46, 15 487-15 493 (2017)

### Selected research activities

Organization of "Jujols IX, an international workshop on theoretical approaches of molecular magnetism". Tortosa, May 22-25, 2017  
Organization of the XXXIII anual meeting of the "Reference Network of Theoretical and Computational Chemistry in Catalonia (XRQTC).  
Invited lecture "Theoretical study of the deactivation of the excited singlet state in Fe(II) and Ru(II) SCO complexes", third Bordeaux Olivier Kahn Discussions

URV Talent video for reserach dissemination: [https://youtu.be/V7visl\\_SIs0](https://youtu.be/V7visl_SIs0)



## Xavier de la Cruz

Vall d'Hebron Institut de Recerca (VHIR)  
Life & Medical Sciences

My career revolves around the application of bioinformatics tools to biological problems. My Ph.D. was about the study of the protein structure principles underlying function, a work that I extended during my stay at the NIH (1993-1997) and the UCL (1997-2000). This topic is at the core of my subsequent activities as ICREA researcher (PCB, 2001-2009; IBMB-CSIC, 2009-2012), although it has gradually evolved towards the study of pathological mutations. In 2012, I joined the Institute of Research at the Vall d'Hebron Hospital (VHIR), to increase the applicability of our work, and bring it closer to healthcare professionals and patients. As part of this effort, we are trying to involve all stakeholders in the health system, including companies.

### Research interests

Since we joined the Institute of Research of the Vall d'Hebron Hospital, our first goal has been the understanding of the molecular-level processes underlying disease, focusing on the impact that sequence variants have on protein structure and function. Our approach is computational and aims at the obtention of predictive models that summarize large amounts of biological information. We are making a real effort to translate our results into actual improvements in patient care, working together with hospital teams involved in molecular medicine. In the last years, we have started an original approach to assess the applicability of bioinformatics tools in the hospital scenario, by developing cost models that will allow a better assessment of their value.

### Selected publications

- Alvarez de la Campa E, Padilla N & **de la Cruz X** 2017, 'Development of pathogenicity predictors specific for variants that do not comply with clinical guidelines for the use of computational evidence', *Bmc Genomics*, 18, 569.
- Asensio-Juan E, Fueyo R, Pappa S, Iacobucci S, Badosa C, Lois S, Balada M, Bosch-Presegue L, Vaquero A, Gutierrez S, Caelles C, Gallego C, **de la Cruz X** & Martinez-Balbas MA 2017, 'The histone demethylase PHF8 is a molecular safeguard of the IFN gamma response', *Nucleic Acids Research*, 45, 7, 3800 - 3811.
- López-Ferrando V, Gazzo A, **de la Cruz X**, Orozco M & Gelpí JL 2017, 'PMut: a web-based tool for the annotation of pathological variants on proteins, 2017 update', *Nucleic Acids Res*, vol 45, Web Server Issue, pp W222-W228.
- Vargas-Parra GM, Gonzalez-Acosta M, Thompson BA, Gomez C, Fernandez A, Damaso E, Pons T, Morak M, del Valle J, Iglesias S, Velasco A, Solanes A, Sanjuan X, Padilla N, **de la Cruz X**, Valencia A, Holinski-Feder E, Brunet J, Feliubadalo L, Lazaro C, Navarro M, Pineda M & Capella G 2017, 'Elucidating the molecular basis of MSH2-deficient tumors by combined germline and somatic analysis', *International Journal Of Cancer*, 141, 7, 1365 - 1380.
- Franco-Jarava C, Alvarez de la Campa E, Solanich X, Morandeira-Rego F, Mas-Bosch V, Garcia-Prat M, **de la Cruz X**, Martin-Nalda A, Soler-Palacin P, Hernandez-Gonzalez M & Colobran R 2017, 'Early Versus Late Diagnosis of Complement Factor I Deficiency: Clinical Consequences Illustrated in Two Families with Novel Homozygous CFI Mutations', *Journal Of Clinical Immunology*, 37, 8, 781 - 789.

### Selected research activities

Conference Organization:

\* Co-organizer "V Jornada de Bioinformàtica i Genòmica", Annual Meeting of the Societat Catalana de Biologia and Bioinformatics Barcelona

Bringing Science to School:

\* "El compte enrere: quant falta per a poder diagnosticar totes les malalties hereditàries?" conference Dia de la Ciència a les Escoles (Mollet del Vallès)



## Susana de la Luna

Centre de Regulació Genòmica (CRG)  
Life & Medical Sciences

She obtained the BS in Biology in 1985 at Universidad Autónoma de Madrid. For her PhD studies she joined Juan Ortín's lab at the CBMSO and worked on the biology of influenza virus, characterizing molecularly and functionally the viral polymerase. After getting the PhD in 1989 at UAM she stayed in Ortín's lab at CNB until 1994 when she moved to London to the lab of Nick La Thangue at the National Institute for Medical Research. There, she worked on the G1/S transition in the mammalian cell cycle focusing in the transcription factor E2F, with fellowships from the HFSO (at NIMR) and EU-Marie Curie (at Glasgow University) Programs. In 1998 she returned to Spain with a reintegration contract to join the HSA21/Down syndrome Research group lead by Xavier Estivill (IRO, Barcelona). In 2002, she joined ICREA and established her own line of research on the functional characterization of the family of kinases DYRK and their relationship with disease at the CRG in Barcelona.

### Research interests

The view on how protein kinases translate cell signaling into the regulation of gene expression programs has been expanded in the possible substrates beyond the paradigmatic transcription factors to encompass histones, chromatin remodelers or other components of the basal transcription machinery that are directly modified at specific genomic loci thus regulating the expression of coding and non-coding RNAs. Our group is interested in these regulatory activities of the DYRK family of kinases. Dysregulation of DYRKs leads to disease in humans. In particular, DYRK1A overexpression in Down syndrome (DS) individuals correlates with a wide range of the DS pathological phenotypes. In addition, truncating mutations in one DYRK1A allele have been described in patients with general growth retardation and severe primary microcephaly, highlighting the extreme dosage sensitivity of this gene. We aim to dissect how DYRK activities are linked to human pathology.

### Selected research activities

#### Other Research Activities

- Keynote speaker at the International Conference on "DYRK1A, related kinases & human disease" (St Malo, France)
- Supervision of four PhD students.

#### Managerial activities

- Member of the "Agencia Nacional de Evaluación y Prospectiva" (ANEP), Biomedicine Section (MINECO, Spanish Government).

#### Grants

- "Identification of regulatory mechanisms in DYRK kinases" (BFU-Excellence, MINECO).
- "Pathological mechanisms underlying the syndrome caused by mutations in *DYRK1A*" (Alicia Koplowitz Foundation).



## Hernando A. del Portillo

Institut d'Investigació en Ciències de la Salut Germans Trias i Pujol (IGTP) & Institut de Salut Global Barcelona (ISGlobal)  
Life & Medical Sciences

I studied at the University of Georgia where I received my PhD in 1985 followed by two WHO-postdoctoral trainings at the New York University Medical Centre and the Institut Pasteur where I specialized in molecular biology of malaria. Next, I consolidated an interdisciplinary malaria research group at the University of Sao Paulo, Brazil. In 1990, I did a sabbatical year at the Center for Molecular Biology (ZMBH), University of Heidelberg. In 2007, I became an ICREA Research Professor and joined the Barcelona Institute for Global Health, and in 2016 co-joined the Institut d'Investigació Germans Trias i Pujol. Cornerstones of this research activity are the discovery of the largest multigene virulent family of human malaria parasites and the discovery that reticulocyte-derived exosomes from infections act as intercellular communicators and can be used as a novel vaccine against malaria.

### Research interests

My main research area is the biology of *Plasmodium vivax*, a neglected human malaria parasite responsible for millions of yearly clinical cases. We are presently looking for mechanistic insights of the role of reticulocyte-derived exosomes, nanovesicles of endocytic origin, in signalling the spleen and the bone marrow to unveil molecular basis of anaemia and splenomegaly and to use this information in rationale vaccine development. To pursue spleen studies, we are implementing the usage of humanized mouse models and microfluidic approaches. In addition, we are exploring the use of exosomes as novel vaccines and biomarkers in *vivax* malaria aimed for elimination. Last, we are immortalizing human hematopoietic stem cells to develop a continuous in vitro culture system for blood stages of this malaria species, a major technological key-gap to advance studies of this neglected human malaria.

### Selected publications

- Baro B, Deroost K, Raiol T, Brito M, Almeida ACG, de Menezes-Neto A, Figueiredo EFG, Alencar A, Leitao R, Val F, Monteiro W, Oliveira A, del Pilar AM, Fernandez-Becerra C, Lacerda MV & **del Portillo HA** 2017, 'Plasmodium vivax gametocytes in the bone marrow of an acute malaria patient and changes in the erythroid miRNA profile', *Plos Neglected Tropical Diseases*, 11, 4, e0005365.
- De Niz M, Burda PC, Kaiser G, **Del Portillo HA**, Spielmann T, Frischknecht F & Heussler VT 2017, 'Progress in imaging methods: insights gained into Plasmodium biology', *Nat Rev Microbiol.*, 15(1):37-54.
- Reiner AT, Witwer KW, van Balkom BWM, de Beer J, Brodie C, Corteling RL, Gabrielsson S, Gimona M, Ibrahim AG, de Kleijn D, Lai CP, Lotvall J, **del Portillo HA** et al., 2017, 'Concise Review: Developing Best-Practice Models for the Therapeutic Use of Extracellular Vesicles', *Stem Cells Translational Medicine*, 6, 8.
- Requena P, Arévalo Herrera M, Menegon M, Martínez Espinosa FE, Padilla N, Bôtto Menezes C, Malheiro A, Hans D, Castellanos ME, Robinson L, Samol P, Kochar S, Kochar SK, Kochar DK, Desai M, Sanz S, Quintó LI, Mayor A, Rogerson S, Mueller I, Severini C, **Del Portillo HA**, Bardají A, Chitnis CC, Menéndez C & Dobaño C 2017, 'Naturally Acquired Binding-Inhibitory Antibodies to Plasmodium vivax Duffy Binding Protein in Pregnant Women Are Associated with Higher Birth Weight in a Multicenter Study', *Frontiers in immunology*, 8, pp. 163.

### Selected research activities

- Chair Scientific Committee - International Conference on Plasmodium vivax Research 2017. Manaus, Brazil.
- Organizer: Workshop on Isolation and characterization of Extracellular Vesicles obtained from different biological fluids. IGTP, Badalona, Spain.
- Discussant: Understanding the Liver Stage Biology of Malaria to Enable and Accelerate the Development of a Highly Efficacious Vaccine. NIAID, Rockville, USA.
- Coordinator Workshop on Bioinformatic tools to study exosomes' effects. Dério, Spain.



## Hugues de Riedmatten

Institut de Ciències Fotòniques (ICFO)  
Engineering Sciences

Since Sep. 2010, Hugues de Riedmatten is an ICREA Research Professor and group leader in quantum optics at the Institute of Photonic Sciences (ICFO) in Barcelona. He obtained a Masters in Physics from the Swiss Federal Institute of Technology (EPFL) in 1999, and a PhD in experimental quantum optics from the University of Geneva in 2003, for his work on long distance quantum communication in optical fiber (supervisor Prof. Nicolas Gisin). He was then postdoctoral scholar at Caltech (Prof. Jeff Kimble), where he worked on light-matter interaction at the quantum level by interfacing cold atomic ensembles and single photons. In 2006, he was appointed senior researcher at the Univ. of Geneva, where he led the solid state quantum memory activities. He has published more than 80 articles in peer-reviewed journals and has given over 55 talks, both in international conferences and in invited seminars. He is the recipient of a Starting Grant from the European Research Council (ERC).

### Research interests

Hugues de Riedmatten leads the Quantum Photonics group at ICFO. His research interests are in quantum information science (QIS) and quantum optics. QIS is a research field that aims at controlling quantum coherence in light and matter in order to enable new information processing capabilities impossible with classical resources. He is particularly interested in the quantum control of light matter interaction between single photons and atomic ensembles implemented with rare-earth doped solids and cold atomic gases. Other research lines include quantum non-linear optics with Rydberg atoms, and the detection and manipulation of single ions in the solid-state. The goal is to develop the quantum technology to implement quantum information networks and quantum repeaters. A more fundamental goal is to enable the observation of fascinating quantum effects, such as entanglement, with distant material systems and to explore and extend the limits of quantum coherence in complex material systems.

### Selected publications

- Seri A, Lenhard A, Rielander D, Gundogan M, Ledingham PM, Mazzera M & **de Riedmatten H** 2017, 'Quantum Correlations between Single Telecom Photons and a Multimode On-Demand Solid-State Quantum Memory', *Physical Review X*, 7, 2, 021028.
- Kutluer K, Mazzera M & **de Riedmatten H** 2017, 'Solid-State Source of Nonclassical Photon Pairs with Embedded Multimode Quantum Memory', *Physical Review Letters*, 118, 21, 210502.
- Distante E, Farrera P, Padron-Brito A, Paredes-Barato D, Heinze G & **de Riedmatten H** 2017, 'Storing single photons emitted by a quantum memory on a highly excited Rydberg state', *Nature Communications*, 8, 14072.
- Maring N, Farrera P, Kutluer K, Mazzera M, Heinze G & **de Riedmatten H** 2017, ' Photonic Quantum State Transfer between a Cold Atomic Gas and a Crystal', *Nature* 551, 485.

### Selected research activities

Selected Invited talks:

- *Solid-state spin-wave quantum memories for single photons*, Invited talk at Photonics West, January 28<sup>th</sup>-February 2<sup>nd</sup> 2017, San-Francisco, USA
- *Creating Single Spin-waves in Rare-Earth doped Crystals*, invited talk at the Optomagnonics Workshop, June 27 2017, Max Planck Institute for the Science of Light, Erlangen, Germany
- *Solid-state spin-wave quantum memories for quantum repeaters*, invited talk at the Quantum Information Workshop 2017, Hong-Kong, July 9<sup>th</sup> 2017
- *Engineering needs and challenges in Rare-Earth Quantum Memories*, Workshop in Engineering needs and challenges in quantum technology, London on November 23-24th 2017

Other Activities:

- Program sub-committee member (Quantum Optics of Atoms, Molecules, and Solids), Conference on Lasers and Electro-Optics (CLEO), 2017
- Program committee member, Central European Workshop on Quantum Optics, Palma de Mallorca, Spain 2018

Award:

- Selected as one of eight candidates for the La Vanguardia de la Ciència Award 2017, giving credit to the most important scientific works done in Spain.



**Margarita Díaz-Andreu**  
 Universitat de Barcelona (UB)  
 Humanities

I have been an ICREA Research Professor in Archaeology at the University of Barcelona since 2012, having moved from Durham Univ. (1996-2011). I am the author of about 250 publications, including 22 authored and edited books. My work has been published by Oxford University Press, Routledge, Cambridge University Press, Springer and Marcial Pons, among other prestigious publishers. Some of my articles have been included in readers and others have been translated into five different languages. I have supervised 9 PhD students through to completion and I am currently supervising 5. I have had 6 post-doctoral students. I have been the PI of many archaeological projects from which many of my publications are the result of and that have provided with grants to many students. I am a keen supporter of the internationalisation of science. I am currently promoting Catalan archaeology through the organisation of the EAA Annual Meeting 2018.

### Research interests

In the past few years I have been active, and lead research groups, in the fields of archaeoacoustics (arqueoacustica.net), the history of archaeology (arqueologiasinfronteras.wordpress.com, interarqweb.wordpress.com) and heritage (gapp.cat). The focus of my work in archaeoacoustics is to examine the relevance of acoustics as a factor for the production, location and active use of rock art sites and landscapes. In the history of archaeology I have also centred my attention on the connections between archaeology and ideologies such as nationalism, colonialism, class and gender, and dealt with other issues such as academic networks, archaeological tourism and interdisciplinarity. Regarding my work in archaeological heritage, my research has emphasised issues related to World Heritage and UNESCO, the ethics of archaeological tourism, social participation and the impact of migration. In all these areas I am leading groups of academics and students supported by research projects

### Selected publications

- Mattioli T, Farina A, Armelloni E, Hameau P & **Díaz-Andreu M** 2017, 'Echoing landscapes: echolocation and the placement of rock art in the Central Mediterranean', *Journal of Archaeological Science*, 83: 12-25.
- **Díaz-Andreu M**, García Atiénzar G, García Benito C & Mattioli T 2017, 'Do you hear what I see? Analyzing visibility and audibility through alternative methods in the rock art landscape of the Alicante mountains', *Journal of Anthropological Research*, 73: 181-213.
- Mattioli T & **Díaz-Andreu M** 2017, 'Hearing rock art landscapes. A survey of the acoustical perception in the Sierra de San Serván area in Extremadura (Spain).', *Time and Mind*, 10: 81-96.
- **Díaz-Andreu M** 2017, [Special issue] 'Heritage Values and the Public', *Journal of Community Archaeology and Heritage*, 4(1): 1-68.
- **Díaz-Andreu M** & Ruiz A 2017, 'Interacting with heritage: social inclusion and archaeology in Barcelona', *Journal of Community Archaeology and Heritage*, 4(1): 53-68.
- **Díaz-Andreu M** 2017, Themed issue 'Digital Heritage and the Public', *International Journal of Heritage Studies*, 23(5): 404-444.
- Díaz-Andreu, M 2017 'Introduction to the themed issue Digital Heritage and the Public', *International Journal of Heritage Studies*, vol. 23, no. 5, pp. 404-407.

### Selected research activities

5 PhD students. 2 foreign research students

PI HAR2016-80271-P, GENCAT 2014/100782 & GAPP research groups. Funded research in Mexico & Belize.

Leading EAA Annual Meeting 2018. Head of the EAA Nomination Committee and vice-president History of Archaeology Commission (IUPPS). Advisory panels & evaluation: COST, Res C. of Lithuania, MEICO, Ikerbasque, AGAUR.

Social impact in journals & radio programmes worldwide of echolocation article.



## Luciano Di Croce

Centre de Regulació Genòmica (CRG)  
Life & Medical Sciences

1996 PhD Dept. Cellular and Developmental Biology, University of Rome, Italy. 1996-2000 Postdoctoral work at the University of Marburg, Germany. 2000-2002 Senior Investigator at the European Institute of Oncology, Milan, Italy. 2003 Group Leader at the Centre de Regulació Genòmica (CRG), Barcelona, Spain. Research Professor, Institució Catalana de Recerca i Estudis Avançats (ICREA). 2013 Elected EMBO Member.

### Research interests

Epigenetic changes, such as histone modifications and DNA methylation, are common alterations in cancer cells. Our laboratory is addressing the molecular basis of epigenetic alterations during the early phase of the tumorigenesis process. The expression of onco-proteins in hematopoietic precursor cells provides a unique model system to follow the molecular step from a normal to a transformed cell on the level of gene transcription, nuclear structure and chromatin. More recently, Di Croce lab is interested in understanding how variations in the assembly of the Polycomb complexes occur and influence mES cell differentiation and animal development.

### Selected publications

- Santanach A, Blanco E, Jiang H, Molloy KR, Sanso M, LaCava J, Morey L & **Di Croce L** 2017, 'The Polycomb group protein CBX6 is an essential regulator of embryonic stem cell identity', *Nature Communications*, 8, 1235.
- Pascual G, Avgustinova A, Mejetta S, Martín M, Castellanos A, Stephan-Otto Attolini C, Berenguer A, Prats N, Toll A, Hueto JA, Bescós C, **Di Croce L** & **Aznar-Benitah S** 2017, '**Targeting metastasis stem cells through the fatty acid receptor CD36**', *Nature*, 541, 41-45.
- Hu D, Gao X, Cao K, Morgan MA, Mas G, Smith ER, Volk AG, Bartom ET, Crispino JD, **Di Croce L** & Shilatifard A 2017, 'Not All H3K4 Methylations Are Created Equal: MII2/COMPASS Dependency in Primordial Germ Cell Specification', *Mol Cell*, 65:460-475.
- Stevens TJ, Lando D, Basu S, Atkinson LP, Cao Y, Lee SF, Leeb M, Wohlfahrt KJ, Boucher W, O'Shaughnessy-Kirwan A, Cramard J, Faure AJ, Ralser M, Blanco E, Morey L, Sanso M, Palayret MGS, **Lehner B**, **Di Croce L**, Wutz A, Hendrich B, Klenerman D & Laue ED 2017, '3D structures of individual mammalian genomes studied by single-cell Hi-C', *Nature*, 544, 7648, 59 - +.
- Schuettengruber B, Bourbon H-M, **Di Croce L** & Cavalli G 2017, 'Genome Regulation by Polycomb and Trithorax: 70 Years and Counting', *Cell*, 171, 1, 34 - 57.

### Selected research activities

Organizer of several international conferences, including for 2017: Epigenetics in Clinical and Translational Research, Helsinki (Finland), and CRISPR/Cas9Tool: From Gene to function, Barcelona

Since 2015: co-organizer of the "The Barcelona Institute of Science and Technology" (BIST) Master school

Since 2014, co-organizer of the Cold Spring Harbour Laboratories Summer course on "*Chromatin, Epigenetics and Transcription*"

Since 2012 Chair of the Graduate Programme at CRG

ERC Panel Member for 2016-2019

EMBO Member (since 2013)



**Julian di Giovanni**  
 Universitat Pompeu Fabra (UPF)  
 Social & Behavioural Sciences

Julian di Giovanni is an ICREA Research Professor at Universitat Pompeu Fabra, the Deputy Director for Research and a Research Professor at the Barcelona GSE, a Research Associate at the CREI, and a Research Fellow of the CEPR. He worked for the Research Department of the IMF from 2004-2013. He has been a Visiting Assistant Professor at the University of Toronto, and a Visiting Scholar at the Banque de France, Central Bank of the Republic of Turkey, and the IMF. He was awarded an International Incoming Fellowship from the European Research Council Marie Curie Actions (2014), and a European Research Council Consolidator Grant (2016). He has published in the *American Economic Review*, *Econometrica*, *Journal of Political Economy*, *Journal of the European Economic Association*, and other leading economic journals. He received his PhD in Economics at the University of California, Berkeley in 2004.

### Research interests

I work in international economics and macroeconomics broadly defined, with a recent focus on empirical work using big data. The underlying aim in the majority of my work is to provide a better understanding of how different forms of cross-country integration impact domestic economic outcomes. One strand of my current research studies how shocks at the firm transmit across countries via production linkages, and the implications for macroeconomic interdependence. This work builds on past research that studies the importance of micro shocks and large firms in driving macroeconomic fluctuations. I have also worked on the transmission of monetary shocks across borders, and I am currently involved in projects studying (i) the impact of the global financial cycle on local credit markets in emerging markets, and (ii) the impact of government procurement projects on allocative efficiency and aggregate productivity.

### Selected publications

- **di Giovanni J**, Levchenko AA & Mejean I 2017, 'Large Firms and International Business Cycle Comovement', *American Economic Review: Papers and Proceedings*, 107, 5, 598 - 602.
- Baskaya YS, **di Giovanni J**, Kalemli-Ozcan S, **Peydró JL** & Ulu MF 2017, 'Capital Flows and the International Credit Channel', *Journal of International Economics*, 108, S15 - S22.

### Selected research activities

- European Research Council Consolidator Grant, "Global Production Networks and Macroeconomic Interdependence"
- Becas Leonardo a Investigadores y Creadores Culturales, Fundación BBVA, "Proyectos públicos, financiación empresarial y productividad agregada"
- Deputy Director for the Barcelona GSE
- Associate Editor, *Journal of International Economics*
- Referee service: *American Economic Journal: Macroeconomics*, *Journal of International Economics*, *Quarterly Journal of Economics*, *Review of Economics & Statistics*
- Co-Organizer "Firms in the Global Economy" workshop at the Barcelona GSE Summer Forum; and "Rethinking Competitiveness, Structural Reforms, and Macro Policy" Conference, Bank of Italy-CEPR-CEBRA
- Local Committee Chair: 42nd Spanish Economic Association Meeting; and European Winter Meetings of the Econometric Society
- Seminars: Bank of England, Bank of Italy, Norges Bank
- International Conference Discussant: NBER Summer Institute (ITM); and NBER International Seminar on Macroeconomics
- Visitor: Bank of England, One Bank Visitor Programme





## Francisco Javier Doblas-Reyes

Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC - CNS)  
Experimental Sciences & Mathematics

I started working on climate variability at the Universidad Complutense de Madrid (Spain) in 1992, where I did my PhD. I then worked as a postdoc in MétéoFrance (Toulouse, France), at the Instituto Nacional de Técnica Aeroespacial (Torrejón, Spain) and for ten years at the European Centre for Medium-Range Weather Forecasts (Reading, UK). I led the Climate Forecast Unit at the Institut Català de Ciències del Clima (IC3) from 2010 to 2015. I am currently the head of the Department of Earth Sciences of the Barcelona Supercomputing Center (BSC-CNS). The Department hosts more than 70 engineers, physicists, mathematicians and social scientists who try to bring the latest developments in supercomputing and data analysis to provide the best information and services on climate and air quality. I am author of more than 130 peer-reviewed papers (h index 36, scopus), member of several international scientific committees and supervisor of several postdocs, engineers and two PhD students.

### Research interests

Global climate is highly variable, which implies that there is much more to understand than just climate change. Climate prediction aims at predicting the variations of climate at different time scales, ranging from one month to several years beyond the start of the forecast. I use an Earth system model based on differential equations to explore the limits of the forecast quality over different parts of the globe, in particular over Africa, South America, the Arctic and Southern Europe. I develop this model to explore the advantages of increasing its resolution to better reproduce the physical processes at the origin of climate variability. I also use statistical techniques to adapt the resulting climate information to specific user needs. Improving the application of this climate information to different socio-economic sectors, with a special focus on energy and disaster risk management, is one of my main targets to try to make a change in both society and the economy.

### Selected publications

- Volpi D, Guemas V, **Doblas-Reyes FJ**, Hawkins E & Nichols NK 2017, 'Decadal climate prediction with a refined anomaly initialisation approach', *Climate Dynamics*, 48, 1841-1853.
- Ceglar A, Turco M, Toreti A & **Doblas-Reyes FJ** 2017, 'Linking crop yield anomalies to large-scale atmospheric circulation in Europe', *Agricultural and Forest Meteorology*, 240-241, 35-45.
- Torralba V, **Doblas-Reyes FJ**, MacLeod D, Christel I & Davis M 2017, 'Seasonal climate prediction: a new source of information for the management of wind energy resources', *Journal of Applied Meteorology and Climatology*, 56, 1231-1247.
- Torralba V, **Doblas-Reyes FJ** & González-Reviriego N 2017, 'Uncertainty in recent near-surface wind speed trends: a global reanalysis intercomparison', *Environmental Research Letters*, 12, 114019.
- Bellprat O, Massonnet F, Siegert S, Prodhomme C, Macias-Gómez D, Guemas V & **Doblas-Reyes FJ** 2017, 'Uncertainty propagation in observational references to climate model scales', *Remote Sensing of the Environment*, 203, 101-108.
- Lienert F & **Doblas-Reyes FJ** 2017, 'Prediction of interannual North Atlantic sea surface temperature and its remote influence over land', *Climate Dynamics*, 48, 3099-3114.

### Selected research activities

- Co-chair of the World Climate Research Programme Modeling Advisory Council.
- Co-author of more than 20 peer-reviewed publications in 2017.
- Member of the Research Advisory Committee of the Indian Institute of Tropical Meteorology (Pune, India).



## Inés Domingo

Universitat de Barcelona (UB)  
Humanities

Inés is ICREA Research professor in the Section of Prehistory and Archaeology (Universitat de Barcelona) since 2010, and Vice-president of the World Archaeological Congress (2017-2020). Through her current and previous positions at the Universities of Valencia (Spain) and Flinders (Australia) she explores the 'Archaeologies' of rock art from a multidisciplinary perspective. Her performance in archaeology has earned her a number of academic awards and distinctions: Honorary Associate Researcher at the Dep. of Archaeology, Flinders University (Australia) since 2009; Blaze O'Connor memorial award (WAC, Jordan, 2013); Honorary appointment as guest professor at HeTao University (Inner Mongolia, China) (2010); Honorary Research Fellow of Inner Mongolia Rock Art Protection and Research Association, and Inner Mongolia Rock Art Research Academy (2010) and a PhD University Award (Premio extraordinario de doctorado) (2006).

### Research interests

My current research explores both the scientific and heritage values of rock art. In Spain, I aim to advance our understanding of Postpalaeolithic rock art of Mediterranean Iberia (World Heritage since 1998), combining state of the art technologies, theories and methods and seeking interdisciplinary collaborations for physics and chemical analysis of pigments and rock surfaces, and digital rock art recording. Through the systematic analysis and decomposition of rock art panels and their contexts I intend to discover hidden clues providing insights into the past to answer questions of what, why, where, how, when and who produced this millenary legacy. In Australia I explore the social and territorial aspects of rock art from an ethno-archaeological perspective, working with Aboriginal people and Australian researchers in Arnhem Land. Combining both perspectives (archaeology and ethnography) I aim to develop a more critical theoretical framework to explore past and present rock art.

### Selected publications

- Roman D & **Domingo I** 2017, 'El final del Paleolítico superior en Castellón: un territorio clave para la comprensión del final del Pleistoceno en el Mediterráneo ibérico/The end of the Upper Palaeolithic in Castellón: a key territory to understand the end of the Pleistocene in Mediterranean Iberia', *Pyrenae*, vol. 48 (1), pp 47-70.
- May SK, Taçon PSC, Wright D, Marshall M, Goldhahn J & **Domingo I** 2017, 'The rock art of Madjedbebe (Malakunanja II)'. In David B, Taçon P, Delannoy JJ & Geneste JM (eds), *The Archaeology of Rock Art in Western Arnhem Land, Australia*. Terra Australis Series 47, ANU, Canberra, pp. 87-107.
- May SK, Shine D, Wright D, Denham T, Taçon P, Marshall M, **Domingo I**, Prideaux F, Stephens S 2017, 'The rock art of Ingaanjawurr, Western Arnhem Land, Australia'. In David B, Taçon P, Delannoy JJ & Geneste JM (eds), *The Archaeology of Rock Art in Western Arnhem Land, Australia*. Terra Australis Series 47, ANU, Canberra, pp. 53-68.
- **Domingo I** 2017, 'Inés Domingo Sanz's tips for digitally drawing rock art', In Burke H, Morrison M and Smith C *The Archaeologist's field handbook (Second Edition)*. Australia. Allen and Unwin.
- **Domingo I**, Smith C & May SK 2017 'Etnoarqueología y arte rupestre: potencial, perspectivas y ética', *Complutum*, 28 (2): 285-305.

### Selected research activities

#### Session organizer at 23rd meeting EAA, Netherlands:

- with Gallinaro, M. and Fiore, B. Mind the gap 2.0! Building bridges between science, heritage and society in the archaeology of rock art.
- with Gallinaro, M. Rock art is archaeology or it is nothing.

#### Conference papers:

- with Vendrell, M. A critical assessment of the potential and limitations of physicochemical analysis to advance knowledge on Levantine rock art. 23rd EAA, Netherlands.
- with Smith, C.; Roman, D. & Jackson, G. Populations Expansion as a Replacement or Merging of Peoples: Insights from the Rock Art of Doria Gudaluk (Beswick Creek Cave), N.T., Australia. 82 SAA, Vancouver.



## Turgut Durduran

Institut de Ciències Fotòniques (ICFO)

Engineering Sciences

November 2015 – ICREA Research Professor; February 2009 – Group Leader – Medical Optics. Dr. Turgut Durduran is a group leader at ICFO. He founded the ICFO-Medical Optics group in 2009 when he joined ICFO and in 2014 he received his tenure and became a professor/group leader. In 2015, he became an ICREA (Catalan Institution for Research and Advanced Studies) Professor at ICFO. Over the years, the group has grown exponentially, currently, with a large number of PhD students, post-docs and engineers collaborating with about a dozen hospitals and biomedical institutes world-wide. He has participated in many advisory boards, grant review boards ranging from the National Institutes of Health to the review of the FP7 projects at the European Commission. He has authored over ninety peer-reviewed papers and delivered over a hundred invited talks in international conferences and colloquia.

### Research interests

Turgut is a physicist who is an expert in biomedical optics. He studies the physics of photon propagation in biological tissues and builds machines that can see through our bodies like never before. His group is highly multi-disciplinary: physicists, engineers and medical doctors, and collaborates closely with hospitals and biomedical centers all around the world. Turgut's current focus is the measurement of hemodynamics and oxygen metabolism. His dream is to see these devices becoming standard clinical equipment for the doctors of the future.

### Selected publications

- Dragojevića T, Varmaa HM, Hollmann JL, Valdesa CP, Culverb JP, Justicia C & **Durduran T** 2017, 'High-density speckle contrast optical tomography (SCOT) for three dimensional tomographic imaging of the small animal brain', *Neuroimage*, 153, 283 - 292.
- Farina A, Tagliabue S, Di Sieno L, Martinenghi E, **Durduran T**, Arridge S, Martelli F, Torricelli A, Pifferi A & Mora AD 2017, 'Time-domain functional diffuse optical tomography system based on fiber-free silicon photomultipliers', *Appl. Sci.*, 7, 1235.
- Pagliuzzi M, Sekar SKV, Colombo L, Martinenghi E, Minnema J, Erdmann R, Contini D, Mora AD, Torricelli A, Pifferi A & **Durduran T** 2017, 'Time domain diffuse correlation spectroscopy with a high coherence pulsed source: in vivo and phantom results', *Biomed. Opt. Express*, 8, 5311.
- Farzam P, Johansson J, Mireles M, Jimenez-Valerio G, Martinez-Lozano M, Choe R, Casanovas O & **Durduran T** 2017, 'Pre-clinical longitudinal monitoring of hemodynamic response to anti-vascular chemotherapy by hybrid diffuse optics', *Biomedical Optics Express*, Vol. 8, Issue 5, pp. 2563-2582.



**Konstantin Dyakonov**  
 Universitat de Barcelona (UB)  
 Experimental Sciences & Mathematics

Born on 30 May 1964 in Leningrad, USSR (=St. Petersburg, Russia). Graduated from Leningrad State University in 1986. PhD in Mathematics from St. Petersburg State University, 1991. Previous long-term positions: - Institute of Analysing Devices, Leningrad, USSR (1986-1989), researcher; - St. Petersburg University of Electrical Engineering, St. Petersburg, Russia, assistant professor (1989-1992) and then associate professor (1992-1998) in the Department of Mathematics; - Universidad de La Laguna, Tenerife, Spain (1996-1997), visiting professor; - Universitat de Barcelona, Spain (1999-2001), visiting research fellow; - Steklov Institute of Mathematics, St. Petersburg Branch (POMI), St. Petersburg, Russia (1998-2007), senior researcher; - Universitat de Barcelona, Spain (2003-2006), Ramón y Cajal researcher. Prizes: Young Scientist Award in the area of Mathematics from Academia Europaea (for fSU researchers), 1998.

### Research interests

Most of my research is devoted to spaces of analytic functions of a complex variable. Typically, the functions live on the unit disk and are well-behaved, in a sense, near/on its boundary, the unit circle. Various specific interpretations of "well-behaved", such as a natural growth restriction or some kind of boundary smoothness, give rise to important function spaces with nice properties, and I have studied some of these. I am also concerned with certain types of linear operators (e.g., the so-called Toeplitz and Hankel operators) acting on such spaces.

### Selected publications

- **Dyakonov KM** 2017, 'Smooth Analytic Functions and Model Subspaces', In: Pereyra M, Marcantognini S, Stokolos A & Urbina W (eds) **'Harmonic Analysis, Partial Differential Equations, Banach Spaces, and Operator Theory'**, Volume 2, pp. 239-266, Association for Women in Mathematics Series, vol. 5, *Springer*, Cham.
- **Dyakonov KM** 2017, 'Factorization and non-factorization theorems for pseudocontinuable functions', *Advances in Mathematics*, vol. 320, pp. 630-651.

### Selected research activities

- \* Advanced undergraduate course "Functions of a complex variable", taught at the UB in February – May 2017.
- \* Problem solving classes in Mathematical Analysis, taught at the UB in September – December 2017.
- \* Editorial boards: Journal of Complex Analysis (Hindawi Publ. Corp.), Applied Mathematics (Sci. Res. Publ.).
- \* A number of invited talks at various conferences in Russia, Poland and Spain.
- \* A talk at the UB/UAB Analysis Seminar (October 2, 2017).
- \* Coordinator (on behalf of the UB Complex Analysis group) for the Spanish research network "Variable compleja, espacios de funciones y operadores entre ellos".
- \* Member of the Scientific Committee for the "Fourth Summer School in Complex Analysis" (June 12-15, 2017), held at Universidad Carlos III de Madrid, Leganés, Spain.
- \* Served as referee for a number of mathematics journals.



## Majid Ebrahim-Zadeh

Institut de Ciències Fotòniques (ICFO)  
Engineering Sciences

Majid Ebrahim-Zadeh received his PhD from St Andrews University, UK, in 1989. He was a Royal Society Research Fellow from 1993 to 2001, and appointed ICREA Professor in 2003. He has over 500 publications, including 170 journal papers, 80 invited talks, 18 invited journal papers, major book chapters and reviews, and has edited 2 books. He has served as advisory and topical editor of *Optics Letters*, guest editor of *J. Opt. Soc. Am. B*, associate editor of *IEEE Photonics Journal*, associate editor of *Optica*, on the Joint Council on Quantum Electronics (USA), International Council on Quantum Electronics, Steering Committee of CLEO (USA), and on advisory board of several funding agencies and scientific councils. He is the founder, president and chief scientist of Radiantis, a Fellow of OSA and SPIE, recipient of the Royal Society Merit Award (1995, 1999), Innova Prize for commercial enterprise (2004) and Berthold Leibinger Innovation Prize, Germany (2010).

### Research interests

His research is focused on the development of new technologies for the generation and manipulation of coherent light in new spectral and temporal domains, which are inaccessible to conventional lasers. The main goal is the exploitation of nonlinear optics, in particular optical parametric processes, to produce laser radiation with unique spectral and temporal flexibility, and applications of this technology to biomedicine, frequency synthesis, spectroscopy, optical microscopy and imaging. Another important focus of his research is commercial enterprise and technology transfer to the industrial sector, where he has successfully transformed research results from his laboratory at ICFO into cutting-edge photonic products through the creation of a spin-off company, Radiantis, in Barcelona, in 2005. The company is now a leading manufacturer of state-of-the-art frequency conversion systems and instrumentation, and a certified supplier to major suppliers of laser technology in the world.

### Selected publications

- Aadhi A, Samanta GK, Chaitanya Kumar S & **Ebrahim-Zadeh M** 2017, 'Controlled switching of orbital angular momentum in an optical parametric oscillator', *Optica*, 4, 3, 349 - 355.
- Wei J, Chaitanya Kumar S, Ye H, Devi K, Schunemann PG & **Ebrahim-Zadeh M** 2017, 'Nanosecond difference-frequency generation in orientation-patterned gallium phosphide', *Optics Letters*, 42, 11, 2193 - 2196.
- Devi K & **Ebrahim-Zadeh M** 2017, 'Room-temperature, rapidly tunable, green-pumped continuous-wave optical parametric oscillator', *Optics Letters*, 42, 13, 2635 - 2638.
- Chaitanya Kumar S, Zawilski KT, Schunemann PG & **Ebrahim-Zadeh M** 2017, 'High-repetition-rate, deep-infrared, picosecond optical parametric oscillator based on CdSiP<sub>2</sub>', *Optics Letters*, 42, 18, 3606 - 3609.
- Ye H, Chaitanya Kumar S, Wei J, Schunemann PG & **Ebrahim-Zadeh M** 2017, 'Optical parametric generation in orientation-patterned gallium phosphide', *Optics Letters*, 42, 18, 3694 - 3697.
- Casals JC, Parsa S, Chaitanya Kumar S, Devi K, Schunemann PG & **Ebrahim-Zadeh M** 2017, 'Picosecond difference-frequency-generation in orientation-patterned gallium phosphide', *Opt. Express*, 25, 16, 19595-19602.

### Selected research activities

- Invited Talk, *CLEO/Europe-EQEC*, Munich (Germany).
- Invited Talk, *Advanced Solid-State Lasers Conference*, Nagoya (Japan).
- Invited Talk, *The 24th Congress of the International Commission for Optics*, Tokyo (Japan).
- Invited Talk, *Symposium on Mid-Infrared Light Sources and Applications*, Tampere (Finland).
- Short Course, *CLEO/Europe-EQEC*, Munich (Germany).
- Associate Editor, *Optica*, Optical Society of America (USA).
- Technical Program Committee, *CLEO* (USA).
- Technical Program Committee, *SPIE Photonics West* (USA).
- PhD Student, *ICO/ICTP Galileo Denardo Award* 2017 (Italy).



Jan Eeckhout  
Universitat Pompeu Fabra (UPF)  
Social & Behavioural Sciences

Jan Eeckhout is ICREA research professor at UPF, Barcelona. He has teaching and research interests in the labor market and market power. His work has been published in the AER, Econometrica, the REStud, the JPE, and several government grants, including funding from the NSF and the ERC, as well as private grants have supported his research. Jan Eeckhout has been a tenured professor at the University of Pennsylvania, where he was for 9 years. He has also taught at Princeton and NYU Stern and visited MIT. At UPF he has been the chairman of the Department of Economics and Business. He has been editor of the International Economic Review and is currently on the editorial board of the Review of Economic Dynamics and the Journal of Economic Theory, and is past editorial board member of the Journal of the European Economic Association. He is a fellow of the European Economic Association and a member of the Academia Europaea. He received his Ph.D. in Economics from LSE in 1998.

### Research interests

Jan Eeckhout has research interests in labor markets and applied economic theory, with a special emphasis on the theory of matching and search. His models develop tools and testable hypotheses for several market applications both in micro and macroeconomics. He studies unemployment, knowledge spillovers, inequality and local labor markets.

### Selected publications

- Chade H, **Eeckhout J** & Smith L 2017, 'Sorting Through Search and Matching Models in Economics', *Journal of Economic Literature*, 55, 2, 493 - 544.



**Roberto Emparan**  
 Universitat de Barcelona (UB)  
 Experimental Sciences & Mathematics

I'm originally from Bilbao. I got both my BSc (in June 1990) and my PhD (in November 1995) in Physics from the University of the Basque Country. In January 1996 I went to the University of California, Santa Barbara, for my first postdoc. Two years later, I moved to Durham University, in northern England, for a second postdoc. Near the end of 1999 I took up a lecturer position back in Bilbao, under a new (but flawed) program for recovering young researchers. I took leave from there in January 2001 to move to a Fellow position at CERN (the European Lab for Particle Physics, outside Geneva). Since January 2003 I have been ICREA Research Professor at the Department of Fundamental Physics at Universitat de Barcelona. In 2016 I was awarded an Advanced Grant from the European Research Council.

### Research interests

I try to understand the nature of spacetime at its most fundamental level. We know since Einstein that, due to the existence of gravity, spacetime is a dynamical entity. So I study the classical and quantum aspects of gravity and its most basic objects: the black holes. The natural starting point is the theory of General Relativity and the theories that naturally incorporate the ideas of holographic spacetime, namely, String and M-Theory and the AdS/CFT correspondence.

### Selected publications

- **Emparan R**, Fernandez-Pique A & Luna R 2017, 'Geometric polarization of plasmas and Love numbers of AdS black branes', *Journal Of High Energy Physics*, 9, 150.

### Selected research activities

#### Plenary talks at

Recent Developments in General Relativity, Jerusalem; 22nd European String Workshop, Milano; Iberian Gravitational Wave Meeting 2017, Bilbao; IX CPAN Days, Santander

#### Invited talks at

Albert Einstein Institute, Potsdam; STAG Research Centre, Southampton; Erwin Schrödinger Institute, Vienna; Perimeter Institute, Canada; IST Lisbon; EREP 2017, Málaga

**Organizer** of workshop "Gravity: New perspectives from strings and higher dimensions" at Benasque Center for Science, July 2017

#### Dissemination

Conference at FCR Programme Dia de la Ciència a les Escoles 2017. Two journal interviews (Agència SINC, El Periódico). One radio interview. One public talk. One public exhibit+website (as advisor).

**Member of the Committee** of the International Society on General Relativity and Gravitation

**Management Committee Member** (Spain representative) and **Working Group Leader** of COST Action MP1210 "The String Theory Universe"

**Guarantor** of ICCUB for María de Maeztu Award

**Member of the Editorial Board** of Journal of High Energy Physics and International Journal of Modern Physics D

**Panel member** in ERC-2017 Starting Grants

**Panel member** for Research evaluation of Physics at Amsterdam Universities

**MSc thesis supervisor** of A. Fernández-Piqué and A. Díaz, U. Barcelona



Ruben Enikolopov  
Universitat Pompeu Fabra (UPF)  
Social & Behavioural Sciences

Ruben Enikolopov received his PhD from Harvard University in 2008. Before moving to Universitat Pompeu Fabra he worked in the New Economic School in Moscow and spent 2012-2013 academic year as a Member at the Institute of Advanced Study, Princeton. His research interests include political economy, mass media, and economic development. He has published his research in leading academic journals such as *American Economic Review*, *Quarterly Journal of Economics*, *Review of Economic Studies*, *Proceedings of National Academy of Science*, *American Political Science Review*, *American Economic Journal: Applied Economics*, *Journal of Public Economics*. His research was supported from the International Growth Center, Canadian International Development Agency, USAID, the UN's World Food program and the World Bank among others.

### Research interests

My research interests are in political economy, development economics, and economics of mass media. In my work I use state of the art empirical approach to understand the effect of political institutions and information provision in mass media on various aspects of economic and political development. One of the main questions that I address in my work is how information affects political, economic, and financial outcomes. In a series of papers I investigate the causal effect of mass media on voting behavior in Russia, expressions of nationalism in Croatia, dictatorial support in Nazi Germany, as well as the impact of social media on political participation and corruption. In a series of field experiments conducted in Afghanistan I examine the effect of large-scale development program on the status of women, success of counterinsurgency efforts, etc. Using field experiment methodology I also show the extent of electoral fraud in Russian parliamentary elections.

### Selected publications

- Beath A, Fotini C & **Enikolopov R** 2017, 'Direct democracy and resource allocation: Experimental evidence from Afghanistan', *Journal Of Development Economics*, 124, 199 - 213.

### Selected research activities

- Editor of the *Journal of Comparative Economics* (since January 2017).
- Member of the editorial board of the *Review of Economic Studies* (since November 2017).
- Winner of the Fundación BBVA grant "Digital Technologies, Political Polarisation and Intolerance" (99,943 Euros).
- Co-organizer of the "Political Institutions" workshop at the Barcelona Summer Forum.
- Co-organizer of the 15th Annual Media Economics Workshop, Barcelona.
- Member of the Program Committee of the EEA-ESEM, Lisbon.
- Member of the Program Committee of the "Economic Governance of Data-Driven Markets", Tilburg.
- Member of the Program Committee of the NES 25th Anniversary Conference, Moscow.
- Invited talks at the NBER Political Economy Meeting, Trinity College Dublin, Cambridge University, Hebrew University, Harris School - University of Chicago, New Economic School.
- Teaching graduate courses on Political Economy and Applied Topics in Economics in Barcelona GSE.





**José Ramón Espinosa**  
Institut de Física d'Altes Energies (IFAE)  
Experimental Sciences & Mathematics

I obtained my PhD (UAM 1994) working on Particle Physics beyond the Standard Model at IEM (CSIC, Madrid) under the supervision of Mariano Quirós. After postdoctoral stays at DESY (Hamburg, Germany), University of Pennsylvania (Philadelphia, USA) and CERN (Geneva, Switzerland), in 1999 I joined IMAFF (CSIC, Madrid) and then IFT-UAM/CSIC (Madrid) with a permanent position as 'Científico Titular' being promoted to 'Investigador Científico' in 2005 and to 'Profesor de Investigación' in 2008. In November of that year I joined ICREA as Research Professor to work at IFAE.

### Research interests

The ultimate goal of my field of research, Particle Physics, is to understand nature at the most fundamental level determining its building blocks and the laws that govern them. In the path (of ever increasing energies) towards that goal, the Standard Model -the theory that describes how all phenomena observed so far can be explained in terms of a small number of particle species interacting according to a well defined mathematical framework- stands as an impressive achievement. In spite of this, it leaves open too many questions to be considered the ultimate theory, and strong reasons lead us to believe in physics beyond this Standard Model. As a theorist, I work at this high energy frontier exploring what theories might supersede the Standard Model and what experimental implications they would have. The Large Hadron Collider now in operation at CERN and a number of other experiments will provide us in coming years with crucial data to guide research in this fundamental field.

### Selected publications

- **Espinosa JR**, Garny M, Konstandin T & Riotto A 2017, 'Gauge-independent scales related to the standard model vacuum instability', *Physical Review D*, 95, 5, 056004.

### Selected research activities

#### -Invited Plenary Talks at International Conferences/Workshops:

"Higgs Near-Criticality", Nov. 2017, Higgs Couplings 2017, Heidelberg (Germany).

"Cosmological Implications of Higgs Near-Criticality", March 2017.

Royal Society Theo Murphy meeting on "Higgs Cosmology".

Royal Society Kavli Centre, Chicheley Hall, Chicheley (UK).

#### Stays of Research:

IFT-UAM/CSIC, Madrid (Spain)

CERN, Geneva (Switzerland)

#### Reviewer for:

European Research Council ERC-Starting Grants.

Royal Society University Research Fellowships.

Foundation for the Advancement of Theoretical Physics, Russia.

Austrian Science Fund (FWF).



## Manel Esteller

Institut d'Investigació Biomèdica de Bellvitge (IDIBELL)  
Life & Medical Sciences

Manel Esteller (Sant Boi de Llobregat, Barcelona, Catalonia, Spain, 1968) graduated in Medicine with Honours from the Universitat de Barcelona in 1992, where he also obtained his PhD degree in molecular genetics in 1996. He was an Invited Researcher at the School of Biological and Medical Sciences at the University of St. Andrews (Scotland, UK). From 1997 to 2001, Dr. Esteller was a researcher at the Johns Hopkins University and School of Medicine (Baltimore, USA) where he was decisive in establishing promoter hypermethylation of tumour suppressor genes as a common hallmark of all human tumours. From October 2001 to September 2008 Manel Esteller was the leader of the CNIO Cancer Epigenetics Laboratory. Currently, Dr Manel Esteller is Director of the Cancer Epigenetics and Biology Program (PEBC) of the Bellvitge Biomedical Research Institute (IDIBELL) and Chairman of Genetics at the School of Medicine in the University of Barcelona..

### Research interests

-Definition of the Epigenome of Cancer Cells: Profile of DNA methylation and histone modifications in tumor suppressor genes and repetitive sequences in cancer. Global and gene-specific definition of aberrant epigenetic changes and functional consequences in transcription regulation, DNA repair and chromosome instability. -Study of the Epigenetics Machinery and Mechanisms: Role and function of DNA methyltransferases (enzymes that maintain DNA methylation), specificity of methyl-CpG binding domain proteins (the nuclear factors that recognize DNA methylation), analysis of biological properties of histone deacetylases and methyltransferases (enzymes that modify histones). -Study of Mutations in the Epigenetic Machinery: The mechanisms underlying the disruption of the epigenetic landscape in transformed cells are unknown. -Study of the Epigenetic and Genetic Disruption of Non-Coding RNAs in Human Cancer. -Characterization of the Epitranscriptome in Human Diseases.

### Selected publications

- Anadon C, van Tetering G, Ferreira HJ, Moutinho C, Martínez-Cardús A, Villanueva A, Soler M, Heyn H, Moran S, Castro de Moura M, Setien F, Vidal A, Genesca E, Ribera JM, Nomdedeu JF, Guil S & **Esteller M** 2017, 'Epigenetic loss of the RNA decapping enzyme NUDT16 mediates C-MYC activation in T-cell acute lymphoblastic leukemia', *Leukemia*, 31, 1622-5.
- Vidal E, Sayols S, Moran S, Guillaumet-Adkins A, Schroeder MP, Royo R, Orozco M, Gut M, Gut I, **Lopez-Bigas N**, Heyn H & **Esteller M** 2017, 'A DNA Methylation Map of Human Cancer at Single Base-Pair Resolution', *Oncogene*, 36, 40, 5648 - 5657.
- Wouters J, Vizoso M, Martinez-Cardus A, Carmona FJ, Govaere O, Laguna T, Joseph J, Dynoodt P, Aura C, Foth M, Cloots R, van den Hurk K, Balint B, Murphy IG, McDermott EW, Sheahan K, Jirström K, Nodin B, Udupi GM, van den Oord JJ, Gallagher WM & **Esteller M** 2017, 'Comprehensive DNA methylation study identifies novel progression-related and prognostic markers for cutaneous melanoma', *Bmc Medicine*, 15, 101.
- Pérez-Salvia M, Simó-Riudalbas L, Llinàs-Arias P, Roa L, Setien F, Soler M, Castro de Moura M, Bradner JE, Gonzalez-Suarez E, Moutinho C & **Esteller M** 2017, 'Bromodomain inhibition shows antitumoral activity in mice and human luminal breast cancer', *Oncotarget*, 8, 31, 51621 - 51629.
- Moran S, Martinez-Cardus A, Boussios S & **Esteller M** 2017, 'Precision Medicine Based in Epigenomics: The Paradigm of Carcinoma of Unknown Primary', *Nature Reviews Clinical Oncology*, 14, 11, 682 - 694.
- **Esteller M** & Pandolfi PP 2017, 'The Epitranscriptome of Non-coding RNAs in Cancer', *Cancer Discovery*, 7, 359-68, 2017.

### Selected research activities

- Chairman of Genetics, School of Medicine, University of Barcelona.
- Best Ideas in Health Award, Diario Medico.
- Patron Biomedical Sciences Graduation Ceremony, University of Lleida.
- "Carlemagne Falcon" Award, Girona.



## Eduardo Eyras

Universitat Pompeu Fabra (UPF)  
Life & Medical Sciences

E Eyras is ICREA Research Professor since January 2005. After graduating in Physics (U. of Granada, 1995) he did a PhD in Mathematics (U. of Groningen, The Netherlands, 1999) and postdoc (U. of Cambridge, UK) (1999-2001). In 2001, Eyras joined the Wellcome Trust Sanger Institute, Cambridge, UK (2001-2004), where he worked on methods for alternative splicing prediction and participated in the analyses of the human, mouse and rat genomes. He has also contributed to the analyses of alternative splicing in the chicken and cow genome genomes and since 2007, he has been organizer of the RNA workshop of the ISMB conference. In 2008 was awarded a Young Investigator Grant of the EURASNET network, and in 2013 he was a visiting professor at the U. of Toronto. E. Eyras leads a research group on Computational RNA Biology and Disease and teaches Machine Learning in genomics in the Masters of Bioinformatics for Health of the UPF.

### Research interests

Our group works on the development of computational tools to study mechanisms of RNA processing and its role in disease. We develop computational tools to identify RNA splicing signatures of therapeutic vulnerability in rare diseases and cancer, and develop new algorithms to facilitate the systematic implementation of long-read RNA sequencing in precision medicine.

### Selected publications

- Cifdaloz M, Osterloh L, Graña O, Riveiro-Falkenbach E, Ximénez-Embún P, Muñoz J, Karras P, Olmeda D, Miñana B, Gómez-López G, Cañon E, **Eyras E**, Guo H, Kappes F, Ortiz-Romero PL, Rodríguez-Peralto JL, Megías D, **Valcárcel J** & Soengas MS 2017, '**Systems analysis identifies melanoma-enriched pro-oncogenic networks controlled by the RNA binding protein CELF1**', *Nature Communications*, 8(1):2249.
- Climente-Gonzalez H, Porta-Pardo E, Godzik A & **Eyras E** 2017, '**The functional impact of Alternative splicing in cancer**', *Cell Reports*, 20(9):2215-2226.
- Singh B & **Eyras E** 2017, '**The role of alternative splicing in cancer**'. *Transcription*, 8(2):91-98. Review.
- Rodor J, FitzPatrick DR, **Eyras E**, & Cáceres JF 2017, 'The RNA-binding landscape of RBM10 and its role in alternative splicing regulation in models of mouse early development', *RNA Biology*, 14(1):45-57.
- Pagès A, Dotu I, Pallarés-Albanell J, Martí E, Guigo R & **Eyras E** 2017, '**The discovery potential of RNA processing profiles**', *Nucleic Acids Research*, Nov 16
- Middleton R, Gao D, Thomas A, Singh B, Au A, Wong JLL, Bomane A, Cosson B, **Eyras E**, Rasko JE & Ritchie W 2017, 'IRFinder: assessing the impact of intron retention on mammalian gene expression', *Genome Biology*, 18, 51.

### Selected research activities

- Organizer of the RNA track of the ISMB (Intelligent Systems for Molecular Biology) 2017 Conference. Prague, July 2017. (<http://irbgroup.org/>)
- Keynote speaker at the conference Bermuda Principles – Impact on splicing. Bermuda. Feb 2017. *The functional impact of differential splicing in cancer*.
- Invited seminars at Dundee University (UK), Newcastle University (UK), Cordoba University, and IMIM Cancer Program.
- Member of the RNA GECIP (Genomics England Clinical Interpretation Partnership) and of the TCGA PanCancer Consortium - Splicing Group.
- Associate Editor of BMC Genomics and of Frontiers in Molecular Biosciences – Ribonucleoprotein Networks.



## Alexander Fidora

Universitat Autònoma de Barcelona (UAB)  
Humanities

Alexander Fidora, born 1975 in Offenbach (Germany), studied philosophy at the University of Frankfurt and the Universitat Autònoma de Barcelona. He obtained his PhD in 2003 at Frankfurt University, where he has been co-director of a DFG-research project. In 2006 he accepted a position at ICREA in the Department of Ancient and Medieval Studies of the Universitat Autònoma de Barcelona, where he is also Executive Director of the Institute of Medieval Studies. He has been a Visiting Professor at Saint Louis University, the Universidad Panamericana in Mexico, the University of Erlangen-Nuremberg, and the University of Pennsylvania. His work has been distinguished with the "Premi Internacional Catalònia" (2011) and the "Samuel Toledano Prize" (2012). He is vice-president of the SIEPM and of the SOFIME. Member of the YAE and of the AE. Co-editor of the "Journal of Transcultural Medieval Studies" and of the "Revista Española de Filosofía Medieval".

### Research interests

Alexander Fidora is working on the interreligious dimensions of medieval Hispanic philosophy. In particular, he studies cultural contacts between Judaism, Christianity and Islam, such as: reception, interpretation and transformation of philosophical and theological translations from Arabic by Jewish and Christian authors; Latin philosophy into Hebrew; Polemics, controversial theology and interreligious dialogue in the Middle Ages; and Consequences of the confrontation between the three religions of the Book for the formation of European culture (ERC-Research Projects "The Latin Talmud" and "Latin Philosophy into Hebrew").

### Selected publications

- **Fidora A** & Polloni N (eds) 2017, *Appropriation, Interpretation and Criticism: Philosophical Exchanges between the Arabic, Hebrew and Latin Intellectual Traditions*, Barcelona/Rome: Fidem.
- Hasselhoff G & **Fidora A** (eds.) 2017, *Ramon Martí's Pugio fidei. Studies and Texts*, Santa Coloma de Queralt: Obrador Edèndum.
- **Fidora A** 2017, 'Albert the Great and the Talmud', in Fidora A & Polloni N (eds), *Appropriation, Interpretation and Criticism: Philosophical Exchanges between the Arabic, Hebrew and Latin Intellectual Traditions*, Barcelona/Rome: FIDEM, pp. 122-136.
- **Fidora A** & Vernet i Pons E 2017, 'Translating Ramon Martí's *Pugio fidei* into Castilian', in Hasselhoff G et al. (eds.), *Ramon Martí's Pugio fidei. Studies and Texts*, Santa Coloma de Queralt: Obrador Edèndum, pp. 241-259.
- Akasoy A, **Fidora A** & Burnett Ch 2017, 'Übersetzungen aus dem Arabischen und Hebräischen ins Lateinische', in Brungs A, Mudroch V & Schulthess P (eds.), *Grundriss der Geschichte der Philosophie. 4/1: Die Philosophie des Mittelalters*, Basel: Schwabe, 2017, pp. 130-143.
- **Fidora A** 2017, 'L'Art de Ramon Llull comme science universelle', *Quaderns de la Mediterrània* 24, pp. 145-149 and 252-256.
- **Fidora A** 2017, "'Los sarracenos y judíos creen que nosotros creemos...'" Ramon Llull y el problema de la percepción percibida de los infieles', in Marinho S (eds), *Contemplatio. Ensaïos de Filosofia Medieval*, Campina Grande: Eduer, pp. 37-51.

### Selected research activities

I was appointed member of the Advisory Board of the Käte-Hamburger-Kolleg "Fate, Freedom and Prognostication" at Univ. Erlangen-Nuremberg.

In July elected vice-president of the Société Internationale pour l'Étude de la Philosophie Médiévale (SIEPM); in September member of the Academia Europaea (AE).

Invited papers in Amman, Frankfurt, Lisbon, Munich, Porto Alegre (Brazil) and Storrs (USA); in November co-organization of a symposium on translating the classics (UAB).



## Toni Gabaldón

Centre de Regulació Genòmica (CRG)  
Life & Medical Sciences

I'm a biochemist and molecular biologist by training (Universities of Valencia and Mainz). After several years working on a molecular biology lab, and attracted by the emerging fields of genomics and bioinformatics, in 2001 I moved to the comparative genomics group of Martijn Huynen in the NCMLS, The Netherlands. In 2005, I obtained a PhD in Medical Sciences (Radboud University Nijmegen), and then moved, thanks to an EMBO fellowship, to the bioinformatics department at CIPF (Valencia). In September 2008 I started my own group in the Bioinformatics and Genomics department at CRG. In 2013 I was awarded an ERC starting grant and an ICREA research professorship. In 2017 I was awarded the ERC consolidator Grant and the Margaret Dayhoff Award. I have always used an evolutionary perspective to address different biological questions. I am not only interested in understanding how complex biological systems work, but also how they have come to be as they are.

### Research interests

My main research interest is to understand the complex relationships between genome sequences and phenotypes and how these two features evolve within and across species. I generally use large-scale phylogenetics and molecular evolution approaches that allow looking at the evolution of genomes from the perspective of all of their genes, and apply these analyses to a variety of biological questions related to the evolution and function of biological communities, organisms, organelles, pathways, and families of protein-coding and non-coding genes. I have a special interest in understanding processes related to human pathogenesis. Through collaborations with experimental groups, I apply comparative genomics to discover new mechanisms and genes involved in interesting processes, especially those of clinical relevance. Given our exposure to new types and scales of data, my group has had the need to develop novel bioinformatics tools to fill in existing gaps.

### Selected publications

- Mathers TC, Chen Y, Kaithakottil G, Legeai F, Mugford ST, Baa-Puyoulet P, Bretaudeau A, Clavijo B, Colella S, Collin O, Dalmay T, Derrien T, Feng H, **Gabaldon T**, Jordan A, Julca I, Kettles GJ, Kowitwanich K, Lavenier D, Lenzi P, Lopez-Gomollon S, Loska D, Mapleson D, Maumus F, Moxon S, Price DRG, Sugio A, van Munster M, Uzeit M, Waite D, Jander G, Tagu D, Wilson ACC, van Oosterhout C, Swarbreck D & Hogenhout SA 2017, 'Rapid transcriptional plasticity of duplicated gene clusters enables a clonally reproducing aphid to colonise diverse plant species', *Genome Biology*, 18(1):27.
- Figueiro HV, Li G, Trindade FJ, Assis J, Pais F, Fernandes G, Santos SHD, Hughes GM, Komissarov A, Antunes A, Trinca CS, Rodrigues MA, Linderoth T, Bi K, Silveira L, Azevedo FCC, Kantek D, Ramalho E, Brassaloti RA, Villela PMS, Nunes ALV, Teixeira RHF, Morato RG, Loska D, Saragueta P, **Gabaldon T**, Teeling EC, O'Brien SJ, Nielsen R, Coutinho LL, Oliveira G, Murphy WJ & Eizirik E 2017, 'Genome-wide signatures of complex introgression and adaptive evolution in the big cats', *Science Advances*, 3, 7, e1700299.
- Masgrau A, Battola A, Sanmartin T, Prysycz LP, **Gabaldon T** & Mendoza M 2017, 'Distinct roles of the polarity factors Boi1 and Boi2 in the control of exocytosis and abscission in budding yeast', *Molecular Biology Of The Cell*, 28, 22, 3082 - 3094.
- Bravo-Ruiz G, Sassi AH, Marcet-Houben M, Di Pietro A, Gargouri A, **Gabaldón T** & Roncero MIG 2017, 'Regulatory Mechanisms of a Highly Pectinolytic Mutant of *Penicillium occitanis* and Functional Analysis of a Candidate Gene in the Plant Pathogen *Fusarium oxysporum*', *Front Microbiol.* 8:1627.
- Cillingová A, Zeman I, Tóth R, Neboháčová M, Dunčková I, Hölcová M, Jakúbková M, Gérecová G, Prysycz LP, Tomáška L, **Gabaldón T**, Gácsér A & Nosek J 2017, 'Eukaryotic transporters for hydroxyderivatives of benzoic acid', *Sci Rep.* 7(1):8998.



José Ramón Galán-Mascarós  
Institut Català d'Investigació Química (ICIQ)  
Experimental Sciences & Mathematics

J.R. Galán-Mascarós holds a Degree in Chemistry from the University of Valencia and the Imperial College (London) and a PhD from the University of Valencia under the supervision of Prof. E. Coronado (1999). Between 1999 and 2002 he was post-doctoral researcher at Texas A&M University (College Station) working with Prof. Kim R. Dunbar. In 2002 he joined ICMOL (U. de Valencia) as Ramón y Cajal Fellow. In 2009 he took a position at ICIQ, where he currently leads a research group focused on future applications of coordination chemistry for Renewable Energies and Materials Sciences. In september 2010 he became ICREA Research Professor. Galán-Mascarós has received several awards, including the Olivier Kahn International Award (2008) and an ERC Starting Grant (2012-2016). He is the coordinator of the collaborative project H2020-FETPROACT A-LEAF (2017-2020): a major European public investment for the realization of a viable artificial photosynthesis platform.

### Research interests

Our research team in Coordination Chemistry is devoted to the development of molecule-based materials with the desired chemical and physical properties for novel applications in the fields of Materials Sciences and Renewable energies. In Renewable Energies, we are working in the development of stable, efficient and low-cost new catalysts for the production of solar fuels, with particular interest in water oxidation catalysis. In Materials Sciences, we are designing multifunctional smart materials able to exhibit novel phenomena from unusual combination of physical properties (redox, magnetic, electrical and/or optical, etc...).

### Selected publications

- Hegner FS, Cardenas-Morcoso D, Gimenez S, Lopez N & **Galan-Mascaros JR** 2017, 'Level Alignment as Descriptor for Semiconductor/Catalyst Systems in Water Splitting: The Case of Hematite/Cobalt Hexacyanoferrate Photoanodes', *ChemSusChem*, vol. 10, pp. 4552-4560.
- Hegner FS, Herraiz-Cardona I, Cardenas-Morcoso D, Lopez, N, **Galan-Mascaros JR** & Gimenez S 2017, 'Cobalt Hexacyanoferrate on BiVO<sub>4</sub> Photoanodes for Robust Water Splitting', *ACS Appl. Mater. Interfaces*, vol. 9, pp. 37671-37681.
- Natali M, Bazzan I, Goberna-Ferron S, Al-Oweini R, Ibrahim M, Bassil BS, Dau H, Scandola F, **Galan-Mascaros JR**, Kortz U, Sartorel A, Zaharieva I & Bonchio M 2017, 'Photo-assisted water oxidation by high-nuclearity cobalt-oxo cores: tracing the catalyst fate during oxygen evolution turnover', *Green Chem.*, vol. 19, pp. 2416-2426.
- Soriano-López J, Musaev DG, Hill CL, **Galan-Mascaros JR**, Carbó JJ & Poblet JM 2017, 'Tetracobalt-polyoxometalate catalysts for water oxidation: key mechanistic details', *J. Catal.*, vol. 350, pp. 56-63.
- Cirera B et al. 2017, 'Preservation of electronic properties of double-decker complexes on metallic supports', *Phys. Chem. Chem. Phys.*, vol. 19, pp. 8282-8287.
- Blasco-Ahicart M, Soriano-López J & **Galan-Mascaros JR** 2017, 'Conducting organic polymer electrodes with embedded polyoxometalate catalysts for water splitting', *ChemElectroChem*, vol. 4, pp. 3296-3301.
- Aguilera-Sigalat J, Sáenz de Pipaón C, Hernandez-Alonso D, Escudero-Adan EC, **Galan-Mascaros JR** & **Ballester P** 2017, 'A Metal Organic Framework Based on a Tetra-Arylextended Calix[4]pyrrole Ligand: Structure Control through the Covalent Connectivity of the Linker', *Cryst. Growth Des.*, vol. 17, pp. 1328-1338.
- Tang P et al. 2017 'Enhanced photoelectrochemical water splitting of hematite multilayer nanowire photoanodes by tuning the surface state via bottom-up interfacial engineering', *Energy Environ. Sci.*, vol. 10, pp. 2124-2136.



## Eric Galbraith

Universitat Autònoma de Barcelona (UAB)  
Experimental Sciences & Mathematics

A native of Halifax, Canada, Galbraith completed an undergraduate degree in Earth and Planetary Science at McGill University in 1997, then worked as an exploration geologist in Peru and a tour guide on polar expedition cruises before undertaking a PhD at the University of British Columbia, completed in 2006. This was followed by three years of postdoctoral research at Princeton University, developing and using Earth System models, with a focus on ocean biogeochemistry and long-term climate variability. Galbraith returned to McGill University as a professor, where he worked until joining ICREA in 2015.

### Research interests

Over the past century, humans have emerged as a dominant component of the Earth system. But we do not yet have a thorough understanding of how the changes underway will ultimately affect our own well-being. I am interested in using statistical analyses, simple theory and numerical models to improve our predictive understanding of the coupled human-Earth system. Most of my past work has addressed uncertainty in the natural science side of the system, including the study of past, natural climate changes, and the controls on the chemical composition and large-scale ecology of the global ocean. My focus is now on developing integrated, quantitative descriptions of the two-way coupling between natural and social elements by bridging Earth system modeling methods with social science. Most of my current work is developing these approaches for the global marine fishery, through the ERC-funded BIGSEA project.

### Selected publications

- **Galbraith ED**, Carozza DA & Bianchi D 2017, 'A coupled human-Earth model perspective on long-term trends in the global marine fishery', *Nature Communications*, 8, 14884.
- **Galbraith ED** & Eggleston S 2017, 'A lower limit to atmospheric CO<sub>2</sub> concentrations over the past 800,000 years', *Nature Geoscience*, 10, 4, 295.
- Carozza DA, Bianchi D & **Galbraith ED** 2017, 'Formulation, General Features and Global Calibration of a Bioenergetically-Constrained Fishery Model', *Plos One*, 12, 1, e0169763.
- Blanchard JL, Watson RA, Fulton EA, Cottrell RS, Nash KL, Bryndum-Buchholz A, Buchner M, Carozza DA, Cheung W, Elliott J, Davidson LNK, Dulvy NK, Dunne JP, Eddy TD, **Galbraith ED**, Lotze HK, Maury O, Muller C, Tittensor DP & Jennings S 2017, 'Linked sustainability challenges and trade-offs among fisheries, aquaculture and agriculture', *Nature Ecology and Evolution*, 1, 9, 1240 - 1249.
- Elsworth G, **Galbraith ED**, Halverson G & Yang G 2017, 'Enhanced weathering and CO<sub>2</sub> drawdown caused by latest Eocene strengthening of the Atlantic meridional overturning circulation', *Nature Geoscience*, 10volume , pages 213-216.



## Elena Galea

Universitat Autònoma de Barcelona (UAB)  
Life & Medical Sciences

1985: BS Biology, Universidad Autónoma de Madrid. 1990: PhD Biology, Department of Physiology, School of Medicine, Universidad Autónoma de Madrid. 1991-1994: Postdoc/Research Associate, Department of Neuroscience, Cornell University Medical College, New York. 1995-1997: Instructor, Department of Neuroscience, Cornell University Medical College, New York. 1998-2003: Assistant Professor, Department of Anesthesiology, University of Illinois, Chicago. 2004-present: ICREA Research Professor, Institute of Neurosciences, Universitat Autònoma de Barcelona. 2008-2010: Vice Director, Institute of Neurosciences, Universitat Autònoma de Barcelona. 2012-2013: Visiting scholar, Massachusetts General Institute for Neurodegenerative disease, Harvard Medical School, Boston.

### Research interests

We seek to unravel the mechanisms whereby a brain cell called ‘astrocyte’ contributes to higher-brain functions—cognition, memory, emotion—and to establish the pathological consequences of astrocyte dysfunction. Three core ideas guide our research. First, astrocytes not only carry out homeostatic functions in support of neurons, but they also compute, i.e., they process information intelligently, plausibly by way of calcium transients. Second, astrocytes are superior therapeutic targets: increasing their resilience or restoring their malfunction in acute or chronic neurological diseases will have a beneficial impact on multiple pathological processes at once. Three, mathematics and systems biology—which has lately included artificial intelligence—are indispensable tools to clarify normal astrocyte function and disease-specific dysfunction, to identify astrocyte-based molecular signatures in human fluids, and to develop astrocyte-targeted therapies.

### Selected publications

- Masgrau R, Guaza C, Ransohoff RM & **Galea E** 2017, 'Should We Stop Saying 'Glia' and 'Neuroinflammation'?', *Trends In Molecular Medicine*, 23, 6, 486 - 500.
- Pardo L, Valor LM, Eraso-Pichot A, Barco A, Golbano A, Hardingham GE, Masgrau R & **Galea E** 2017, 'CREB Regulates Distinct Adaptive Transcriptional Programs in Astrocytes and Neurons', *Scientific Reports*, 7, 6390.
- Hasel P, Dando O, Jiwaji Z, Baxter P, Todd AC, Heron S, Markus M, McQueen J, Hampton DW, Torvell M, Tiwari SS, McKay S, Eraso-Pichot A, Zorzano A, Masgrau R, **Galea E**, Chandran S, Wyllie DJA, Simpson TI & Hardingham GE 2017, 'Neurons and neuronal activity control gene expression in astrocytes to regulate their development and metabolism', *Nature Communications*, 8, 15132.
- Eraso-Pichot A, Larramona-Arcas R, Vicario-Orrri E, Villalonga R, Pardo L, **Galea E** & Masgrau R 2017, 'CREB decreases astrocytic excitability by modifying subcellular calcium via de Sigma 1 receptor', *Cell Mol Life Sci.*, 74(5):937-950.
- Launay N, Ruiz M, Grau L, Ortega FJ, Ilieva EV, Martinez JJ, **Galea E**, Ferrer I, Knecht E, **Pujol A** & Fourcade S 2017, 'Tauroursodeoxycholic bile acid arrests axonal degeneration by inhibiting the unfolded protein response in X-linked adrenoleukodystrophy', *Acta Neuropathol.*, 133(2): 283–301.
- Eraso-Pichot A, Braso-Vives M, Golbano A, **Galea E** & Masgrau R 2017, 'Bioinformatic analysis of in vivo and in vitro transcriptome datasets demonstrate a distinctive mitochondrial functional signature in astrocytes', *Glia*, 65, E212 - E212.





## Patrick Gámez

Universitat de Barcelona (UB)  
Experimental Sciences & Mathematics

Patrick Gamez received his PhD at the University of Lyon and was awarded the French Chemical Society Prize for his PhD research. After postdoctoral stays at the MPI für Kohlenforschung and at the University of Strasbourg, he became research associate at Leiden University. Since October 2010, he is ICREA Research Professor in bioinorganic chemistry at the Universitat de Barcelona. His research group is financed by the MINECO and is recognized by the Catalan Government. He is the (co-)author of over 230 publications (h-index: 51; >10000 citations). He is a member of the Spanish Bioinorganic Chemical Society, the Royal Society of Chemistry, Royal Spanish Society of Chemistry and the Advisory Board of Inorganic Chemistry Frontiers. He has been Associate Editor of RSC Advances (2015-2017). Since June 2016, he is Fellow of the RSC.

### Research interests

Cancer and Alzheimer's disease (AD) represent two major chronic diseases that are in the top ten leading causes of mortality worldwide and their incidence will increase exponentially in the coming decades, as the result of population ageing. My current research interests are aimed at developing novel Nanotechnology strategies for the development of efficient diagnostic and therapeutic tools (theranostics) against these two important public health issues ([www.bio-inorganic-chemistry-icrea-ub.com](http://www.bio-inorganic-chemistry-icrea-ub.com)).

### Selected publications

- Aromí G, **Gamez P**, Barrios LA, Ribas J, Le Guennic B 2017, '[Serving science through publishing](#)', *Chemistry Squared*, vol. 1, 1.
- Molas Saborit J, Caubet A, Brissos RF, Korrodi-Gregório L, Pérez-Tomás R, Martínez M & **Gamez P** 2017, 'pH-Driven preparation of two related platinum(II) complexes exhibiting distinct cytotoxic properties', *Dalton Transactions*, 46, 34, 11214 - 11222.
- Pratumwieng R, Meenongwa A, Brissos RF, **Gamez P**, Trongpanich Y & Chaveerach U 2017, 'DNA interactions and anticancer screening of copper(II) complexes of N-(methylpyridin-2-yl)-amidino-O-methylurea', *Transition Metal Chemistry*, 42, 4, 311 - 322.

### Selected research activities

- President founder of the Association Science Squared (Science<sup>2</sup>; [www.sci2.org](http://www.sci2.org))
- Founder and Editor-in-chief of Chemistry Squared (Chem<sup>2</sup>; [www.chem2.org](http://www.chem2.org)), the Chemistry Journal of Science<sup>2</sup>
- Vice-president of the Spanish Bioinorganic Chemical Society (AEBIN; [www.aebin.es](http://www.aebin.es))
- Coordinator of the Spanish network of excellence "MetDrugs" ([www.metdrugs-network.com](http://www.metdrugs-network.com)); "Metals in Therapy and Diagnosis" financed by the MINECO (27/11/2015 - 30/11/2017)
- Workgroup Leader within the network GDRI – HC3A (Groupement de Recherche International of CNRS-France) (<http://gdri-hc3a.cnrs.fr/>)



F. Javier García de Abajo  
Institut de Ciències Fotòniques (ICFO)  
Engineering Sciences

Javier García de Abajo obtained his PhD in condensed matter theory from the University of the Basque Country (Spain) in 1993. After spending three years in Berkeley National Lab., he became staff scientist at CSIC (Spain) and he was promoted to Research Professor in 2008. He is currently leading the Nanophotonics Theory group at ICFO. He has worked in atomic collisions, surface science, electron microscope spectroscopies, plasmonics, and theoretical nanophotonics. He has coauthored over 300 papers that have accumulated 21,000+ citations and a h index of 71 (WoK, Jan. 2018). He is a Fellow of both the American Physical Society and the Optical Society of America.

### Research interests

Javier García de Abajo's research program on the theory nanoscale photonics ranges from optical characterization with electron-microscope spectroscopies to studies of ultrasensitive single-molecule detection, quantum aspects of light-matter interaction, excitation and characterization of plasmons by electron beams, plasmonic metamaterials, quantum friction, radiative transfer and coherent control, and graphene plasmonics. These topics cover a broad spectrum of research in nanophotonics. This theoretical effort encompasses classical and quantum methods, both analytical and numerical, which are the basis to understand and propose new phenomena with application to biosensing and quantum plasmonics.

### Selected publications

- Cox JD, Marini A & **García de Abajo FJ** 2017, 'Plasmon-assisted high-harmonic generation in graphene', *Nature Communications*, 8, 14380.
- Solís DM, Taboada JM, Obelleiro F, Liz-Marzán LM & **García de Abajo FJ** 2017, 'Optimization of nanoparticle-based SERS substrates through large-scale realistic simulations', *ACS Photonics*, 4, 329-337. (Journal Cover)
- Yu F, Liz-Marzán LM & **García de Abajo FJ** 2017, 'Universal analytical modeling of plasmonic nanoparticles', *Chemical Society Reviews*, 46, 6710-6724.
- Meng L, Renwen Y, Min Q & **García de Abajo FJ** 2017, 'Plasmonic Nano-Oven by Concatenation of Multishell Photothermal Enhancement', *ACS Nano*, 11, 7915-7924.
- de Vega S & **García de Abajo FJ** 2017, 'Plasmon Generation through Electron Tunneling in Graphene', *ACS Photonics*, 4, 2367-2375. (ACS Editor's Choice)
- Pan D, Yu R, Xu H & **García de Abajo FJ** 2017, 'Topologically protected Dirac plasmons in a graphene superlattice', *Nature Communications*, 8, 1243.
- Yu R, Manjavacas A & **García de Abajo FJ** 2017, 'Ultrafast radiative heat transfer', *Nature Communications*, 8, 2.
- Yu R, Cox JD, Saavedra JRM & **García de Abajo FJ** 2017, 'Analytical modeling of graphene plasmons', *ACS Photonics*, 4, 3106-3114.

### Selected research activities

- 4000+ Google Scholar citations during 2017.
- 20 invited talks at conferences, of which 2 plenaries and 2 keynotes.



**Maria F. García-Parajo**  
 Institut de Ciències Fotòniques (ICFO)  
 Engineering Sciences

María F. García-Parajo obtained her PhD in Physical Electronics in 1993 at Imperial College, London, UK, working on the fabrication and photoluminescence spectroscopy of quantum structures based on GaAs/AlGaAs. After acquiring extensive expertise in scanning probe microscopy (STM, NSOM, AFM) at the L2M-CNRS, Bagnex, France (1993-1995) and University of Barcelona, Spain (1995-1996) she moved in 1996 to the Applied Optics group of the University of Twente, the Netherlands. Her main research topics have been single molecule detection and spectroscopy using near- and far-field optical techniques with focus in photophysics of organic and autofluorescent proteins, molecular photonics and biophysics. Since 2005 she is ICREA Research Professor, first hosted at the IBEC - Institute for Bioengineering of Catalonia and since July 2011 at ICFO - The Institute of Photonic Sciences, leading the Single Molecule Biophotonics group.

### Research interests

Our research focuses on the development of advanced optical techniques to the study of biological processes at the single molecular level on living cells. We focus on the development and application of different forms of super-resolution microscopy (STED, STORM, NSOM) as well as photonic antennas to reach spatial resolutions around 10nm on intact cells. Fluorescence correlation spectroscopy in ultraconfined volumes, and multi-color single particle tracking are exploited to gain access to dynamic processes down to the microsecond time resolution. Using these combined approaches, we aim at understanding how spatiotemporal compartmentalization of biomolecules inside cells regulates and control cell function. This fundamental question has important implications for health and disease, touching the fields of cell biology and immunology.

### Selected publications

- Znacchi FC, Manzo C, Alvarez AS, Derr ND, **Garcia-Parajo MF** & Lakadamyali M 2017, 'A DNA origami platform for quantifying protein copy number in super-resolution', *Nature Methods*, 14, 8, 789.
- Winkler PM, Regmi R, Flauraud V, Brugger J, Rigneault H, Wenger J & **Garcia-Parajo MF** 2017, 'Transient Nanoscopic Phase Separation in Biological Lipid Membranes Resolved by Planar Plasmonic Antennas', *Acs Nano*, 11, 7, 7241 - 7250.
- Regmi R, Winkler PM, Flauraud V, ..., Wenger J & **Garcia-Parajo MF** 2017, 'Planar Optical Nanoantennas Resolve Cholesterol-Dependent Nanoscale Heterogeneities in the Plasma Membrane of Living Cells', *Nano Letters*, 17, 10, 6295 - 6302.
- Campelo F, van Galen J, Turacchio G, Parashuraman S, Kozlov MM, **Garcia-Parajo MF** & **Malhotra V** 2017, 'Sphingomyelin metabolism controls the shape and function of the Golgi cisternae', *eLife* 6, e24603.
- Florez-Grau G, Cabezón R, ... **Garcia-Parajo MF** & Benitez-Ribas D 2017, 'Up-regulation of EP2 and EP3 receptors in human tolerogenic dendritic cells boosts the immunosuppressive activity of PGE(2)', *Journal Of Leukocyte Biology*, 102, 3, 881 - 895.
- Flauraud V, Regmi R, Winkler PM, Alexander DTL, Rigneault H, **van Hulst NF**, **García-Parajo MF**, Wenger J & Brugger J 2017, 'Turning Plasmonic Antennas on the Right Side: Flat Surface Hotspot Array with Giant Fluorescence Enhancement', *Nano Lett.*, 17, 1703-1710.
- Charalambous C, Munoz-Gil G, Celi A, **Garcia-Parajo MF**, **Lewenstein M**, Manzo C & Garcia-March MA 2017, 'Nonergodic subdiffusion from transient interactions with heterogeneous partners', *Physical Review E*, 95, 3, 032403.

### Selected research activities

- National Prize of the Spanish Biophysical Society.
- 11 invited lectures at international conferences and workshops.
- Member of HCERES International Review Panel: CIML mix Research Centre in Marseille, France.
- Member of WISE International Review Panel: talented female tenure track positions at NWO, NL.
- Member of STFC International Review Panel Rutherford Appleton Laboratory, Oxford, UK.



## Jose A. Garrido

Institut Català de Nanociència i Nanotecnologia (ICN2)  
Engineering Sciences

Jose A. Garrido is an ICREA Research Professor at the Catalan Institute of Nanosciences and Nanotechnology-ICN2 in Barcelona, and head of the Advanced Electronic Materials and Devices group. He received a Master and PhD degree in Telecommunication Engineering from the Technical University of Madrid, in 1996 and 2000, respectively. From 2001 to 2004, he worked as a postdoc at the Walter Schottky Institute, Technische Universität München, where he obtained his habilitation in experimental physics in 2010. From 2011 to 2015, Jose A. Garrido held a lecturer (privatdozent) position at the department of physics of the Technische Universität München. In September 2015, Jose A. Garrido joined ICN2 as ICREA Professor. Currently, Jose A. Garrido is vicedirector and head of the Strategy Development Office at ICN2.

### Research interests

Jose A. Garrido leads the Advanced Electronic Materials and Devices group at ICN2. The activities of the team focus on technology and material science of novel electronic materials, with a strong emphasis on graphene and other 2D materials. In addition, the team works towards the development of technological applications of these materials in electronics, bioelectronics, and biosensing. The activities cut across different scientific aspects, from fundamentals (physics of devices and semiconductors) to materials (growth of graphene and 2D materials, surface functionalization, advanced characterization), through devices (fabrication technology, nanofabrication), and to applications (biosensors, neural implants and biomedical technologies, energy storage and conversion).

### Selected publications

- Drieschner S, Guimera A, Cortadella RG, Viana D, Makrygiannis E, Blaschke BM, Vieten J & **Garrido JA** 2017, 'Frequency response of electrolyte-gated graphene electrodes and transistors', *Journal Of Physics D-applied Physics*, 50, 9, 095304.
- Winnerl A, **Garrido JA** & Stutzmann M 2017, 'GaN surface states investigated by electrochemical studies', *Applied Physics Letters*, 110, 10, 101602.
- Blaschke BM, Tort-Colet N, Guimera-Brunet A, Weinert J, Rousseau L, Heimann A, Drieschner S, Kempfski O, Villa R, **Sanchez-Vives MV** & **Garrido JA** 2017, 'Mapping brain activity with flexible graphene micro-transistors', *2d Materials*, 4, 2, 025040.
- Winnerl A, **Garrido JA** & Stutzmann M 2017, 'Electrochemical characterization of GaN surface states', *Journal Of Applied Physics*, 122, 4, 045302.
- Pfender M, Aslam N, Simon P, Antonov D, Thiering G, Burk S, Fávoro de Oliveira F, Denisenko A, Fedder H, Meijer J, **Garrido JA**, Gali A, Teraji T, Isoya J, Doherty MW, Alkauskas A, Gallo A, Grünei A, Neumann P & Wrachtrup J 2017, '**Protecting a Diamond Quantum Memory by Charge State Control**', *Nano Letters*, 17, 10, 5931 - 5937.
- Kostarelos K, Vincent M, Hebert C & **Garrido JA** 2017, '**Graphene in the design and engineering of next-generation neural interfaces**', *Advanced Materials*, 29, 42, 1700909.

### Selected research activities

Coordinator of the FET-PROACTIVE European Project BrainCom (2016-2021).

Deputy leader of the Biomedical Technology workpackage of the EU project Graphene Flagship.



## Hector Geffner

Universitat Pompeu Fabra (UPF)  
Engineering Sciences

Hector was born in Buenos Aires in 1959, did his BS in Caracas, Venezuela, and got his PhD in Computer Science at UCLA with a dissertation that was co-winner of the 1990 ACM Dissertation Award. He is a fellow of the American and European Associations for Artificial Intelligence (AAAI, ECCAI), former associate editor of the Journal of Artificial Intelligence Research (JAIR) and the Artificial Intelligence Journal (AIJ), and member of the European AI Board (EurAI). He taught at the Universidad Simón Bolívar in Caracas, Aachen University of Technology, Linköping University, Stanford University, Université Paul Sabatier, and King's College, among other places. He joined ICREA and the UPF in 2001, where he is a Professor in the Department of Information and Communication Technologies (DTIC).

### Research interests

Hector works on planning and plan recognition in intelligent systems, developing methods for generating and recognizing autonomous behavior automatically using model-based methods. In these methods, agents are not programmed by hand but derive their behavior automatically by solving a model of the interaction between the agent and the environment. The challenge is mainly computational as the formulation of methods for deriving the right behavior effectively when the models are large is computationally intractable in the worst case. The work involves theory based on logic, probabilities, heuristics, and algorithms, and computational experiments. The research is relevant to both artificial intelligence and cognitive science, as it aims to uncover general principles of rational behavior that take into account the computational constraints that are present in both natural and artificial systems.

### Selected publications

- Lipovetzky N & Geffner H 2017, 'Best-First Width Search: Exploration and Exploitation in Classical Planning', *Proc. AAAI*, 3590-3596.
- Kominis F & Geffner H 2017, 'Multiagent Online Planning with Nested Beliefs and Dialogue', *Proc. ICAPS*, 186-194.
- Lipovetzky N & Geffner H 2017, 'A Polynomial Planning Algorithm that Beats LAMA and FF', *ICAPS Proc.*, 195-199.
- Bonet B, De Giacomo G, Geffner H & Rubin S 2017, 'Generalized Planning: Non-Deterministic Abstractions and Trajectory Constraints', *Proc. IJCAI*, 873-879.
- Francès G, Ramírez M, Lipovetzky N & Geffner H 2017, 'Purely Declarative Action Descriptions are Overrated: Classical Planning with Simulators', *Proc. IJCAI*, 4294-4301.



## Wolfgang Gernjak

Institut Català de Recerca de l'Aigua (ICRA)  
Engineering Sciences

2002 MSc in Analytical and Physical Chemistry from Vienna University of Technology, Austria. 2006 PhD in Land and Water Management from BOKU Vienna, Austria. 2000-2008 External Research Staff & post-doc, Plataforma Solar de Almería, Spain - Solar advanced oxidation & desalination. 2008-2014 Senior research fellow, The University of Queensland, Australia - Group leader: Drinking and recycled water. 2014-2015 Ramon & Cajal research fellow, Catalan Institute for Water Research (ICRA) - Group leader: Water Supply and Advanced Treatment. 2015- ICREA Research Professor at Catalan Institute for Water Research (ICRA) - Group leader: Water Supply and Advanced Treatment.

### Research interests

I aim to innovate the ways we treat water applied to water reuse, desalination, and drinking water to realize a vision for smart and water sensitive cities and societies. Specifically, I am an expert on numerous novel advanced oxidation processes, membrane filtration such as reverse osmosis or membrane distillation, and solar technologies addressing the water-energy nexus. The focus of my research is on technology innovation. For example, I research novel membrane processes and applications such as forward osmosis. I am also deeply interested in exploring the possibilities offered by employing novel UV light sources based on the LED technology. My research on water treatment technology is typically strongly connected with an emphasis on controlling water quality hazards to end-users, including trace organic contaminants, disinfection byproducts, and also pathogens.

### Selected publications

- de Vera GA, **Gernjak W** & Radjenovic J 2017, 'Predicting reactivity of model DOM compounds towards chlorine with mediated electrochemical oxidation', *Water Research*, 114, 113 - 121.
- Liu P, **Gernjak W** & Keller J 2017, 'Long-term performance of enhanced-zero valent iron for drinking water treatment: A lab-scale study', *Chemical Engineering Journal*, 315, 124 - 131.
- Rippy MA, Deletic A, Black J, Aryal R, Lampard J, Tang JY, McCarthy D, Kolotelo P, Sidhu J & **Gernjak W** 2017, 'Pesticide occurrence and spatio-temporal variability in urban run-off across Australia', *Water Research*, 115, 245 - 255.
- de Vera GA, Gernjak W, Weinberg H, Farre MJ, Keller J & von Gunten U 2017, 'Kinetics and mechanisms of nitrate and ammonium formation during ozonation of dissolved organic nitrogen', *Water Research*, 108, 451 - 461.

### Selected research activities

Oral presentations at

- 3rd International Conference on Desalination with Membranes, Gran Canaria, Spain, April 2017.
- 10th IWA Micropol & Ecohazard Conference, Vienna, Austria, September 2017.

Invited presentations at:

- Patras, Greece, Workshop of the NEREUS COST Action 1403: New and Emerging Challenges and Opportunities in Water Reuse.
- Lleida, Spain, Invited talk to the General Public in the scope of the Sustainability Week.

Reviewed PhD dissertations from the University of Ghent, Universidad Rey Juan Carlos, Universidad Rovira Virgili.



**Mario Giampietro**  
 Universitat Autònoma de Barcelona (UAB)  
 Engineering Sciences

Mario Giampietro was born in Italy in 1953. He graduated in Chemical Engineering (1978) and Biological Sciences (1981) at Università La Sapienza, Rome. He has a MS degree in Food System Economics (CEFAS/Università La Tuscia) and a PhD in Social Sciences (Wageningen University, NL). Mario was a researcher at Istituto Nazionale di Ricerca per gli Alimenti e la Nutrizione (INRAN) from 1985 to 2007, but pursued most of his research as visiting scientist at leading universities, such as Cornell University (1987-1989 and 1992-1995), Wageningen University (1997), Universitat Autònoma de Barcelona (1998-2000), University of Wisconsin, Madison (2002), Penn State University (2005-2006), and Arizona State University (2006-2007). He joined ICREA and UAB in 2007. He has more than 150 scientific publications and is author of several books.

### Research interests

Mario works on integrated assessment of sustainability issues. Using concepts from complex systems theory, he has developed an innovative scientific approach: Multi-Scale Integrated Analysis of Societal and Ecosystem Metabolism (MuSIASEM). MuSIASEM integrates biophysical and socioeconomic variables across multiple hierarchical scales, thus establishing a link between the metabolism of socio-economic systems and potential constraints of the natural environment. MuSIASEM allows the use of integrated sets of indicators that can be chosen "à la carte" by social actors in relation to multiple criteria of performance. Recent research has focused on the analysis of energy systems and energy scenarios and directives (projects EUFORIE, NETEP, PARTICIPIA), food systems (GLAMUR), and the nexus between energy, food, and water in relation to sustainable development goals (MAGIC).

### Selected publications

- Kovacic Z & **Giampietro M** 2017, 'Between theory and quantification: An integrated analysis of metabolic patterns of informal urban settlements', *Energy Policy*, vol. 100, pp 377-386.
- Lomas PL & **Giampietro M** 2017, 'Environmental accounting for ecosystem conservation: Linking societal and ecosystem metabolisms', *Ecological Modelling*, vol. 346, pp 10-19.
- Chifari R, Renner A, Lo Piano S, Ripa M, Bukkens SGF & **Giampietro M** 2017, 'Development of a municipal solid waste management decision support tool for Naples, Italy', *Journal of Cleaner Production*, vol 161, pp 1032-1043.
- Saltelli A & **Giampietro M** 2017, 'What is wrong with evidence based policy, and how can it be improved?', *Futures*, vol. 91, 62-71.
- González-López R & **Giampietro M** 2017, 'Multi-scale integrated analysis of charcoal production in complex social-ecological systems', *Frontiers in Environmental Science*, vol. 5, article 54.
- Allen T, Tainter J, Shaw D, **Giampietro M** & Kovacic Z 2017, 'Radical transitions from fossil fuel to renewables: A change of posture', in: Labanca N (Ed), *Complex Systems and Social Practices in Energy Transitions*, Green Energy and Technology Series, Springer Verlag, pp. 221-235.

### Selected research activities

Invited talk at the Inspirational Workshop 'New Narratives of Energy and Sustainability: Debunking myths and interrogating the universality of global and local integrations', organised by DG JRC.I.1, Berlaymont, Brussels, 20 April 2017.

Invited talk at the OECD-sponsored International Symposium on Food Credence Attributes: How Can We Design Policies to Meet Consumer Demand?, Tokyo, Japan, 19 May 2017.

Invited lecture at the 12th Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES 2017), Dubrovnik, 6 October 2017.

Invited seminar "Telling the story of sustainability quantitatively: A critical appraisal of today's narratives" at the European Council for Nuclear Research (CERN), Geneva, 12 October 2017.



## Roger Gomis

Institut de Recerca Biomèdica de Barcelona (IRB Barcelona)  
Life & Medical Sciences

Dr. Roger Gomis is an ICREA Research Professor and a member of the Oncology Program at the Institute for Research in Biomedicine, Barcelona. He received his PhD in biochemistry from the University of Barcelona in 2002, and was a postdoctoral fellow at Memorial Sloan-Kettering Cancer Center in Prof. Joan Massagué's laboratory. In 2007, he assumed his current position. Dr. Roger Gomis is interested in how growth factors, signaling pathways, and gene expression programs control normal cell behavior and cancer cell metastasis. Driven by his interest in the problem of metastasis, which is the cause of 90% of cancer deaths, his laboratory is pursuing the molecular and genetic mechanisms of metastasis. In particular, the team focuses on identifying and functionally validating genes that enable cancer to metastasize clinically relevant sites. In 2012 Roger founded Inbiomotion as an ICREA and IRB Barcelona spin-off company from his laboratory research.

### Research interests

Intricate signalling networks control cell division, differentiation, movement, organization and death. Cancer cells disobey these signals during tumour progression and metastasis, which is the final step in 90% of all fatal solid tumours. Metastasis is therefore a grave public health problem and consequently a field of considerable pharmaceutical interest. A major research focus of our group is to identify and understand the genes and functions that allow tumor cells to achieve metastatic colonization of vital organs. As we understand more about the biology of BC cells, we can begin to address how best to treat this form of disease. Key to determining whether dormant solitary cells or micrometastases represent valid targets is knowledge of the underlying biology of dormancy and the probability of cells progressing to active metastatic growth. This progression is poorly understood in preclinical models and even less so clinically and has become of our interest.

### Selected publications

- Mateo F, Arenas EJ, Aguilar H, Serra-Musach J, de Garibay, ... Carracedo A, Gonzalez-Suarez E, Nanjundan M, Cortes J, Lazaro C, Otero MD, Martens JWM, Moreno-Bueno G, Barcellos-Hoff MH, Villanueva A, **GomisRR** & Pujana MA 2017, 'Stem cell-like transcriptional reprogramming mediates metastatic resistance to mTOR inhibition', *Oncogene*, 36, 19, 2737 - 2749.
- Coleman RE, Hall A, Albanell J, Hanby A, Bell R, Cameron D, Dodwell D, Marshall H, Jean-Mairet JJ, Tercero JC, Rojo F, Greogory W & **Gomis RR** 2017, 'Effect of MAF amplification on treatment outcomes with adjuvant zoledronic acid in early breast cancer: a secondary analysis of the international, open-label, randomised, controlled, phase 3 AZURE (BIG 01/04) trial', *Lancet Oncology*, 18:1543-1552.
- **Gomis RR\*** & Gawrzak S 2017, 'Tumor cell dormancy', *Molecular Oncology*, 11, 1, 62 - 78.
- Massagué J, **Batlle E** & **Gomis RR** 2017, 'Understanding the molecular mechanisms driving metastasis', *Mol. Oncol.*, 11, 1, 3-4.
- Cejalvo JM, Martínez de Dueñas E, Galván P, García S, Burgués O, Paré L, Antolín S, Martinello R, Blancas I, Adamo B, Guerrero A, Muñoz M, Nucíforo P, Vidal M, Pérez RM, Chacón JL, Caballero R, Gascón P, Carrasco E, Rojo F, Perou CM, Cortés J, Adamo V, Albanell, J, **Gomis RR**, Lluch A & Prat A 2017, 'Intrinsic subtype and gene expression changes between primary and metastatic breast cancer', *Cancer Research*, 77, 9, 2213 - 2221.
- **Seoane J\*** & **Gomis RR\*** 2017, 'TGFβ family signaling in tumor suppression and cancer progression', *Cold Spring Harbor Perspectives in Biology*, 9:a022277.

### Selected research activities

- Co-Organizer 2018 Mechanisms of Metastasis Meeting. BBVA Biomed Conferences. Barcelona
- 2017-2018 Member of Review Committee of Breast Cancer Now's Research Unit. Breast Cancer Now (UK)
- 2017 Member of the Vallformosa Foundation Research Award Committee
- Scientific Advisory Board Member of GEICAM (Grupo Español de Cáncer de Mama) (Spain) (2016-open)





## Alejandro R. Goñi

Institut de Ciència de Materials de Barcelona (CSIC - ICMAB)  
Engineering Sciences

I was born in Córdoba, Argentina, and graduated in physics in 1985 from Balseiro Institute, Bariloche, Argentina. In 1986 I moved to Germany for my PhD at the Max-Planck Institute FKF in Stuttgart with Prof. M. Cardona, which I finished in 1989. It followed a two-years postdoc at AT&T Bell Labs in Murray Hill, USA, and back to the MPI Stuttgart for three years. In 1996 I switched to the Technical University of Berlin for an appointment as Research & Teaching Associate. In 1999 I was awarded the Karl-Scheel Prize of the Physical Society of Berlin for my contributions to the field of high-pressure semiconductor physics. I joined the Optoelectronic Properties of Nanostructured Materials group at ICMAB-CSIC in November 2003 as ICREA. I created a facility for optical spectroscopy with micro and nanometer-scale resolution and set up a laboratory for high-pressure physics. I am leading group activities on thermoelectricity, high pressure and hybrid perovskites.

### Research interests

I am an experimental physicist with broad interests and expertise in solid-state physics, optical spectroscopy (Raman scattering, photoluminescence, etc.), nano-science and technology, thermoelectricity, the physics of low-dimensional materials (superlattices, quantum wires and dots), highly correlated electron systems, and high-pressure techniques. Essentially, I use light as a probe of the physical properties of all kinds of organic and/or inorganic molecular and nano-materials, searching for new behaviors or phenomena that emerge as a direct consequence of the reduced dimensionality and/or size of the material system under study. Although I am pursuing basic research, almost all my lines of investigation have a clear application in mind, such as to improve the performance of optoelectronic devices based on nano-materials, enhance thermoelectric and/or photovoltaic properties, boost piezo-resistive coefficients, develop ultra-sensitive spectroscopic techniques, etc.

### Selected publications

- Rodríguez-Martínez X, Vezie MS, Shi X, McCulloch I, Nelson J, **Goñi AR**, Campoy-Quiles M 2017, 'Quantifying Local Thickness and Composition in Thin Films of Organic Photovoltaic Blends by Raman Scattering', *J. Mater. Chem. C*. 5, 7270-7282.
- Plyushcheva MV, Pereira da Silva K, Aneli NB, Vays VB, Kondrashov FA & **Goñi AR** 2017, 'Two-Color Fluorescence of Elytra of Scale-Worm *Lepidonotus Squamatus* (Polychaeta, Polynoidae): in-vivo Spectral Characteristic', *Mater. Today: Proceed.* 4, 4998-5005.
- Livneh T, Reparaz JS & **Goñi AR** 2017, 'Low-Temperature Resonant Raman Asymmetry in 2H-MoS<sub>2</sub> under High Pressure', *J. Phys.: Cond. Matter.* 29, 435702/1-9.
- El Sachat A, Reparaz JS, Spiece J, Alonso MI, **Goñi AR**, Garriga M, **Vaccaro PO**, Wagner MR, Kolosov OV, **Sotomayor Torres CM** & Alzina F 2017, 'Thermal Transport in Epitaxial Si<sub>1-x</sub>Ge<sub>x</sub> Alloy Nanowires with Varying Composition and Morphology', *Nanotechnol.* 28, 505704/1-10.
- Alonso MI, Funke S, González A, Garriga M, Vaccaro PO, **Goñi AR**, Ruiz A, Alonso M, & Thiesen PH 2017, 'Spectroscopic Imaging Ellipsometry of Self-Assembled SiGe/Si Nanostructures', *Appl. Surf. Sci.* 421, 547-552.
- Cuxart MG, Sics I, **Goñi AR**, Pach E, Sauthier G, Paradinas M, Foerster M, Aballe L, Moreno Fernández H, Carlino V, & Pellegrin E 2017, 'Inductively Coupled Remote Plasma-Enhanced Chemical Vapor Deposition (rPE-CVD) as a Versatile Route for the Deposition of Graphene Micro- and Nanostructures', *Carbon* 117, 331-342.
- Niu P, Asturias-Arribas L, Jordà X, **Goñi AR**, Roig A, Gich M & Fernández-Sánchez C 2017, 'Carbon-Silica Composites to Produce Highly Robust Thin-Film Electrochemical Microdevices', *Adv. Mater. Technol.*, 1700163/1-11.

### Selected research activities

#### Main Invited talk:

- *Using pressure to unravel the nature of optical transitions in quantum dots*, Current trends in Optical and X-Ray metrologies of key enabling nanomaterials/devices for the Ubiquitous Society, renewable energy and health (OptoX NANO), Okayama, Japan, November 2017.



Miguel A. González Ballester  
 Universitat Pompeu Fabra (UPF)  
 Engineering Sciences

Degree in Computer Science from Universitat Jaume I (1996), and doctorate from the University of Oxford (2000). I was a senior researcher at Toshiba Medical Systems (Japan), INRIA (France), and the University of Bern (Switzerland), where I was leading the Surgical Technology Division at the Faculty of Medicine. From 2008 until September 2013 I was in charge of the Research Department of the company Alma IT Systems in Barcelona. In October 2013 I was appointed ICREA Research Professor, and joined the Department of Information and Communication Technologies at Universitat Pompeu Fabra in Barcelona, where I lead the Barcelona Centre for New Medical Technologies (BCN Medtech) and hold the QUAES Foundation Chair. I have approx. 250 publications in peer-reviewed scientific journals and conferences, and have supervised 18 PhD theses. I was awarded Fellowships from Toshiba and the Japan Society for the Promotion of Science.

### Research interests

My research focus is on computerised medical image analysis and computer-assisted surgery, including: image processing and computer vision, image-based diagnosis through machine learning, medical imaging physics, computational modelling and simulation of virtual organs and surgical interventions, navigation in computer-assisted surgery, surgical devices and implants, and applied clinical research. In addition to basic research with solid mathematical foundations (notably my work on statistical biomechanical models), all my projects have a marked translational character, focusing on concrete clinical and industrial applications.

### Selected publications

- Gil D, Vera S, Borràs A, Andaluz A & **González Ballester MA** 2017, 'Anatomical medial surfaces with efficient resolution of branches singularities', *Medical Image Analysis*, vol. 35, pp 390-402
- Mountris K, Bert J, Noailly J, Rodriguez Aguilera A, Valeri A, Pradier O, Schick U, Promayon E, **González Ballester MA**, Troccaz J & Visvikis D 2017, 'Modeling the impact of prostate edema on LDR brachytherapy: a Monte Carlo dosimetry study based on a 3D biphasic finite element biomechanical model', *Physics in Medicine and Biology*, vol. 62, no. 6, pp 2087-2102.
- Zimmer VA, Glocker B, Hahner N, Eixarch E, Sanroma G, Gratacós E, Rueckert D, **González Ballester MA** & Piella G 2017, 'Learning and combining image neighborhoods using random forests for neonatal brain disease classification', *Medical Image Analysis*, vol. 42, pp 189-199.
- Gerber N, Reyes M, Barazzetti L, Kjer HM, Vera S, Stauber M, Mistrik P, Ceresa M, Mangado N, Wimmer W, Stark T, Paulsen RR, Weber S, Caversaccio M & **González Ballester MA** 2017, 'A multiscale imaging and modelling dataset of the human inner ear', *Scientific Data*, vol. 4, no. 170132.
- Benkarim OM, Sanromà G, Zimmer VA, Muñoz-Moreno E, Hahner N, Eixarch E, Cámara O, **González Ballester MA** & Piella G 2017, 'Towards the automatic quantification of in utero brain development in 3D structural MRI: a review', *Human Brain Mapping*, vol. 38, no. 5, pp 2772-2787.
- Benkarim OM, Piella G, **González Ballester MA** & Sanroma G 2017, 'Discriminative confidence estimation for probabilistic multi-atlas label fusion', *Medical Image Analysis*, vol. 42, pp 274-287.
- Sanroma G, Andrea V, Benkarim OM, Manjón JV, Coupé P, Camara O, Piella G & **González Ballester MA** 2017, 'Early prediction of Alzheimer's disease with non-local patch-based longitudinal descriptors', *Lecture Notes in Computer Science*, vol. 10530 (MICCAI Workshop on Patch-Based Techniques in Medical Imaging - MICCAI-PatchMI 2017, Quebec, Canada), pp 74-81.



## María Concepción González-García

Universitat de Barcelona (UB)

Experimental Sciences & Mathematics

Prof M.C. Gonzalez-Garcia got her PhD in Theoretical Particle Physics at the University of Valencia in 1991. She held postdoctoral positions at University of Wisconsin-Madison and as a fellow of the CERN Theory Division. As early as 1993 she obtained a tenured scientist position at the CSIC of which she took residency in 1996 at IFIC (a joint CSIC-University of Valencia institute) where eventually she was promoted to full Research Professor. In 2003 she joined the Yang Institute for Theoretical Physics at Stony Brook University as Associate Professor. She joined ICREA in the fall of 2006. She has written over 100 research papers on particle physics phenomenology, as well as some review articles. She is regularly invited to international meetings and conferences and she has given plenary talks at the most important conferences in her area.

### Research interests

I am a theoretical particle physicist. I study the fundamental laws that govern the behaviour of the smallest components of Nature: the elementary particles. I do it by comparing the predictions from different theories with measurements performed at accelerators, where high energy beams of matter are made to collide, as well as in experiments which detect the elementary particles arriving to us from outer space, and which were produced in the burning of the stars or during the reactions occurring in the early Universe. The ultimate goal is two-fold: understand the physical laws of the microcosms as well as how they determine the Universe we live in.

### Selected publications

- Coloma P, Denton PB, **Gonzalez-Garcia MC**, Maltoni M, & Schwetz T 2017, 'Curtailling the dark side in non-standard neutrino interactions', *Journal Of High Energy Physics*, 4, 116.
- Corbett T, Eboli OJP & **Gonzalez-Garcia MC** 2017, 'Unitarity constraints on dimension-six operators. II. Including fermionic operators', *Physical Review D*, 96, 3, 035006.
- Esteban I, **Gonzalez-Garcia MC**, Maltoni M, Martinez-Solar I & Schwetz T 2017, '[Updated fit to three neutrino mixing: exploring the accelerator-reactor complementarity](#)', *Journal Of High Energy Physics*, 1701, pp087.
- Vinyoles N, Serenelli AM, Villante FL, Basu B, Bergström J, **Gonzalez-Garcia MC**, Maltoni M, Peña-Garay C & Song N 2017, '[A New Generation of Standard Solar Models](#)', *The Astrophysical Journal*, 835, 2, 202.
- Coloma P, **Gonzalez-Garcia MC**, Maltoni M & Schwetz T 2017, '[COHERENT enlightenment of the neutrino dark side](#)', *Physical Review D* 96 no.11, 115007.
- Rosa Agostinho N, Eboli OJP & **Gonzalez-Garcia MC** 2017, '[LHC Run I Bounds on Minimal Lepton Flavour Violation in Type-III See-saw: A Case Study](#)', *Journal of High Ener Physics*, 1711, 118.

### Selected research activities

Selected Conference Talks:

- "Massive Neutrinos Circa 2017" Plenary Talk on International Conference on Cosmology and Astroparticle Physics (PASCOS), IFT, Madrid and on the 30th School for Nuclear Physics, Erice, Italy.
- "Global Analysis of Neutrino Oscillation Data" Plenary talk at the Workshop on Recent Developments in Neutrino Physics and Astrophysics, Gran Sasso, Italy.

Selected Service Activities:

- Member of the Editorial Board of *Journal of High Energy Physics*
- Member of the Scientific Advisory Committee of the Galileo Galilei Institute



## Cayetano González

Institut de Recerca Biomèdica de Barcelona (IRB Barcelona)  
Life & Medical Sciences

After completing a PhD on fly genetics in the laboratory of Pedro Ripoll at the Centre for Molecular Biology (CBM, Madrid, Spain), Cayetano González moved to David Glover's lab in the UK, first at Imperial College and later as a CRC Joint Principal Investigator at Dundee. In 1994, he took his first independent position, as a Group Leader at EMBL (Heidelberg, Germany). After the customary nine-year period at EMBL, he moved to the Centro Nacional de Investigaciones Oncológicas (CNIO, Madrid, Spain). In 2004 he moved to his present post at the Institute for Research in Biomedicine (IRB Barcelona) where he leads the Cell Division Group. In 2007 he was elected to full membership of the European Molecular Biology Organisation (EMBO).

### Research interests

We model cancer in flies to understand the cellular and molecular changes that drive malignant growth. We focus on the mechanisms of malignant transformation in larval brains where we have found abnormal self-renewing asymmetric division often results in malignant growth. Some of our experimental tumor models are driven by the ectopic expression of germline proteins. We are interested in the mechanisms that bring about genome instability in these tumors and try establishing the actual extent to which such lesions contribute to tumor progression. We develop and make extensive use of microscopy techniques. We demonstrated that the microtubule cytoskeleton of *Drosophila* neuroblasts is governed by the distinct behaviour displayed by centrosomes in these cells. We maintain an active line of research to identify new centrosomal proteins and found some with human orthologs that are linked to human pathologies.

### Selected publications

- Rossi F, Molnar C, Hashiyama K, Heinen JP, Pampalona j, Llamazares S, Reina J, Hashiyama T, Rai M, Pollarolo G, Fernandez-Hernandez I & **Gonzalez C** 2017, 'An in vivo genetic screen in *Drosophila* identifies the orthologue of human cancer/testis gene SPO11 among a network of targets to inhibit lethal(3) malignant brain tumour growth', *Open Biology*, 7, 8, 170156.

### Selected research activities

#### Selected Invited Conferences and Meetings

June 2017: EMBO Symposium: *Cell polarity and membrane dynamics*. San Feliu de Gixols. Spain.

September 2017: Jacques Monod conference: *Cell Cycle: inside out*. Roscoff. France.

September 2017: EMBO Conference: *Centrosome and Spindle Pole Body Conference 2017*. Heidelberg. Germany.

#### Selected Invited Seminars

September 2017: Instituto Gulbenkian de Ciência. Oeiras. Portugal.

#### Outreach activities

March 2017: *On the fly: A practical course for secondary school teachers on the development of *Drosophila melanogaster**. Fundació Catalunya-La Pedrera. IRB Barcelona. Barcelona. Spain.

#### Professional Services

PhD External Examiner. Graduate School of Health and Medical Sciences (University of Copenhagen). Denmark.

*Comisión Científico Técnicas de Las convocatorias Excelencia y Retos 2017*. Departamento Técnico BFU-BMC. MINECO. Madrid. Spain.

IRB Barcelona delegate at The Milner Therapeutics Symposium 2017: *From Basic Research to Drug in Patients*. West Road Concert Hall. Cambridge.



## Pau Gorostiza

Institut de Bioenginyeria de Catalunya (IBEC)  
Life & Medical Sciences

Pau Gorostiza graduated in physics at the University of Barcelona (UB), where he obtained his PhD (European Doctorate) in the field of semiconductor electrochemistry. He worked at the UB microscopy facility in AFM and STM of biological samples, and in nanotechnology for materials science. He visited the CNRS - Université Pierre et Marie Curie (France), and the University of California at Berkeley (USA). He is currently ICREA Research Professor at the Institute for Bioengineering of Catalonia, where he develops photoswitchable ligands of neuronal proteins and studies electron transfer in redox proteins and photosynthetic complexes using EC-STM/AFM. He obtained a Human Frontier Science Program (HFSP) Career Development Award and two European Research Council (ERC) grants. He published more than 100 articles (3200 citations, h-index 29) and holds 7 patents (5 licensed). He has supervised 8 postdoctoral fellows and 9 PhDs.

### Research interests

Research in the group is focused on developing nanoscale tools to study biological systems. These tools include instrumentation based on proximity probes, like Electrochemical Tunneling Microscopy and Spectroscopy, that we are applying to study metal oxides and redox proteins. Another set of nanotools that we are developing is based on molecular actuators that can be switched with light, like azobenzene, which can be chemically attached to biomolecules in order to optically control their activity.

### Selected publications

- López-Martínez M, Manuel Artés J, Sarasso V, Carminati M, Díez-Pérez I, Sanz F & **Gorostiza P** 2017, 'Differential Electrochemical Conductance Imaging at the Nanoscale', *Small*, 13, 36, UNSP 1700958.
- Ruiz MP, Aragonés AC, Camarero N, Vilhena JG, Ortega M, Zotti LA, Pérez R, Cuevas JC, **Gorostiza P** & Díez-Pérez I 2017, 'Bioengineering a Single-Protein Junction', *Journal Of The American Chemical Society*, 139, 43, 15337 - 15346.
- Gómez-Santacana X, Pittolo S, Rovira X, López M, Zussy C, Dalton JAR, Faucherre A, Jopling C, Pin J-P, Ciruela F, Goudet C, Giraldo J, **Gorostiza P** & Llebaria A 2017 'Illuminating Phenylazopyridines To Photoswitch Metabotropic Glutamate Receptors: From the Flask to the Animals', *ACS Central Science*, 3 (1), pp 81-91
- Terni B, Pacciolla P, Masanas H, **Gorostiza P** & Llobet A 2017, 'Tight temporal coupling between synaptic rewiring of olfactory glomeruli and the emergence of odor-guided behavior in *Xenopus* tadpoles', *Journal Of Comparative Neurology*, 525, 17, 3769 - 3783.
- Gómez-Santacana X, Dalton J, Rovira X, Pin J-P, Goudet C, **Gorostiza P**, Giraldo J & Llebaria A 2017, 'Positional isomers of bispyridine benzene derivatives induce efficacy changes on mGlu5 negative allosteric modulation', *European Journal of Medicinal Chemistry*, 127, 567 - 576.

### Selected research activities

#### Selected invited talks:

Photopharmacology Symposium (Groningen), meeting of the Federation of European Biochemical Societies (Barcelona), International Workshop on Technologies for Optogenetics and Neurophotonics (Lecce).



## Grinstein , Sebastian

Institut de Física d'Altes Energies (IFAE)  
Experimental Sciences & Mathematics

I completed my MSc at the University of Buenos Aires in 1998 working on the measurement of the production cross section of direct photons at the D0 experiment (Fermilab, USA). Afterwards, I worked in Sweden as a member of the Astroparticle Group of the Royal Institute of Technology studying cosmic rays. I did my PhD (2003, University of Buenos Aires) measuring the properties of quarks and gluons in high energy collisions at D0. In 2003 I became a postdoctoral Fellow at Harvard University where I worked mainly at the CDF experiment (Fermilab) on top-quark physics and detector operations. In 2008 I joined the IFAE (Institut de Física d'Altes Energies) LHC-ATLAS experiment group as an ICREA Researcher. I am currently leading the ATLAS Detector upgrade effort at IFAE. In 2012 I became an ICREA Research Professor.

### Research interests

My research has been focused on high-energy experimental particle physics: understanding which are the fundamental constituents of nature and how they interact. At the Fermilab Tevatron accelerator I have performed studies of QCD and the properties of the heaviest quark, the top quark. At the LHC accelerator at CERN I conducted searches for new physics in the top sector. I have always been drawn to the challenges related to the development of the next generation of high energy physics detectors, and, in general, to instrumentation R&D. Currently I lead a coordinated project between IMB-CNM and IFAE to develop semiconductor pixel detectors for the ATLAS experiment at the LHC. As a result of this project, 3D pixel silicon sensors designed and produced at Barcelona have been included in the new innermost detector layer of ATLAS and in the tracking system of the ATLAS Forward Proton (AFP) detector. My on going work aims to develop radiation hard technologies for the high luminosity LHC era. I am also co-leading a project to produce a new generation of real time breast biopsy machines.

### Selected publications

- **Grinstein S** et al. 2017, 'Module production of the one-arm AFP 3D pixel tracker', *Journal Of Instrumentation*, 12, C01086.
- Lange J, **Grinstein S** et al. 2017, 'Gain and time resolution of 45  $\mu\text{m}$  thin Low Gain Avalanche Detectors before and after irradiation up to a fluence of  $1015 n_{\text{eq}}/\text{cm}^2$ ', *Journal Of Instrumentation*, 12, P05003.
- Terzo S, **Grinstein S** et al., 2017, 'Characterisation of novel prototypes of monolithic HV-CMOS pixel detectors for high energy physics experiments', *Journal Of Instrumentation*, 12, C06009.
- Cavallaro E, **Grinstein S** et al. 2017, 'Studies of irradiated AMS H35 CMOS detectors for the ATLAS tracker upgrade', *Journal Of Instrumentation*, 12, C01074.
- Vazquez Furelos D, **Grinstein S** et al. 2017, '3D sensors for the HL-LHC', *Journal Of Instrumentation*, 12, C01026.

### Selected research activities

- \* Principal investigator of the ATLAS-Upgrade group at IFAE (FPA, MINECO).
- \* Principal investigator of the Instrumentation group at IFAE (SGR, AGAUR).
- \* Co-principal investigator of the 3D Biopsy on Tomosynthesis project (RIS3CAT, ACCIO).
- \* Coordinator of AIDA-2020 activities at IFAE and WP6 (HVCMOS) co-coordinator (H2020, EU).
- \* Guarantor of the IFAE "Severo Ochoa" Centre of Excellence Program award (2016).
- \* Supervising six PhD theses.

Talks at Conferences:

- \* "A High Granularity Timing Detector for the Phase-2 Upgrade of the ATLAS Calorimeter", 11th International Conference on Position Sensitive Detectors, 3-8 September 2017, The Open University, Milton Keynes, UK.
- \* "Pixel Sensor Technologies for the CEPC", International Workshop on High Energy Circular Electron Positron Collider 2017, 6-8 November 2017, Beijing, China.



## Víctor Guallar

Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC - CNS)  
Life & Medical Sciences

Professor Guallar performed his undergraduate at the Autonomous University of Barcelona (Spain), with a major in Chemistry, followed by a joint PhD in physical chemistry at UC Berkeley and Autonomous University of Barcelona, with Professors Josep M. Lluch, Miquel Moreno and William H Miller (November 1999 thesis defense). Afterwards, he moved for a postdoctoral research position (2000-2003) to Columbia University in New York City, under the supervision of Prof. Richard Friesner. In 2003 he got a tenured position as an assistant Professor at the Biochemistry and Molecular Biophysics department at the School of Medicine in Washington University in St. Louis. In 2006 he was appointed ICREA Research Professor in the Life Science Department at the Barcelona Supercomputing Center (BSC), where he has been developing his research group.

### Research interests

In the Electronic and Atomic Protein Modeling (EAPM) laboratory at BSC we are devoted to the development and application of computational algorithms in molecular modeling. Using different techniques including Monte Carlo simulations on classical force fields and mixed quantum mechanics/molecular mechanics (QM/MM) methods, we face different biophysical and biochemical studies:

\* Biochemical characterization and engineering of enzymes. We are developing novel computational approaches to improve enzymatic performance in industrial and biomedical applications.

\* Biophysical software development for studying protein-ligand interactions. This projects involve mainly the development of our code PELE (awarded with an ERC Advanced grant) and of different applied studies on drug design projects.

\* Efficient human-computer interplay. Using additional techniques such as visualization and user experience, we are working on designing and developing optimal graphical user interfaces for an interactive and rich human-modeling software experience.

We also place emphasis on the transfer of this technology, having created the first spin-off of the Barcelona Supercomputing Center

### Selected publications

- Giacobelli VG, Monza E, Lucas MF, Pezzella C, Piscitelli A, **Guallar V** & Sannia G 2017, 'Repurposing designed mutants: a valuable strategy for computer-aided laccase engineering the case of POXA1b', *Catalysis Science & Technology*, 7, 2, 515 - 523.

- Lecina D, Gilabert JF & **Guallar V** 2017, 'Adaptive simulations, towards interactive protein-ligand modeling', *Scientific Reports*, 7, 8466.

- Kotev M, Manuel-Manresa P, Hernando E, Soto-Cerrato V, Orozco M, Quesada R, Perez-Tomas R & **Guallar V** 2017, 'Inhibition of Human Enhancer of Zeste Homolog 2 with Tambjamine Analogs', *Journal Of Chemical Information And Modeling*, 57, 8, 2089 - 2098.

- Monza E, Acebes S, Lucas MF & **Guallar V** 2017, in 'Directed Enzyme Evolution: Advances and Applications', Alcalde M Ed., *Springer International Publishing: Cham*, p. 257.

- Grebner C, Lecina D, Gil V, Ulander J, Hansson P, Dellsen A, Tyrchan C, Edman K, Hogner A & **Guallar V** 2017, 'Exploring Binding Mechanisms in Nuclear Hormone Receptors by Monte Carlo and X-ray-derived Motions', *Biophysical Journal*, 112, 6, 1147 - 1156.



**Albert Guillén i Fàbregas**  
Universitat Pompeu Fabra (UPF)  
Engineering Sciences

Albert Guillén i Fàbregas is an ICREA Research Professor at Universitat Pompeu Fabra. He is also an Adjunct Researcher at the University of Cambridge. In 1999 he received both the Telecommunication Engineering Degree and the Electronics Engineering Degree from Universitat Politècnica de Catalunya and the Politecnico di Torino respectively, and the PhD in Communication Systems from École Polytechnique Fédérale de Lausanne in 2004. He has held appointments at the New Jersey Institute of Technology, Telecom Italia, European Space Agency, Institut Eurécom, University of South Australia and the University of Cambridge. He is a recipient of the Consolidator and Starting Grants of the European Research Council. He is a member of the Young Academy of Europe and a Senior Member of the IEEE. He is an Editor of the IEEE Transactions on Information Theory and the Foundations and Trends on Communications and Information Theory.

### Research interests

The broad theme of his research is the mathematical foundations of communications, spanning the fields of Information Theory, Coding Theory, Communications Theory and Signal Processing. Its aim is to study the fundamental limits of reliable communication, along with schemes and processing algorithms that allow one to achieve them.

### Selected publications

- Scarlett J, Martinez A & **Guillén i Fàbregas A** 2017, 'Expurgated Joint Source-Channel Coding Bounds and Error Exponents', 2017 IEEE International Symposium on Information Theory, Aachen, Germany.
- Font-Segura J, Martinez A & **Guillén i Fàbregas A** 2017, 'Asymptotics of the Error Probability in Quasi-Static Binary Symmetric Channels', 2017 IEEE International Symposium on Information Theory, Aachen, Germany.
- AbroshanM, Venkataramanan R & **Guillén i Fàbregas A** 2017, 'Codes for Channels With Segmented Edits', 2017 IEEE International Symposium on Information Theory, Aachen, Germany.
- AbroshanM, Venkataramanan R & **Guillén i Fàbregas A** 2017, 'Multi-Layer Codes for Synchronization from Deletions', 2017 IEEE Information Theory Workshop, Kaohsiung, Taiwan.

### Selected research activities

- ERC Consolidator Grant (2017-2022)
- Invitations: Information Theory and Applications Workshop at UCSD, NSF Workshop on finite-length information theory at MIT, University of Brescia
- Technical Program Committee Member: 2018 International Zurich Seminar on Communications
- Associate Editor IEEE Transactions on Information Theory
- Member Young academy of Europe





**Roger Guimerà**  
 Universitat Rovira i Virgili (URV)  
 Experimental Sciences & Mathematics

Roger Guimerà (Barcelona, 1976) graduated in Physics at Universitat de Barcelona in 1998, and obtained a PhD in Chemical Engineering from Universitat Rovira i Virgili in 2003. He then moved to Northwestern University where he worked as a postdoctoral fellow and, later, as a Fulbright Scholar. In 2008 he became a Research Assistant Professor at Northwestern's Department of Chemical and Biological Engineering, before accepting his current position at ICREA in 2010. He has been awarded the Premi Nacional de Recerca al Talent Jove (2010), the Erdős-Rényi Prize in Network Science (2012), and the Young Scientist Award for Socio- and Econophysics (2014).

### Research interests

Cells, ecosystems and economies are examples of complex systems. In complex systems, individual components interact with each other, usually in nonlinear ways, giving rise to complex networks of interactions that are neither totally regular nor totally random. Partly because of the interactions themselves and partly because of the interaction's topology, complex systems cannot be properly understood by just analyzing their constituent parts. This feature of complex systems poses important challenges from both a fundamental perspective and an engineering perspective. Roger's research is devoted to the study of complex systems and, particularly, of the structure of complex networks and the interplay between network structure and dynamics. During his career, he has: (i) made methodological contributions to the study of complex networks, and (ii) used complex network analysis to gain understanding on a number of systems.

### Selected publications

- Aguilar-Mogas A, Sales-Pardo M, Navarro M, **Guimera R** & Yanes O 2017, 'iMet: A Network-Based Computational Tool To Assist in the Annotation of Metabolites from Tandem Mass Spectra', *Analytical Chemistry*, 89, 6, 3474 - 3482.
- Esteve-Altava B, Valles-Catala T, **Guimera R**, Sales-Pardo M & Rasskin-Gutman D 2017, 'Bone Fusion in Normal and Pathological Development is Constrained by the Network Architecture of the Human Skull', *Scientific Reports*, 7, 3376.
- Rovira-Asenjo N, Pietraszkiewicz A, Sczesny S, Gumi T, **Guimera R** & Sales-Pardo M 2017, 'Leader evaluation and team cohesiveness in the process of team development: A matter of gender?', *Plos One*, 12, 10, e0186045.

### Selected research activities

#### Principal investigator:

- "Mecánica Estadística para el Modelado y la Predicción del Comportamiento Humano", (MINECO), 30 Dec 2016 - 31 Dec 2018
- "Inferencia estadística para el análisis de perturbaciones sistémicas en redes complejas", (MINECO - Europa Excelencia), 01 Nov 2015 - 30 Apr 2017

#### PhD Theses:

- Oriol Senan Campos (Universitat Rovira i Virgili): Statistical tools for classification, interpretation and prediction of biological data

#### Conference organization:

- Program committee member of WWW'17, MACFANG'17, NetSci'18, and SIAMNS'18

#### Editorship:

- Frontiers in Genetics

#### Synergistic activities:

- Vice president of the Catalan Network for the Study of Complex Systems "complexitat.cat"



## Karen Hardy

Universitat Autònoma de Barcelona (UAB)  
Humanities

I joined ICREA in 2008. Following a PhD in the Institute of Archaeology, University College London, I worked on projects based in Hungary, Scotland and Papua New Guinea. From 1997-2005 I co-directed the Scotland's First Settlers project which explored the early post glacial environment and human population around the Isle of Skye, Scotland. In 2005 I was awarded a Marie Curie OIF to visit the University of Sydney where I set up an international project to recover information of the role of plants in human evolutionary and pre-agrarian diets. My return phase took place at the University of York, UK. I am an Honorary Research Fellow at the University of Edinburgh.

### Research interests

My interest lies in early prehistoric periods before the adoption of farming; specifically, pioneer populations, human adaptations, use of land and sea-scapes and exploitation of wild plant as food medicine and raw materials. The analysis of chemical compounds and microfossils extracted from samples of ancient dental calculus provides direct access to biographical details and paleoenvironmental information; this is particularly useful for earlier Palaeolithic periods where the evidence is very limited. Much of my research is also focused on the human use of the Atlantic coastline, specifically in West Africa and North west Europe. In the early postglacial periods, until the mid-Holocene, around 8000 years ago, Britain was still physically attached to Europe and the coastline of North West Scotland was part of Europe's continental limit.

### Selected publications

- **Hardy K** 2017, 'Shell middens', in Allen M (eds), *Molluscs in Archaeology*, Series: Studying Scientific Archaeology, Volume: 3. Oxbow Books.
- Radini A, Nikita E, Buckley S, Copeland L & **Hardy K\*** 2017, '**Beyond food: The multiple pathways for inclusion of materials into ancient dental calculus**', *Yearbook of Physical Anthropology*, 162, S3, 71-83. \*Corresponding and senior author
- **Hardy K**, Radini A, Buckley S, Blasco R, Copeland L, **Burjachs F**, Girbal J, Yll R, Carbonell E & Bermudez de Castro J 2017, 'Diet and environment 1.2 million years ago revealed through analysis of dental calculus from Europe's oldest hominin at Sima del Elefante, Spain', *The Science of Nature*, 104(1-2):2.
- Weyrich LS, Duchene S, Soubrier J, Arriola L, Llamas B, Breen J, Morris AG, Alt KW, Caramelli D, Dresely V, Farrell M, Farrer AG, Francken M, Gully N, Haak W, **Hardy K**, Harvati K, Held P, Holmes EC, Kaidonis J, Lalueza-Fox C, de la Rasilla M, Rosas A, Semal P, Soltysiak A, Townsend G, Usai D, Wahl J, Huson DH, Dobney K & Cooper A 2017, 'Neanderthal behaviour, diet, and disease inferred from ancient DNA in dental calculus', *Nature*, 544, 7650, 357.
- **Hardy K** & Buckley S 2017, 'Earliest evidence of bitumen from Homo sp. teeth is from El Sidrón', *American Journal of Physical Anthropology*, 164, 1, 212 - 213.
- Camara A, **Hardy K**, Dioh E, Gueye M, Pique R, Carre M, Sall M, Diouf M & Waly M 2017, 'Amas et sites coquilliers du delta du Saloum. Passé et présent.', *L'Anthropologie*, 121, 1-2, 204-214.

### Selected research activities

Member of AHRC network project Coping with climate: the legacy of *H. heidelbergensis*, Universities of Brighton and Southampton, UK



## Stuart Hardy

Universitat de Barcelona (UB)  
Experimental Sciences & Mathematics

I completed a BSc in Geology (Hons 1st Class) at Glasgow University in 1984 and a Masters in Computer Science at Bradford University in 1987. Thereafter I worked on satellite rainfall prediction and hydrological modelling at Reading University for 2 years, before undertaking a PhD at the University of London (1989-1994) in Mathematical Modelling of Tectonics and Sedimentation. Two Postdoc fellowships then followed: A 2-year Royal Society European Science Exchange Fellowship at CSIC (Jaume Almera) in Barcelona and 1-year post-doc working with John Suppe at Princeton University. I was subsequently a lecturer in the Earth Science Department of the University of Manchester for 5 years. I am an ICREA Research Professor in the Faculty of Geology at the Universitat de Barcelona since 2003.

### Research interests

I work in mathematical numerical modelling of geological processes (tectonics, sedimentation, volcanology, etc.) and use a variety of different approaches to try to better understand (through both modelling and validation) the various relationships preserved in the geological record. I am interested in both continuum (e.g. finite difference, finite element) and discontinuum techniques (e.g. discrete element, SPH) both from a theoretical standpoint and in using them in practical applications. I am also very much interested in using high performance computing to run high resolution numerical models and visualize the results of such models. Recent research has focused on computational determinism in parallelized HPC codes, Martian tectonics, viscous deformation, salt tectonics and discrete element modelling of sedimentation.



## Wolfram Hinzen

Universitat Pompeu Fabra (UPF) & FIDMAG Hermanas Hospitalarias (FIDMAG)  
Humanities

I obtained a Magister (Freiburg, 1993), an MA (King's College London, 1994), and a PhD (philosophy, Bern, 1996), prior to becoming a Swiss government funded postdoctoral researcher in Stuttgart (1996-7) and New York (1997-9). I was first employed in an academic position as Assistant Professor in Regensburg (1999), then at the Universitat van Amsterdam (2003-2006), before becoming a full professor in Durham (2006-) and an ICREA Research Professor in Barcelona in April 2013. I also was a guest professor at Hong Kong University (2010) and at Universitat Autònoma de Barcelona (2011).

### Research interests

Language is specific to our species, as is our type of mind. How do the two relate? I pursue this question by studying disorders of language in the context of mental disorders. When cognition changes, language often changes as well, and decline in one domain can illuminate decline in the other. I have inaugurated the 'Un-Cartesian hypothesis', which suggests that the evolution of language is also the evolution of a particular cognitive type, and that thinking and language effectively coincide. This research program is documented in my monographs 'Mind Design' (2006), 'An Essay on Names and Truth' (2007), and 'The Philosophy of Universal Grammar' (2013, with M. Sheehan), all from Oxford UP. I have directed three international projects (NWO, 2006-2011; AHRC/DFG, 2009-2012) and 'Language and Mental Health' (AHRC, 2014-2017), dedicated to the comparative study of language disorder in schizophrenia and aphasia. Locally in Barcelona, I have founded the Grammar & Cognition lab ([www.grammar.cat](http://www.grammar.cat)), which pursues the project of a typology of linguistic diversity across clinical populations.

### Selected publications

- Zimmerer V, Watson S, Turkington D, Ferrier N & **Hinzen W** 2017, 'Deictic and propositional meaning - new perspectives on language in schizophrenia'. *Frontiers in Psychiatry*, 8, 17.
- Rossello J, Mattos O & **Hinzen W** 2017, 'Towards true integration', *Behavioral And Brain Sciences*, 40, e70.
- **Hinzen W** 2017, 'Reference Across Pathologies: A New Linguistic Lens on Disorders of Thought. Target article with responses and a reply'. *Theoretical Linguistics*, 43, 3-4, 169 - 232.
- **Hinzen W** 2017, 'What language is. Reply to commentators', *Theoretical Linguistics*, 43, 3-4, 297 - 317.

### Selected research activities

- Organizer of a cycle of 4 international workshops in CosmoCaixa, Barcelona, on language and the brain, called *The Language Cycle*. Co-organized with Jaume Bertranpetit. October 2017.
- Organizer, Symposium on Language in schizophrenia, British Psychological Society Annual Conference, Newcastle University, UK, September 2017
- Primary supervisor, 7 PhD students: Kristen Schroeder, FPI (UB), Gabriel Sevilla (UPF), Dominika Slusna (UPF), Elisabet Vila (UB), Will Jones (Durham University), Antonia Tovar, FI (UPF), Miriam Garcia (UB)
- Recent keynotes: International Biolinguistics Conference, Beijing, China, December 2017.



## Carl Hofer

Universitat de Barcelona (UB)  
Humanities

I did my PhD in Philosophy at Stanford University, with Peter Galison and Nancy Cartwright. My first academic position was at the University of California, Riverside. In 1998 I moved to the London School of Economics to join the department of Philosophy, Logic and Scientific Method. Since autumn of 2002 I have been an ICREA and member of the UAB philosophy department. From 2005-2013 I was coordinator of the research group GRECC based at the UAB. Since June 2009, I have been Editor in Chief of a new international journal, the *European Journal for Philosophy of Science*, published by Springer. In July 2013 I began a leave of absence from ICREA to take up the Directorship of the Rotman Institute of Philosophy at Western University in Canada ([www.rotman.uwo.ca](http://www.rotman.uwo.ca)), and I returned to ICREA in July 2015. In 2017 I completed my long-awaited book on objective chance, which OUP will publish in 2018.

### Research interests

My research has mostly addressed age-old metaphysical questions by examining the metaphysics of nature that flows from our best scientific theories. In particular, I work on the nature of space, time and motion as revealed by physics (especially, Einstein's theories of relativity); and on the nature of objective probability as revealed by its uses in many branches of science and other human activities. At present my research is turning to two traditional big issues in the philosophy of science: scientific realism (i.e., should we take our best scientific theories to be giving us the truth about the world?) and the nature of the (physical) *laws of nature*.

### Selected research activities

- In 2017 I completed my monograph *Chance in the World*, which has been accepted for publication by Oxford University Press. This book synthesizes and culminates many years of development of a novel theory of objective probabilities.
- In 2017 I wrote four articles, one of which is accepted for publication and three in submission.
- Invited speaker at Harvard Black Hole Initiative, as well as at the University of Milan, University of Leeds, University of Rome 3, and the American Philosophical Association.
- Editor-in-Chief of the *European Journal for Philosophy of Science* (editorship ended July 2017 after handling the first 8 years of the journal).
- Director of a newly-formed inter-university research institute, the *Barcelona Institute of Analytic Philosophy* (BIAP), bringing together philosophers from the UB, UPF and U. of Girona.
- Co-PI of a 4-year research project financed by the Spanish Ministry (MINECO), 2017 - 2020.



## Sergio R. Idelsohn

Centre Internacional de Mètodes Numèrics a Enginyeria  
(CIMNE)  
Engineering Sciences

Date and place of birth: November 15, 1947, Paraná (Argentina). Marital status: Married. Three children. Education: Degree: Mechanical Engineer, Universidad Nacional de Rosario (Argentina) 1970. Postgraduate Studies: PhD in Applied Sciences, University of Liege (Belgium) 1974. Adviser: Prof. Fraeijs de Veubeke. Languages: Spanish, French and English. Research Interests: Computational Mechanics, Finite Element Methods in Structural Dynamics, Fluid Mechanics and Heat Transfer. Present Positions: ICREA Research Professor and Senior Researcher at the International Center for Numerical Methods in Engineering, Universitat Politècnica de Catalunya, Barcelona, Spain. Full-time Professor, National University of Litoral, Santa Fe, Argentina (in leave of absence).

### Research interests

He is a specialist in the numerical simulations of mechanical engineering problems, in particular, Computational Fluid Dynamics (CFD). In the last ten years he developed a new method called the Particle Finite Element Method (PFEM) to solve fluid mechanics problems including free-surface flow, breaking waves and fragmentation. This method becomes very popular to solve problems like ship and harbour designs, melting of metals, erosion, and polymer combustion or magma analysis. Currently he works on solving CFD problems in Real Time using approximation techniques based on particles.

### Selected publications

- **Idelsohn SR**, Gimenez JM, Marti J & Nigro NM 2017, 'Elemental Enriched Spaces for the Treatment of Weak and Strong Discontinuous Fields', *Computer Methods in Applied Mechanics and Engineering*, Volume 313, 1, Pages 535-559.
- Ryzhakov PB, Marti J, **Idelsohn SR** & Oñate E 2017, 'Fast fluid-structure interaction simulations using a displacement-based finite element model equipped with an explicit streamline integration prediction', *Computer Methods In Applied Mechanics And Engineering*, 315, 1080 - 1097.
- Ortega E, Flores R, Oñate E & **Idelsohn S** 2017, 'A-posteriori error estimation for the finite point method with applications to compressible flow', *Computational Mechanics*, 60, 2, 219 - 233.
- Cosimo A, Cardona A & **Idelsohn S** 2017, 'Global-Local ROM for the solution of parabolic problems with highly concentrated moving sources', *Computer Methods In Applied Mechanics And Engineering*, 326, 739 - 756.
- Marti J, Ortega E & **Idelsohn S** 2017, 'An improved enrichment method for weak discontinuities for thermal problems', *International Journal of Numerical Methods for Heat & Fluid Flow*, Vol. 27 Issue: 8, pp.1748-1764

### Selected research activities

- **Chairman of the Second Pan American Congress on Computational Mechanics**- PANACM 2018, July 22-27, 2018, New York City, USA.
- **Vice President of the International Association of Computational Mechanics** (2014-2018).
- **Plenary Lecturer** at the III CSMA-SEMNI joint workshop on Model Order Reduction. Jaca, Spain, 1-3 February 2017.
- **Keynote Lecturer** at the XIX International Conference on Finite Element in Flow Problems. April 5-7; 2017; Rome, Italy.
- **Plenary Lecturer** at the VII International Conference on Computational Methods in Marine Engineering-MARINE-2017. Nantes, France, 15-17 May 2017
- **Plenary Lecturer** at the XXIII Congreso sobre Métodos Numéricos y sus Aplicaciones, ENIEF 2017, Nov. 5-10, 2017, La Plata, Argentine.
- Declared "**Santafesino Outstanding**" by the Government of the Province of Santa Fe, Argentine.



**Kazushi Iwasawa**  
Universitat de Barcelona (UB)  
Experimental Sciences & Mathematics

Born and educated in Japan. After obtaining his PhD in astrophysics at Nagoya University, Nagoya, Japan, in 1995, he moved to Europe, working at the Institute of Astronomy, Cambridge in UK (1995-2005), at the Max Planck Institut für Extraterrestrische Physik in Germany (2005-2008), and at INAF-Osservatorio Astronomico di Bologna in Italy (2008-2009). In 2010 he joined ICREA, to work as an ICREA Research Professor at the Institut de Ciències del Cosmos (ICCUB). His main research area is X-ray astronomy on active galaxies and cosmic black holes.

### Research interests

Kazushi Iwasawa works in the field of observational astronomy, mainly using X-ray observatories in space. His primary interest is in the formation and evolution of supermassive black holes powering active galaxies. These active galaxies are generally strong X-ray emitters, which makes X-ray observations a powerful probe of black hole activity even at great cosmological distances. He is involved in several multi-wavelength survey projects which attempt to establish cosmic evolution of the black hole activity and its relation to the galaxy formation. Currently most active collaborations include Great Observatories All-sky LIRG Survey (GOALS), for investigating the theme through the aspect of galaxy mergers, and the Subaru HyperSuprime Cam (HSC) survey, focusing on high redshift quasars. He is also interested in observational study of relativistic effects operating at region close to the black hole in active galaxies through X-ray spectroscopy.

### Selected publications

- Ricci C, Bauer FE, Treister E, Schawinski K, Privon GC, Blecha L, Arevalo P, Armus L, Harrison F, Ho LC, **Iwasawa K**, Sanders DB & Stern D 2017, 'Growing supermassive black holes in the late stages of galaxy mergers are heavily obscured', *Monthly Notices of the Royal Astronomical Society*, 468, 1273.
- Ribó M, Munar-Adrover P, Paredes JM, Marcote B, **Iwasawa K**, Moldón J, Casares J, Migliari S & Paredes-Fortuny X 2017, 'The First Simultaneous X-Ray/Radio Detection of the First Be/BH System MWC 656', *Astrophysical Journal Letters*, 835, L33.
- **Iwasawa K**, Spoon HWW, Comastri A, Gilli R, Lanzuisi G, Piconcelli E, Vignali C, Brusa M & Puccetti S 2017, 'The active nucleus of the ULIRG IRAS F00183-7111 viewed by NuSTAR', *Astronomy and Astrophysics*, 66, A117.
- Diaz-Santos T, Armus L, Charmandaris V, Lu N, Stierwalt S, Stacey G, Malhotra S, van der Werf PP, Howell JH, Privon GC, Mazzarella JM, Goldsmith PF, Murphy EJ, Barcos-Munoz L, Linden ST, Inami H, Larson L, Evans AS, Appleton P, **Iwasawa K**, Lord S, Sanders DB & Surace JA 2017, 'A Herschel/PACS Far-infrared Line Emission Survey of Local Luminous Infrared Galaxies', *Astrophysical Journal*, 846, 1, 32.

### Selected research activities

Invited to the Sesto Workshop (on observations of gravitational effects of black holes) and the Lorentz Center Workshop: The Quest for Multiple Supermassive Black Holes. Telescope observing times were awarded for programs of XMM-Newton and of GTC 2017A as a PI and other programs in ALMA Cycle 5, WHT 2017A, Chandra Cycle 19 as a co-I. There was a press release by NASA (<https://www.nasa.gov/feature/jpl/merging-galaxies-have-enshrouded-black-holes>), related to the publication (Ricci et al above).



## Matthias Jamin

Institut de Física d'Altes Energies (IFAE)  
Experimental Sciences & Mathematics

After defending my PhD thesis in July 1988 at the University of Heidelberg under the supervision of Prof. H.G. Dosch, I had several positions including scientific associate at TU Munich, a fellowship at CERN (Geneva) and research assistant again at Heidelberg Univ. In February 1996, I completed my Habilitation at the University of Heidelberg. In April 1998, I was awarded a Heisenberg fellowship by the DFG, which I occupied until October 2004. During this period I replaced two professors one at Heidelberg Univ. and the other one at LMU Munich, I spent some time as a visiting researcher at Fermilab (USA), and in July 2003 I was awarded an Apl. professorship by Heidelberg Univ. I am employed with ICREA since April 2005. My scientific work until today includes more than ninety publications which so far received more than 7,000 citations.

### Research interests

The "Standard Model" of particle physics until now describes all observed phenomena in its realm to an astonishing precision. Still, theoretical prejudice exists demanding physics which goes beyond it. "Beyond Standard Model" physics might be - so far unsuccessfully - uncovered directly by its observation, or through unveiling mismatches within the present theory. For the latter approach high precision predictions are required which necessitate a sound knowledge of the Standard Model input parameters. My main work concerns precision determinations of those parameters in the strong-interaction sector of the "Standard Model", most notably the strong coupling and the masses of "quarks", entities which are the sub-constituents of the protons and neutrons in ordinary atomic nuclei.

### Selected publications

- Boito D, **Jamin M** & Miravittlas R 2017, 'Scheme variations of the QCD coupling', *EPJ Web of Conferences*, 137, 05007.
- Boito D, **Jamin M** & Miravittlas R 2017, 'Scheme variations of the QCD coupling and tau decays', *Nuclear And Particle Physics Proceedings*, 287, 77 - 80.

### Selected research activities

#### Presentations at International Conferences and Workshops

- 'QCD correlators at high orders', RADCOR 2017 - 13th International Symposium on Radiative Corrections, St. Gilgen, Austria, 24-29 September 2017.

#### School Organisation

- 'TAE 2017 - International Summer School on High Energy Physics', Benasque, Spain, 3-16 September 2017.

#### Master Courses

- Advanced Quantum Field Theory, IF AE Master on High Energy Physics, March 2017.

#### Stays of Research

- Collaboration with Prof. M. Beneke, Excellence Cluster TU Munich, Garching Germany, 5-23 June and 3-21 July 2017.

#### Seminars

- 'QCD, tau decays and divergent series', Excellence Cluster TU Munich, Garching Germany, 20 July 2017.
- 'QCD correlators at high orders', IF AE, UAB, Bellaterra, Spain, 3 November 2017.





## Gerardo Jiménez

Institut de Biologia Molecular de Barcelona (CSIC - IBMB)  
Life & Medical Sciences

Gerardo Jiménez graduated in biology from the Universitat de Barcelona in 1988. He performed his doctoral studies at the Leukaemia Research Fund in London and at the Department of Biochemistry of the Universitat de Barcelona, working on the structure and regulation of mammalian globin gene loci. After receiving his PhD degree in 1993, he worked as a postdoctoral fellow at Cancer Research UK, both in Oxford and in London. Since then, his research interests have focused on the transcriptional and cell signaling mechanisms controlling gene expression, mainly using *Drosophila* as a model system. After his postdoctoral training, he moved to the Institut de Biologia Molecular de Barcelona-CSIC, where he is principal investigator since 2002. He joined ICREA in 2003.

### Research interests

During animal development, the differentiation of cells, tissues and organs is tightly regulated through specific gene expression programs. Our group is particularly interested in studying the transcriptional and cell signaling mechanisms responsible for this control. Using *Drosophila* as a model system, we have been dissecting the activities of repressor and co-repressor factors, as well as the responses induced by receptor tyrosine kinase (RTK) pathways during pattern formation and differentiation. One emerging theme has been the identification of the Capicua transcriptional repressor as a general sensor targeted by multiple RTK-initiated signals. Because the molecules and pathways that we study are conserved in evolution, our results have direct implications for human biology and disease.

### Selected publications

- Forés M, Simón-Carrasco L, Ajuria L, Samper N, González-Crespo S, Drosten M, Barbacid M & **Jiménez G** 2017, 'A new mode of DNA binding distinguishes Capicua from other HMG-box factors and explains its mutation patterns in cancer', *PLoS Genet.*, 13: e1006622.
- Simón-Carrasco L, Graña O, Salmón M, Jacob HKC, Gutierrez A, **Jiménez G**, Drosten M & Barbacid M 2017, 'Inactivation of Capicua in adult mice causes T-cell lymphoblastic lymphoma', *Genes Dev.*, 31: 1456-1468.
- Forés M, Papagianni A, Rodríguez-Muñoz L & **Jiménez G** 2017, 'Using CRISPR-Cas9 to study ERK signaling in *Drosophila*', *Methods Mol Biol*, 1487, 353-365.
- **Jiménez G** (ed) 2017, 'ERK Signaling: Methods and Protocols', *Methods Mol Biol Series*, vol. 1487, Springer, New York.

### Selected research activities

- Principal Investigator of research project "Transcriptional regulation by RTK signaling" funded by MINECO (2015-2017).
- Coordinator of research project "Molecular analysis of Capicua, a novel tumor suppressor involved in RTK signaling and transcriptional repression" funded by Fundació La Marató de TV3 (2014-2017).
- Director of PhD Thesis "Mecanismo de acción del factor represor Capicua, un sensor de señales Ras/MAPK", by Marta Forés. Universitat de Barcelona, July 2017.
- Director of PhD Thesis "Dissecting the activities of Capicua, Dorsal and Groucho in *Drosophila* dorsoventral patterning", by Aikaterini Papagianni. Universitat de Barcelona, September 2017.
- Invited speaker at Brain & Spine Institute (ICM), Hôpital Pitié Salpêtrière, Paris.
- Invited speaker at Institute for Research in Biomedicine (IRB), Barcelona.
- Grant evaluator for the Israel Science Foundation.
- Vice-director of Institut de Biologia Molecular de Barcelona (CSIC).



## Raúl Jiménez

Universitat de Barcelona (UB)  
Experimental Sciences & Mathematics

Prof. Raúl Jiménez (Madrid, 1967) obtained his PhD at the Niels Bohr Institute in 1995; he then moved to the Royal Observatory in Edinburgh where he held a PPARC Advanced Fellowship. He then went to the US where he joined the faculty, as a professor, of the Physics & Astronomy departments of Rutgers University and, later, the University of Pennsylvania. He joined ICREA in Sept 2007 as Professor at the ICC. He was a Radcliffe fellow at Harvard in 2015-2016. He has made several contributions to our understanding of the Universe: the first evidence of dark energy from the ages of high redshift galaxies and globular clusters, the origin of dark galaxies, the first clue of how galaxies are assembled as a function of cosmic time, the first determination of the expansion history of the Universe, the role of cosmic explosions in the survival of exolife, the role of symmetries in the early universe and a lower bound to the cosmological constant.

### Research interests

Prof. Raúl Jiménez is a theoretical physicist interested in a number of problems in astrophysics and cosmology. His fields of research include: the formation and evolution of galaxies, stellar evolution, the cosmic microwave background, dark energy and the origin of the universe.

### Selected publications

- Bellomo N, Bellini E, Hu B, **Jimenez R**, Pena-Garay C & **Verde L** 2017, 'Hiding neutrino mass in modified gravity cosmologies', *Journal of Cosmology and Astroparticle Physics*, Issue 02, article id. 043.
- **Verde L**, Bellini E, Pigozzo C, Heavens AF & **Jimenez R** 2017, 'Early Cosmology Constrained', *Journal of Cosmology and Astroparticle Physics*, Issue 04, article id. 023.
- Pena Garay C, **Verde L** & **Jimenez R** 2017, 'Neutrino footprint in large scale structure', *Physics Of The Dark Universe*, 15, 31 - 34.
- Kitching TD, Alsing J, Heavens AF, **Jimenez R**, McEwen JD & **Verde L** 2017, 'The limits of cosmic shear', *Monthly Notices Of The Royal Astronomical Society*, 469, 3, 2737 - 2749.
- Simpson F, **Jimenez R**, Pena-Garay C & **Verde L** 2017, 'Strong Bayesian evidence for the normal neutrino hierarchy', *Journal Of Cosmology And Astroparticle Physics*, 6, 029.
- Gonzalez RE, Prieto J, Padilla N & **Jimenez R** 2017, 'Relation between halo spin and cosmic-web filaments at z similar or equal to 3', *Monthly Notices Of The Royal Astronomical Society*, 464, 4, 4666 - 4672.
- **Jimenez R** 2017, 'Cosmology and Neutrino Physics', *Proceedings of Science PoS(NEUTEL2017)051*.



## Aurelio Juste

Institut de Física d'Altes Energies (IFAE)  
Experimental Sciences & Mathematics

Born in 1970 in Terrassa (Barcelona). Graduated in physics in 1993 at the Univ. Autònoma de Barcelona (UAB). Obtained PhD in experimental particle physics in 1998 at the Institut de Física d'Altes Energies (IFAE) at the UAB, studying electron-positron collisions in the ALEPH experiment at the LEP Collider at CERN. Moved to Chicago (USA) in 1998, to study proton-antiproton collisions at the energy frontier in the D0 experiment at the Fermilab Tevatron Collider, first as a Research Associate (1998-2002), then as a Wilson Fellow (tenure-track position, 2002-2006) and eventually as staff scientist (2006-2009). At D0 held a number of leadership positions in physics (convener of Top and Higgs groups), algorithms (convener of Jet Energy Scale and Jet Energy Resolution groups) and upper management (physics coordinator). Since November 2009, ICREA Research Professor at IFAE, studying proton-proton collisions with the ATLAS experiment at CERN's Large Hadron Collider (LHC).

### Research interests

My research is focused on accelerator-based experimental particle physics, aiming at achieving an understanding on how Nature operates at the most fundamental level. In particular, unraveling the mechanism of electroweak symmetry breaking and mass generation, as well as searching for new physics phenomena, are the main goals of my research. At the LHC I am carrying out studies on the heaviest known elementary particle, the top quark, as well as on the recently-discovered Higgs boson, seeking connections in the dynamics that govern both particles. I am also searching for beyond the Standard Model (SM) physics, such as supersymmetric partners of SM particles, exotic heavy quarks appearing in composite Higgs models or models with extra spatial dimensions, and additional Higgs bosons revealing an extended Higgs sector. Since 2016, I lead a team of over 20 scientists from IFAE-Barcelona that analyzes the data from the ATLAS experiment.

### Selected publications

- ATLAS Collab. 2017, 'Search for pair production of heavy vector-like quarks decaying to high- $p_T$  W bosons and b quarks in the lepton+jets final state in pp collisions at 13 TeV with the ATLAS detector', *JHEP*, 10, 141.
- ATLAS Collab. 2017, 'Search for top quark decays  $t \rightarrow qH$ , with  $H \rightarrow gg$  in 13 TeV pp collisions using the ATLAS detector', *JHEP* 10, 129.
- ATLAS Collab. 2017, 'Search for pair production of vector-like top quarks in events with one lepton, jets, and missing transverse momentum in 13 TeV pp collisions with the ATLAS detector', *JHEP*, 08, 052.
- ATLAS Collab. 2017, 'Fiducial, total and differential cross-section measurements of t-channel single top-quark production in pp collisions at 8 TeV with the ATLAS detector', *EPJC*, 77, 531.
- ATLAS Collab. 2017, 'Measurements of top-quark pair to Z-boson cross-section ratios at 13, 8, 7 TeV with the ATLAS detector', *JHEP*, 02, 117.
- ATLAS Collab. 2017, 'Measurement of the inclusive cross-sections of single top-quark t-channel production in pp collisions at 13 TeV with the ATLAS detector', *JHEP*, 04, 086.

### Selected research activities

- \* Principal investigator of the ATLAS group at IFAE (22 members).
- \* Two PhD theses completed in 2017. Other two PhD theses and two Master theses underway.
- \* Member of the ATLAS Speakers Committee.
- \* Member of the Scientific Committee of the OCEVU LabEx, France.
- \* Referee for the Spanish ANEP, the RGC-Hong Kong and the ERC Executive Agency.
- \* Editor of *Advances in High Energy Physics* and *Journal of Particle Physics*.
- \* Chair of the TAE 2017 School, Benasque.
- \* Lectures on "Higgs physics" at the HASCO 2017 School, Göttingen.
- \* Master lectures on "Phenomenology of the Standard Model" at UAB.

### Plenary addresses at:

- \* *ATLAS Exotics and SUSY Joint Workshop*, Bucharest, May 8-12, 2017.
- \* *Flavour Physics at the LHC Run II*, Benasque, May 21-27, 2017.
- \* *Higgs Days at Santander*, IFCA, Santander, Sep 18-22, 2017.
- \* *Argentine PH Institute*, ICAS, Buenos Aires, Oct 23-27, 2017.
- \* *XXIII Christmas Workshop*, IFT, Madrid, Dec 13-15, 2017.



## Giorgos Kallis

Universitat Autònoma de Barcelona (UAB)  
Social & Behavioural Sciences

Giorgos Kallis is an environmental scientist working on ecological economics and political ecology. Before coming to Barcelona, he was a Marie Curie International Fellow at the Energy and Resources Group of the University of California at Berkeley. Giorgos holds a PhD in Environmental Policy and Planning from the University of the Aegean in Greece, a Masters in Economics from Universitat Pompeu Fabra, and a Masters in Environmental Engineering and a Bachelors in Chemistry from Imperial College, London.

### Research interests

My research forms part of the inter-disciplinary field of environmental studies, that is, the study of the social and bio-physical causes of environmental degradation. I am motivated by a quest to cross conceptual divides between the social and the natural domains as, for example, in my collaboration with R. Norgaard at Berkeley, where we advanced the concept of socio-ecological coevolution. I am interested on the political-economic roots of environmental degradation and its uneven distribution along lines of power, income and class. My current research is motivated by the double global economic and ecological crisis. I explore the hypothesis of sustainable degrowth: a smooth economic downscaling to a sustainable future where we can live better with less.

### Selected publications

- **Kallis G** 2017, 'Radical dematerialization and degrowth', *Phil. Trans. R. Soc. A*, 375(2095), p.20160383.
- Sekulova F, **Kallis G** & Schneider F 2017, 'Climate change, happiness and income from a degrowth perspective', In Victor P & Dolter B (ed), *Handbook on growth and sustainability*, Northampton: Edward Elgar, pp. 160-180.
- Calvário R & **Kallis G** 2017, 'Alternative Food Economies and Transformative Politics in Times of Crisis: Insights from the Basque Country and Greece', *Antipode*. 49, 3, 597 - 616.
- **Kallis G** & Sager J 2017, 'Oil and the economy: A systematic review of the literature for ecological economists', *Ecological Economics*, 131: 561-571.



## Arjan W. Kleij

Institut Català d'Investigació Química (ICIQ)  
Experimental Sciences & Mathematics

Arjan obtained his MSc (with honors) and PhD (Cum Laude) from the University of Utrecht (Netherlands). In 2002 he moved to Spain as a postdoctoral NWO TALENT fellow with Javier de Mendoza, and then he held another postdoc appointment at the University of Amsterdam (The Netherlands) working with Joost Reek. He also held various scientific positions in the industry working as a project leader (Avantium Technologies) and senior research scientist (Hexion Specialty Chemicals). In 2006, he returned to Spain as ICREA Researcher and ICIQ Group Leader, and was promoted to ICREA Research Professor in 2011. He is member of the advisory board of Current Organic Chemistry (2014-), ChemSusChem (2016-), Journal of CO<sub>2</sub> Utilization (2017-), and Molecules (2017-). Guest editor for Catal. Sci. & Technol. (2014) and ChemSusChem (2016), chairman of the Carbon Dioxide Conversion Catalysis conference in Albufeira (Portugal) in 2016. Total citations >6600 and current h-index of 46.

### Research interests

The research of my group focuses on the valorization of small molecules (including CO<sub>2</sub>) into value-added chemicals and materials. We design new and more sustainable catalytic methods for their conversion and use in organic synthesis. As a key enabling technology, we use homogeneous catalysis approaches based on metal complexes and/or organocatalysts, and investigate important process features such as catalyst recycling, energy/material efficiencies and overall selectivity/reactivity profiles. In all these endeavors, we wish to solve challenging stereoselective and enantioselective transformations including those focusing on the preparation of allylic compounds featuring quaternary stereocenters.

### Selected publications

- Sopena S, Martin E, Escudero-Adan EC & **Kleij AW** 2017, 'Pushing the Limits with Squaramide-Based Organocatalysts in Cyclic Carbonate Synthesis', *Acs Catalysis*, 7, 5, 3532 - 3539.
- Pena Carrodegua L, Martin C & **Kleij AW** 2017, 'Semiaromatic Polyesters Derived from Renewable Terpene Oxides with High Glass Transitions', *Macromolecules*, 50, 14, 5337 - 5345.
- Laserna V, Martin E, Escudero-Adan EC & **Kleij AW** 2017, 'Substrate-Triggered Stereoselective Preparation of Highly Substituted Organic Carbonates', *Acs Catalysis*, 7, 8, 5478 - 5482.
- Guo W, Cai A, Xie J & **Kleij AW** 2017, 'Asymmetric Synthesis of  $\beta$ -Disubstituted Allylic Amines through Palladium-Catalyzed Allylic Substitution', *Angewandte Chemie-international Edition*, 56, 39, 11797 - 11801.
- Enrique Gomez J, Guo W, Gaspa S & **Kleij AW** 2017, 'Copper-Catalyzed Synthesis of gamma-Amino Acids Featuring Quaternary Stereocenters', *Angewandte Chemie-international Edition*, 56, 47, 15035 - 15038.
- Xie J, Guo W, Cai A, Escudero-Adan EC & **Kleij AW** 2017, 'Pd-Catalyzed Enantio- and Regioselective Formation of Allylic Aryl Ethers', *Organic Letters*, 19, 23, 6388 - 6391.
- Kindermann N, Cristofol A & **Kleij AW** 2017, 'Access to Biorenewable Polycarbonates with Unusual Glass Transition Temperature (T-g) Modulation', *Acs Catalysis*, 7, 6, 3860 - 3863.

### Selected research activities

- \* Selected as chairman of the 4th EuCheMS Congress on Green and Sustainable Chemistry (EuGSC) in **2019** (Tarragona)
- \* Offered a visiting professorship (Dalian University, China) in **2018**
- \* Selected keynote/invited lectures: ICCDU XV (Shanghai), LIKAT (Rostock, Germany), MSE Symposium at VISTEC (Thailand), 3rd EuGSC conference (York, UK), Henkel (Dusseldorf, Germany), Institute of Process Engineering - Division of IL (CAS, Beijing), ICASEC Summer School (Göttingen, Germany).
- \* Selected for an Angewandte "Author Profile"



## Tess Knighton

Institució Milà i Fontanals (CSIC - IMF)  
Humanities

Tess Knighton holds MA and PhD degrees from the University of Cambridge and was a Fellow of Clare College, Cambridge, for fifteen years before being appointed an Emeritus Fellow. From May 2011 she has been an ICREA Research Professor at the Institució Milà i Fontanals (CSIC) in Barcelona. In July 2012 she was awarded a Marie Curie Foundation Integration Grant for a research project on the urban musics of early modern Barcelona. Her research interests embrace music and culture in the Iberian world from the 15th to the early 17th centuries, and she has published widely in this field. She was Editor of the OUP journal *Early Music* from 1993 to 2009 and is Series Editor of the *Studies in Medieval and Renaissance Music* series for The Boydell Press, as well as Secretary to the Editorial Committee of *Monumentos de la Música Española*.

### Research interests

My research focuses on four interrelated aspects of music in the Iberian world in the long 16th century: music and ceremony; music in the urban context; the impact of music printing on the diffusion of musical repertory; and music historiography. Analysis of music and ceremony focuses on public display through royal entries and exequies as well as private devotions. Placing music in the context of court ceremonial reveals patterns of self-identity and image-making. Study of the urban musical experience of different social groups highlights the relationship between music and the institutional complex and urban societal interaction. The impact of music printing on the diffusion and accessibility of music is studied through extant inventories to reveal how European editions were transmitted to the centres of the book trade and the extent of musical literacy. Received ideas of Renaissance Iberian music are challenged and historiographical filters analyzed.

### Selected publications

- **Knighton T** 2017, 'Music for the soul: death and piety in sixteenth-century Barcelona', in Daniele V. Filippi (eds), *Listening to Early Modern Catholicism*, Cambridge University Press, pp. 233-58.
- **Knighton T** & Mazuela-Anguila A (eds.) 2017, *Música i política en temps de Carles III i el seu contexte europeu*, Textures 07, MUHBA, Barcelona
- **Knighton T** 2017, 'Relating history: music and meaning in the *relaciones* of the canonization of St Raymond Penyafort', in *Música e História: Estudos em homenagem a Manuel Carlos de Brito*, (coord.) Manuel Pedro Ferreira & Teresa Cascudo, Colibri/CESEM, Lisbon, pp.27-51

### Selected research activities

This has been an active year for conferences and seminars, both international and local, and so for opportunities to present the latest findings and results of my research into the urban musics of early modern Barcelona.

I was invited to be a keynote speaker at the international Historical Soundscapes conference in Évora, and also presented papers in Madrid, Prague and the United Kingdom. It was particularly fruitful to give a number of lectures at different local institutions, among them the Universitat de Barcelona, the Universitat Autònoma de Barcelona, the Institut d'Estudis Catalans and the Universidad Internacional de Catalunya.

Collaboration with the Museu d'Història de Barcelona continues apace with the publication of a collection of essays on music and politics during the brief reign of Carles III (1705-14).

During 2017 I began to research in the archive of Santa María del Pí, one of the most important parish churches of the city in the medieval and early modern periods, while continuing to visit regularly the Arxiu Històric de Protocols and the Arxiu d'Història de la Ciutat.



## Meike Köhler

Institut Català de Paleontologia (ICP)  
Life & Medical Sciences

EDUCATION: 1982 - MSc of Sciences (Diplom), University of Hamburg, Germany. 1988 - PhD Vertebrate Paleontology, University of Hamburg, Germany Positions: 2006-current - ICREA Research Professor, Institut Català de Paleontologia, Universitat Autònoma de Barcelona. 2013-current - Associated Professor, Dep. Ecology, Univ. Barcelona. 2006-2014 - Associated Professor, Dep. BABVE, Autonomous Univ. Barcelona. 2000-2006 - Researcher at the Institut de Paleontologia Miquel Crusafont. Publications: In journals such as: Science, Nature, Trends in Ecology and Evolution (TREE), Proceedings of the National Academy of Sciences USA (PNAS), Current Biology, Proceedings Royal Society B, PLOS ONE, Journal of Human Evolution (JHE), American Journal of Physical Anthropology (AJPA), Brain Behavior and Evolution (BBE), etc.

### Research interests

Paleobiology, Evolutionary Biology, I am especially interested in: - Life history evolution - Evolution of body size - Trends and rules in evolution - Insularity and evolution in resource-limited environments - Evolution of brain and nervous system - Functional morphology and biomechanics.

### Selected publications

- Nacarino-Meneses C, Jordana X, Orlandi-Oliveras G & **Köhler M** 2017, 'Reconstructing molar growth from enamel histology in extant and extinct Equus', *Scientific Reports*, 7, 15965.
- McNab BK & **Köhler M** 2017, 'The difficulty with correlations: Energy expenditure and brain mass in bats', *Comparative Biochemistry And Physiology A-molecular & Integrative Physiology*, 212, 9 - 14.
- Cubo J, de Buffrénil V & **Köhler M** 2017, 'Bone histology of *Iberosuchus macrodon* (Sebecosuchia, Crocodylomorpha)'. *Lethaia*, 50, 4, 495 - 503.
- Nacarino Meneses C, Orlandi Oliveras G & **Köhler M** 2017, 'Bone histology of Equus from Steinheim an der Murr (Middle Pleistocene, Germany)', *4th Intern. Symposium Paleohistology*, p 73, Trenton, NJ State Museum, USA.
- Nacarino-Meneses C, Orlandi-Oliveras G & **Köhler M** 2017, 'Bone Histology of Equus from Mosbach Sands (Middle Pleistocene, Germany)', *Zitteliana* 91: p 65.
- Orlandi Oliveras G, Nacarino Meneses C, Kostopoulos DS, Koufos GD & **Köhler M** 2017, 'CYCLICAL ENAMEL MARKS OF UNKNOWN PERIODICITY IN EQUIDAE', *Proceedings 4th Intern. Symp. Paleohistology*, p 74, Trenton, NJ State Museum, USA.

### Selected research activities

Master interuniversitari UAB / UB: Paleobiology and Fossil Record.



**Max Kölbel**  
Universitat de Barcelona (UB)  
Humanities

After two years of studying various subjects at Freie Universität Berlin and acquiring a taste for analytic philosophy, I enrolled at King's College London in 1991, where I subsequently completed an MA (1992), an MPhil (1994) and a PhD (1997) in Philosophy. My first academic appointment was as a postdoc at the Instituto de Investigaciones Filosóficas of the UNAM in Mexico City. Later, I held positions at Swansea (UK), Cambridge University (UK), and the University of Birmingham (UK). I have been ICREA Research Professor at the University of Barcelona since January 2008. I am a member of the research group LOGOS ([http://www.ub.edu/grc\\_logos/](http://www.ub.edu/grc_logos/)). My main interests are in philosophy of language, metaphysics, epistemology and metaethics. Since September 2017 I have been on leave from ICREA in order to take a Position as Professor of Analytic Philosophy and Philosophy of Language at the University of Vienna.

### Research interests

My research is in the philosophy of language, metaphysics, epistemology and metaethics. I am currently interested in the nature and purpose of semantic theories for natural languages, in the semantics-pragmatics distinction, in the way semantic theories should represent various forms of context dependence (including contextualism/relativism, de se content), in the ways in which language is used to transfer (and possibly generate) knowledge, and in the nature of objectivity.

### Selected publications

- **Kölbel M** 2017, 'About Concerns', in Depraetere I & Salkie R (eds.), *Drawing a Line: Perspectives on the Semantics-Pragmatics Interface*, Amsterdam: Springer.

### Selected research activities

21 November 2017: "Perspectival Content and Fallacies in Metaethics". Philosophy Department, University of Salzburg.

9-10 November 2017: "What can and should expressivists and relativists say about moral disagreement?", keynote talk at *Value Disagreement*, Lisbon, Portugal.

22-3 September 2017: "Perspectival Content and Expressing an Attitude vs. Asserting that One Has It", keynote talk at PLM4 congress, Bochum, Germany.

29-30 June 2017: "Perspectival Representation and Fallacies in Metaethics". *Foundations and Methods of Natural Language Semantics I*. University of Barcelona, Spain.

23-5 June 2017: "Perspectival Representation and Fallacies in Metaethics". *Representation & Evaluation*, University of British Columbia, Vancouver, Canada.

3-4 June 2017: "Perspectival Content and Expressing an Attitude vs. Asserting that One Has It". 2nd Relativisms Global Research Network Workshop. Underwood International College, Yonsei University, Song-Do, South Korea.

2-3 June 2017: "Objectivity and Perspectival Content". Keynote talk, 5th Seoul Philosophy Graduate Conference, Underwood International College, Yonsei University, Song-Do, South Korea.

11 March 2017: Comments on Khoo and Phillips. *Contextualism vs Relativism: Empirical Approaches*. Columbia University, New York, USA.

10 March 2017: "How is Objectivity Possible?". New York University, New York, USA.





## Fyodor Kondrashov

Centre de Regulació Genòmica (CRG)  
Life & Medical Sciences

I started my career in the lab of Eugene Koonin at NCBI, NIH in 2000 leaving to do my MA degree in 2003 at University of California at Davis. In 2005 I started my PhD in University of California at San Diego graduating in 2008. In 2008 I became a Group Leader at the Centre for Genomic Regulation. In 2010 I was selected for the EMBO Young Investigator award and I also received the Dobzhansky Prize. In 2011 I became an ICREA Research Professor and a Howard Hughes Medical Institute International Early Career Scientist in 2012. From October 2017 I am on leave to IST Austria.

### Research interests

We strive to understand the reasons behind the evolution of all life. One of the focuses of our laboratory is computational studies of genomic information. We analyze these data under the prism of population genetics and evolutionary theory to describe novel evolutionary and biological phenomena. We also carry out experimental work aimed at obtaining evolutionary phenomena in natural populations and measuring in the laboratory important parameters, such as the strength of selection and the rate of mutation. Overall, we use any data that we can get our hand on to understand something new about evolution and biology.

### Selected publications

- Antipov SS, Tutukina MN, Preobrazhenskaya EV, **Kondrashov FA**, Patrushev MV, Toshchakov SV, Dominova I, Shvyreva US, Vrublevskaia VV, Morenkov OS, Sukharicheva NA, Panyukov VV & Ozoline ON 2017, 'The nucleoid protein Dps binds genomic DNA of *Escherichia coli* in a non-random manner', *PLoS One*, 11;12(8):e0182800.

### Selected research activities

In 2017, the School of Molecular and Theoretical Biology ([molbioschool.com/en](http://molbioschool.com/en)), of which I am the Scientific Director, was held in Barcelona. The school operates on an active learning approach by integrating participating students into real research projects provided by our faculty.



## Gerasimos Konstantatos

Institut de Ciències Fotòniques (ICFO)  
Engineering Sciences

Nov. 2015 – Present: ICREA/Group Leader at the Institute of Photonic Sciences (ICFO), Mediterranean Technology Park, Barcelona, Spain.  
 April 2015 – Oct. 2015: Group Leader – Professor at the Institute of Photonic Sciences (ICFO)  
 Sep. 2009 – March 2015: Group Leader – Assistant Professor at the Institute of Photonic Sciences (ICFO)  
 Sep. 2008 – July 2009: Postdoctoral fellow in the department of Electrical and Computer Engineering at the University of Toronto, Canada.  
 Ed/ Oct. 2004 – July 2008: PhD in the department of Electrical and Computer Engineering at the University of Toronto, Canada.  
 Connaught Fellow. Sep. 2002 – Sep. 2004: MA Sc in the department of Electrical and Computer Engineering at the University of Toronto, Canada.  
 Sep. 1996 – Sep. 2001: Diploma in Electrical and Computer Engineering from the University of Patras, Greece.

### Research interests

We employ advances in nanoscience and we transform them into nanotechnology in solving real-world problems that current technology cannot address or do so at an affordable cost for the benefit of the society. We are doing so by assembling a group of physicists, chemists and engineers to tackle complex, interdisciplinary problems. We focus on novel functional nanomaterials, nanostructures and devices for optoelectronics and renewable energy applications. Our main scope is on the development of low-cost, high-efficiency solar cells employing nanostructured materials of low toxicity and high abundance to address the TW challenge and on the development of hybrid 2-dimensional / 0-dimensional optoelectronic platforms for highly sensitive, low cost photodetectors in the visible and infrared part of spectrum covering a broad range of applications including night vision, remote sensing, environmental monitoring and biomedical and health monitoring.

### Selected publications

- Goossens S, Navickaite G, Monasterio C, Gupta S, Piqueras JJ, Pérez R, Burwell G, Nikitskiy I, Lasanta T, Galán T, Puma E, Centeno A, Pesquera A, Zurutuza A, **Konstantatos G & Koppens F** 2017, '**Broadband image sensor array based on graphene-CMOS integration**', *Nat Photonics*, 11, 366-371.
- Huo N, Gupta S & **Konstantatos G** 2017, '**MoS<sub>2</sub>-HgTe quantum dot hybrid photodetectors beyond 2 μm**', *Adv. Mater.*, 29, 1606576.
- Li F, Wang H, Kufer D, Liang L, Yu W, Alarousu E, Ma C, Li Y, Liu Z, Liu C, Wei N, Wang F, Chen L, Mohammed OF, Fratolocchi A, Liu X, **Konstantatos G & Wu T** 2017, '**Ultra-high carrier mobility achieved in photoresponsive hybrid perovskite films via coupling with single-walled carbon nanotubes**', *Adv. Mater.*, 29, 1602432.
- Pradhan S, Stavrinadis A, Gupta S, Christodoulou S & **Konstantatos G** 2017, 'Breaking the Open-Circuit Voltage Deficit Floor in PbS Quantum Dot Solar Cells through Synergistic Ligand and Architecture Engineering', *Acs Energy Letters*, 2, 6, 1444 - 1449.
- Pradhan S, Stavrinadis A, Gupta S, Bi Y, Di Stasio F & **Konstantatos G** 2017, 'Trap-State Suppression and Improved Charge Transport in PbS Quantum Dot Solar Cells with Synergistic Mixed-Ligand Treatments', *Small*, 13, 21, UNSP 1700598.
- Pradhan S, Stavrinadis A, Gupta S & **Konstantatos G** 2017, 'Reducing Interface Recombination through Mixed Nanocrystal Interlayers in PbS Quantum Dot Solar Cells', *ACS App Mater Inter*, 9, 33, 27390 - 27395.
- Wang J-J, Akgul MZ, Bi Y, Christodoulou S & **Konstantatos G** 2017, 'Low-temperature colloidal synthesis of CuBiS<sub>2</sub> nanocrystals for optoelectronic devices', *J Mater Chem A*, 5, 47, 24621 - 24625.
- Huo N & **Konstantatos G** 2017, '**Ultrasensitive all-2D MoS<sub>2</sub> phototransistors enabled by an out-of-plane MoS<sub>2</sub> PN homojunction**', *Nature Commun.*, 8, 572.
- Di Stasio F, Christodoulou S, Huo N & **Konstantatos G** 2017, '**Near-unity photoluminescence quantum yield in CsPbBr<sub>3</sub> nanocrystal solid-state films via post-synthesis treatment with lead bromide**', *Chem. Mater.*



## Frank Koppens

Institut de Ciències Fotòniques (ICFO)  
Experimental Sciences & Mathematics

Prof. Frank Koppens obtained his PhD in experimental physics at Delft University, at the Kavli Institute of Nanoscience, The Netherlands. After a postdoctoral fellowship at Harvard University, since August 2010, Koppens is a group leader at the Institute of Photonic Sciences (ICFO). He has received the Christiaan Huygensprijs 2012, the Premis Nacional de Reserca, the IUPAP young scientist prize in optics, and Five ERC awards (Starting grant, Consolidator grant and three proof-of-concept grants). Prof. Koppens is leader of the optoelectronics workpackage of the graphene flagship (1B€ project for 10 years). Since Dec. 2015, Koppens is ICREA professor. In total, Koppens has published more than 65 refereed papers (H-index 41), with more than 13.000 citations.

### Research interests

The quantum nano-optoelectronic group, led by Prof. Koppens, studies the nanophotonic and opto-electronic properties of novel two-dimensional materials (e.g. graphene), heterostructures and devices. Also novel quantum and topological materials and their interactions with light at the nano-scale are being studied. We aim to visualize topological phase transitions and visualize novel collective modes.

Several unique and novel techniques are exploited to confine light to nano-meter lengths scales and study physical processes at ultra-fast timescales. For example, we use near-field imaging techniques for infrared and THz light, and exploit ultra-fast lasers at low temperatures.

In addition to the new science and physics, the group develops new concepts for photo-detection, imaging systems, optical modulation, nano-scale light processing and switching, as well as flexible and wearable health and fitness devices. We aim to build prototypes of these disruptive technologies, in collaboration with industry. The group works closely with the Graphene Flagship program, the largest European initiative with 1 Billion Euro funding for ten years.

### Selected publications

- Woessner A, Gao Y, Torre I, Lundeborg MB, Tan C, Watanabe K, Taniguchi T, Hillenbrand R, Hone J, Polini M & **Koppens FHL** 2017, 'Electrical  $2\pi$  phase control of infrared light in a 350-nm footprint using graphene plasmons', *Nature Photonics*, 11, 7, 421.
- Lundeborg MB, Gao Y, Asgari R, Tan C, Van Duppen B, Autore M, Alonso-Gonzalez P, Woessner A, Watanabe K, Taniguchi T, Hillenbrand R, Hone J, Polini M & **Koppens FHL** 2017, 'Tuning quantum nonlocal effects in graphene plasmonics', *Science*, 357, 6347, 187 - 190.
- Woessner A, Parret R, Davydovskaya D, Gao Y, Wu JS, Lundeborg MB, Nanot S, Alonso Gonzalez P, Watanabe K, Taniguchi T, Hillenbrand R, Fogler MM, Hone J & **Koppens FHL** 2017, 'Electrical detection of hyperbolic phonon-polaritons in heterostructures of graphene and boron nitride', *Npj 2d Materials And Applications*, 1, 1 - 6.
- Low T, Chaves A, Caldwell JD, Kumar A, Fang NX, Avouris P, Heinz TF, Guinea F, Martin-Moreno L & **Koppens FHL** 2017, 'Polaritons in layered two-dimensional materials', *Nature Mater.*, 16(2):182-194.
- Alonso-González P, Nikitin AY, Gao Y, Woessner A, Lundeborg MB, Principi A, Forcellini N, Yan W, Vélez A, Huber AJ, Watanabe K, Taniguchi T, Casanova F, Hueso LE, Polini M, Hone J, **Koppens FHL** & Hillenbrand R 2017, 'Acoustic terahertz graphene plasmons revealed by photocurrent nanoscopy', *Nature Nanotechnol.*, 12,31-35.
- Goossens S, Navickaite G, Monasterio C, Gupta S, Piqueras JJ, Perez R, Burwell G, Nikitskiy I, Lasanta T, Galan T, Puma, E, Centeno A, Pesquera A, Zurutuza A, **Konstantatos G** & **Koppens FHL** 2017, 'Broadband image sensor array based on graphene-CMOS integration', *Nature Photonics*, 11, 6, 366 - 371.
- Lundeborg MB, Gao Y, Woessner A, Tan C, Alonso-González P, Watanabe K, Taniguchi T, Hone J, Hillenbrand R & **Koppens FHL** 2017, 'Thermoelectric detection and imaging of propagating graphene plasmons', *Nature Mater.*, 16,182-194.



## Ben Lehner

Centre de Regulació Genòmica (CRG)  
Life & Medical Sciences

- \* 2017 - Acting Coordinator, CRG Systems Biology Program
- \* 2017 - EMBO Member
- \* 2014 - Senior Group Leader, CRG
- \* 2014-17 - AXA Chair in risk prediction in age-related diseases, CRG
- \* 2010 - EMBO Young Investigator
- \* 2009 - ICREA Research Professor
- \* 2007 - ICREA Junior Researcher
- \* 2006 - Group Leader, EMBL-CRG Systems Biology Unit, Centre for Genomic Regulation, Barcelona
- \* 2004-06 - Postdoctoral Fellow, Fraser Lab, The Wellcome Trust Sanger Institute
- \* 2004 - PhD University of Cambridge
- \* 2000 - BA Natural Sciences, University of Cambridge

### Research interests

Many mutations, for example disease causing mutations in humans, are not harmful in all of the individuals who carry them. When do genetic changes result in phenotypic change? When do they not? How do mutations combine together to alter phenotypes? Why is this and how can this be predicted? How and why do mutation rates vary across the genome? How does the physiology and environment of one generation influence subsequent generations? How do chance events influence the characteristics of individuals? These are the main questions that drive our research, and we use both experimental and computational approaches to address them. Most of our work is hypothesis driven and we choose model systems and approaches to best answer the question at hand, particularly model organisms where we can perform large-scale and highly quantitative genetic analysis. In short, we aim to identify, understand and predict how genetic variation occurs and when it results in phenotypic variation, both at the level of the typical outcome in a population and also in each particular individual.

### Selected publications

- Supek F & **Lehner B** 2017, 'Clustered Mutation Signatures Reveal that Error-Prone DNA Repair Targets Mutations to Active Genes', *Cell*, 170, 3, 534.
- Klosin A, Casas E, Hidalgo-Carcedo C, Vavouri T & **Lehner B** 2017, 'Transgenerational transmission of environmental information in *C. elegans*', *Science*, 356(6335):320-323.
- Klosin A, Reis K, Hidalgo-Carcedo C, Casas E, Vavouri T & **Lehner B** 2017, 'Impaired DNA replication derepresses chromatin and generates a transgenerationally inherited epigenetic memory', *Science Advances*, 3(8):e1701143.
- Stevens TJ, Lando D, Basu S, Atkinson LP, Cao Y, Lee SF, Leeb M, Wohlfahrt KJ, Boucher W, O'Shaughnessy-Kirwan A, Cramard J, Faure AJ, Ralser M, Blanco E, Morey L, Sansó M, Palayret MG, **Lehner B**, **Di Croce L**, Wutz A, Hendrich B, Klenerman D & Laue ED 2017, '3D structures of individual mammalian genomes studied by single-cell Hi-C', *Nature*, 544(7648):59-64.
- Perez MF, Francesconi M, Hidalgo-Carcedo C & **Lehner B** 2017, 'Maternal age generates phenotypic variation in *Caenorhabditis elegans*', *Nature*, 552, 106-109.
- Faure AJ, Schmiedel JM & **Lehner B** 2017, 'Systematic Analysis of the Determinants of Gene Expression Noise in Embryonic Stem Cells', *Cell Systems*, 5(5):471-484.e4.

### Selected research activities

Co-organizer: CSHL Systems Biology: Networks Meeting

Co-organizer: Courses@CRG *C. elegans* practical course

Scientific advisory boards: Ecole Normale Supérieure de Lyon LBMC, Integrative Biology Program, MRC-LMS Integrative Biology Program

Institute review panels: MRC Human Genetics Unit, EMBL-EBI



## Maciej Lewenstein

Institut de Ciències Fotòniques (ICFO)  
Experimental Sciences & Mathematics

Maciej Lewenstein (Warsaw 1955) graduated at Warsaw University in 1978. He joined the Centre for Theoretical Physics of the Polish Academy of Sciences in Warsaw, where he remained for 15 years, becoming a professor in 1993. He finished his PhD in Essen in 1983 and habilitated in 1986 in Warsaw. He has spent several long term visits at Universitaet Essen, at Harvard University with Roy J. Glauber (Nobel 2005), at Commissariat a l'Énergie Atomique in Saclay and at Joint Institute for Laboratory Astrophysics at Boulder. He was on faculty of CEA in Saclay (1995-1998), of the Leibniz University Hannover (1998-2005). In 2005 he moved to Catalonia as ICREA Research Professor to lead the quantum optics theory at the Institut de Ciències Fotòniques in Castelldefels. His interests include quantum optics, quantum physics, quantum information, attosecond science, and statistical physics. His other passion is jazz and avant-garde music - he is an acclaimed jazz writer and critic.

### Research interests

Maciej Lewenstein is a theoretical physicist per se. His research interests are extremely diverse. He works on and contributes successfully to different branches of physics and other sciences. On one side he deals with purely mathematical questions related to foundations of physics, such as the nature of correlations in quantum systems. On the other extreme, Lewenstein has worked on models of human cognition and human voting behavior. Recently his interests mainly focus on quantum many body physics, quantum information theory, quantum optics, atomic physics, atto-nanophysics, quantum simulators, quantum open systems, statistical physics, Brownian motion theory and its applications to quantum physics, nano- and bio-photonics, or applications of theoretical quantum chemistry to quantum many body physics. In his research he uses extensively methods of the contemporary theoretical physics. At ICFO Maciej Lewenstein leads a 25 people team working on the mentioned subjects.

### Selected publications

- Ciappina MF, Perez-Hernandez JA, Landsman AS, Okell WA, Zherebtsov S, Foerg B, Schoetz J, Seiffert L, Fennel T, Shaaran T, Zimmermann T, Chacon A, Guichard R, Zaier A, Tisch JWG, Marangos JP, Witting T, Braun A, Maier SA, Roso L, Krueger M, Hommelhoff P, Kling MF, Krausz F & **Lewenstein M** 2017, 'Attosecond physics at the nanoscale', *Reports On Progress In Physics*, 80, 5, 054401.
- Juenemann J, Piga A, Ran S-J, **Lewenstein M**, Rizzi M & Bermudez A 2017, 'Exploring Interacting Topological Insulators with Ultracold Atoms: The Synthetic Creutz-Hubbard Model', *Physical Review X*, 7, 3, 031057.
- Mugel S, Dauphin A, Massignan P, Tarruell L, **Lewenstein M**, Lobo C & Celi A 2017, 'Measuring Chern numbers in Hofstadter strips', *Scipost Physics*, 3, 2, UNSP 012.
- Tura J, De las Cuevas G, Augusiak R, **Lewenstein M**, **Acín A** & Cirac JI 2017, 'Energy as a Detector of Nonlocality of Many-Body Spin Systems', *Physical Review X*, 7, 2, 021005.
- Bera MN, **Acín A**, Kus M, **Mitchell MW** & **Lewenstein M** 2017, 'Randomness in quantum mechanics: philosophy, physics and technology', *Reports on Progress in Physics* 80, 124001.
- Streltsov A, Rana S, Bera MN & **Lewenstein M** 2017, 'Towards Resource Theory of Coherence in Distributed Scenarios', *Physical Review X*, 7, 1, 011024.
- Osika E, Chacon A, Ortmann L, Suarez N, Perez-Hernandez JA, Szafran B, Ciappina MF, Sols F, Landsman AS & **Lewenstein M** 2017, 'Wannier-Bloch Approach to Localization in High-Harmonics Generation in Solids', *Physical Review X*, 7, 2, 021017.
- Bera MN, Riera A, **Lewenstein M** & **Winter A** 2017, 'Generalized laws of thermodynamics in the presence of correlations', *Nature Communications*, 8, 2180.

### Selected research activities

- Jazz Concert of the Catalan-Polish Agustí Fernández Liquid Quintet at the Voll-Damm Jazz Festival in Vic (fundrasing and organisation)
- 75th ICREA Colloquium followed by the jazz concert: Abstraction in Science and Art: From Quantum Simulators to Free Improvised Jazz, Maciej Lewenstein with Vasco Trilla and El Pricto.



## Julio Lloret-Fillol

Institut Català d'Investigació Química (ICIQ)  
Experimental Sciences & Mathematics

Dr. Julio Lloret-Fillol graduated in Chemistry from the Universidad de Valencia in 2001 where he also obtained his PhD in 2006, working under the supervision of Prof. P. Lahuerta and Prof. J. Pérez-Prieto. After his PhD he moved to the University of Heidelberg to the group of Prof. L. H. Gade as a postdoctoral MEyC fellow and postdoctoral Marie Curie fellow. Since 2010 he has been working as independent research leader at Universitat de Girona (Ramón y Cajal programme). In 2014 he obtained a position as Young Research Group Leader at the Institut de Química Computacional i Catàlisi (UdG). In November 2014 he move to his actual position of group leader at the Institute of Chemical Research of Catalonia (ICIQ).

### Research interests

My research is mainly focused on designing new catalysts for a more sustainable chemistry through the use of artificial photosynthetic schemes (APS) (ERC Consolidator Grant). Although artificial photosynthetic schemes are a potential solution for a future sustainable society, basic science still needs to be done in order to achieve this objective. Accordingly, my research dream is to address the production of fine chemicals using solely CO<sub>2</sub>, water and light as driving force. To this end, we are working in developing new methodologies to employ light as a driving force to produce reductive organic transformation and in the understanding of one of the most important reactions in earth, the water oxidation, identified as one of the bottlenecks for the production of solar fuels. Mechanistic investigations will aid to understand multi-proton multi-electron transformations. These areas of research can open up new avenues for newer and greener synthetic methods.

### Selected publications

- Gamba I, Codolà Z, **Lloret-Fillol J** & Costas M 2017, 'Making and breaking of the O-O bond at iron complexes', *Coord. Chem. Rev.*, 334, 2 - 24.
- Call A, Casadevall C, Acuna-Pares F, Casitas A & **Lloret-Fillol J** 2017, 'Dual cobalt-copper light-driven catalytic reduction of aldehydes and aromatic ketones in aqueous media', *Chemical Science*, 8, 7, 4739 - 4749.
- Sabenya G, Lazaro L, Gamba I, Martin-Diaconescu V, Andris E, Weyhermuller T, Neese F, Roithova J, Bill E, **Lloret-Fillol J** & Costas M 2017, 'Generation, Spectroscopic, and Chemical Characterization of an Octahedral Iron(V)-Nitrido Species with a Neutral Ligand Platform', *Journal Of The American Chemical Society*, 139, 27, 9168 - 9177.

### Selected research activities

- Member of the Young Academy of Europe since 2017
- Professor at the Master's in Advance Catalysis and Molecular Modelling (UdG)
- Member of CARISMA and CHAOS COST Actions

### Conferences & Talks

- 'Catalytic light-driven reductive transformations mediated by cobalt complexes', ACS -2017 (San Francisco, Spain), 4th April - 2017 and i-Chat Frascati, Roma (Italy), 2nd-6th July - 2017
- 'Light-Driven Reduction Chemistry. From Solar Fuels to Solar Chemicals', *Invited Lecture*, 2017 Barluenga Lectureship, 11th Nov - 2017
- Invited lectures at Universidad de Barcelona and University of Oviedo 'Towards Artificial Photosynthetic Schemes for Light-Driven Transformations' and Regensburg University 'From Solar Fuels to Solar Chemicals'
- 'Molecular Catalysis for Water Splitting, A technological and scientific perspective', *Tutorial at the Graduate school "Chemical Photocatalysis" at Regensburg University*, REGENSBURG -2017 (Germany) 2nd March - 2017
- 'Artificial Photosynthesis from Solar Fuels To Solar Chemicals', ISOC - XI, 5th Sept - 2017

### Outreach Activity

- CAIXAFORUM Feb-2017 (Lleida, Spain), "Combustibles Solares"



## Josep M. Llovet

Institut d'Investigacions Biomèdiques August Pi i Sunyer  
(IDIBAPS)  
Life & Medical Sciences

Josep M. Llovet, MD is ICREA Research Professor, BCLC Group, Liver Unit, IDIBAPS, Hospital Clinic, Univ. Barcelona, Prof. of Medicine and Director of the Liver Cancer Program at the Icahn Mount Sinai School of Medicine, NY. He has published 265 manuscripts in Liver Cancer, including NEJM, Lancet, Nature, Nat. Genet., Cancer Cell and Gastroenterology (IF:3451; citations:51650; h-index:95). Top 1% most cited researcher globally, Thomson Reuters (2014-2017), Educational Councilor (2013-15), President of the ILCA (2011-13), Senior Editor of CCR, he has lectured in 556 international meetings and has been the PI of European grants FP7-HEPTROMIC, HEP-CAR, N-H-NIDDK R01-award, I+D grants and competitive private grants. His achievements are: 1. Establish a clinical and molecular classification for HCC. 2. Establish efficacy of chemoembolization and sorafenib for HCC. 3. Identification of novel drivers and activated pathways in HCC and ICC.

### Research interests

Prof Josep M. Llovet has been working in clinical and translational research in hepatocellular carcinoma (HCC) and cholangiocarcinoma (ICC) for the last 22 years. He is leading international randomized trials in HCC on novel targeted therapies and developing a molecular classification of the disease, understanding the genetic aberrations and signaling pathways involved and in the identification of new molecular targeted therapies. He has organized the HCC Genomic Consortium and the HEPTROMIC Consortium (funded by an FP-7 Grant) that includes several international HCC research centers: IDIBAPS-Hospital Clínic, Icahn School of Medicine at Mount Sinai, INSERM, Univ. Tuebingen, Dana-Farber-MIT-Broad Institute and NCI. The main future areas of interest are a) identify biomarkers predicting response to sorafenib and checkpoint inhibitors (nivolumab) or mechanisms of resistance b) translate oncogenic drivers discoveries as targeted therapies in HCC and ICC.

### Selected publications

- Sia D, Jiao Y, Martinez-Quetglas I et al. 2017, 'Identification of an Immune-specific Class ...' *Gastroenterology*, 153:812-826.
- Sia D, Villanueva A, Friedman SL et al. 2017, 'Liver Cancer Cell of Origin, Molecular ...' *Gastroenterology* 152:745-761
- Bruix J, Qin S, Merle P et al. 2017, RESORCE Investigators. 'Regorafenib for patients ...', *Lancet*. 389:56-66.
- Moeini A, Sia D, Zhang Z et al. 2017, 'Mixed hepatocellular-cholangiocarcinoma tumors: cholangiolocellular...', *J Hepatol*. 66:952-961
- Lencioni R, Montal R, Torres F et al. 2017, 'Objective response by mRECIST as a predictor...' *Journal of Hepatology*. 66:1166-1172
- Torrecilla, S, Sia, D, Harrington, A et al. 2017, 'Trunk mutational events present minimal intra- and inter-tumoral...' *Journal Of Hepatology* 67,1222-1231.
- Sia D & **Llovet JM** 2017, 'LIVER CANCER Translating '-omics' results into...', *Nature Reviews Gastroenterology & Hepatology*, 14,10.
- Bruix, J, Cheng, AL, Meinhardt G et al. 2017 'Prognostic factors and predictors of sorafenib ...', *Journal Of Hepatology*. 67,999-1008.
- Tovar V, Cornella H, Moeini A, et al. 2017 'Tumor initiating cells and IGF/FGF signaling contribute to sorafenib resistance in Hepatocellular Carcinoma, *Gut*. 3,530-539.
- Bollard, J, Miguela V, Galarreta M et al. 2017, 'Palbociclib (PD-0332991), a selective CDK4/6 inhibitor ...', *Gut*. 66,1286-1296.

### Selected research activities

- Senior Editor. Clinical Cancer Research /
- Director. Master in Translational Medicine. Universitat de Barcelona /
- Executive Committee. IDIBAPS / Director. Liver Cancer Program. Icahn School of Medicine at Mount Sinai /
- Fellow Award - American Association for the Study of the Liver Diseases (AASLD) /
- Tisch Cancer Institute Award - NCI designated Cancer Center Recognition ISMMS /
- Vice-President, AASLD-SIG Liver Tumors.



**Jorge Lobo**  
Universitat Pompeu Fabra (UPF)  
Engineering Sciences

Jorge Lobo is an ICREA Research Professor in the Department of Information and Communication Technologies at UPF since October 2012. He is also Visiting Professor in the Department of Computing at Imperial College London. Before joining ICREA he was at IBM T.J. Watson Research Center. Previous to IBM, he was principal architect at Teltier Technologies, a startup company in the wireless telecommunication area, and now part of Cisco Systems. Before Teltier, he was member of the research staff at Bell Labs and associate professor of computer science at the University of Illinois at Chicago. He did pioneer work at Bell Labs in policy-based network management developing the policy language PDL used for the management of the first generation of Lucent Technologies softswitches. He received a PhD in Computer Science from the University of Maryland at College Park, and a MSc and a BE from Simón Bolívar University in Venezuela. He is an ACM Distinguished Scientist.

### Research interests

My research centers in the formalization and implementation of policy-based paradigms, which allow systems to manage themselves autonomously, guided by general principles ("policies") specified by their users. Defining good policy specification methods and languages is partly a knowledge representation and acquisition problem and partly a software engineering problem. My aim is to provide principled frameworks to address distributed system related problems and test them by applying them to describe, analyze and enforce policy and regulations in concrete, realistic systems. Over the years I have collaborated with researchers working in security, networking, distributed computing and human-computer interaction, to tackle many policy issues including authoring, verification, automatic policy generation and conflict resolution, and develop implementations to help manage many kinds of real-world distributed systems, including computer, cellular and mobile ad-hoc networks.

### Selected publications

- Rankothge W, Le F, Russo A & **Lobo J** 2017, 'Optimizing Resource Allocation for Virtualized Network Functions in a Cloud Center Using Genetic Algorithms', *Ieee Transactions On Network And Service Management*, 14, 2, 343 - 356.
- Pasarella E & **Lobo J** 2017, 'A Datalog Framework for Modeling Relationship-based Access Control Policies', *Proceedings of the 22nd ACM on Symposium on Access Control Models and Technologies* (pp. 91-102), ACM. Best Paper Award.
- Rullo A, Serra E, Bertino E & **Lobo J** 2017, 'Shortfall-based optimal placement of security resources for mobile IoT scenarios', *European Symposium on Research in Computer Security*, (pp. 419-436), Springer, Cham.





## Núria López-Bigas

Institut de Recerca Biomèdica de Barcelona (IRB Barcelona)  
Life & Medical Sciences

Núria López-Bigas has a PhD in Biology from the University of Barcelona and has expertise in Medical Genetics and in Computational Biology and Bioinformatics. During her PhD work, she studied the molecular causes of hereditary deafness at the group of Xavier Estivill. Next she moved to the European Bioinformatics Institute in Hinxton (Cambridge, UK) to work on Computational Genomics at the group of Christos A. Ouzounis and then at the Center for Regulatory Genomics (Barcelona) at the group of Roderic Guigó. Núria joined the Pompeu Fabra University in April 2006 with a Ramón y Cajal Position, was appointed ICREA Research Professor in October 2011 and her lab moved to Institute for Research in Biomedicine in November 2016. She leads the Biomedical Genomics Research Group (<http://bbglab.irbbarcelona.org>). In 2015 she was awarded an ERC Consolidator Grant.

### Research interests

Núria López-Bigas research is focused on the study of cancer from a genomics perspective. She is particularly interested in the identification of cancer driver mutations, genes and pathways across tumor types and in the study of their targeted opportunities. Among the most important achievements obtained by Lopez-Bigas' lab are the development of pioneer methods to identify driver genes (Oncodrive methods), the creation of IntOGen (<http://www.intogen.org>), a discovery tool for cancer research, the obtention of a landscape of driver events and their therapeutic opportunities across close to 7000 tumours of 28 different cancer types (Rubio-Perez et al, 2015), the discovery that protein-bound DNA impairs nucleotide excision repair (Radhakrishnan et al., 2016) and the finding that exons have reduced mutation rate due to differential mismatch repair (Frigola et al., 2017).

### Selected publications

- Hayward NK, Wilmott JS, Waddell N, Johansson PA, Field MA, Nones K, PatchA-M, Kakavand H, Alexandrov LB, Burke H, Jakrot V, Kazakoff S, Holmes O, Leonard C, Sabarinathan R, Mularoni L, Wood S, Xu Q, Waddell N, Tembe V, Pupo GM, De Paoli-Iseppi R, Vilain RE, Shang P, Lau LMS, Dagg RA, Schramm S-J, Pritchard A, Dutton-Regester K, Newell F, Fitzgerald A, Shang CA, Grimmond SM, Pickett HA, Yang JY, Stretch JR, Behren A, Kefford RF, Hersey P, Long GV, Cebon J, Shackleton M, Spillane AJ, Saw RPM, **Lopez-Bigas N**, Pearson JV, Thompson JF, Scolyer RA & Mann GJ 2017, 'Whole-genome landscapes of major melanoma subtypes', *Nature*, 545, 7653, 175.
- Vidal E, Sayols S, Moran S, Guillaumet-Adkins A, Schroeder MP, Royo R, Orozco M, Gut M, Gut I, **Lopez-Bigas N**, Heyn H & **Esteller M** 2017, 'A DNA methylation map of human cancer at single base-pair resolution', *Oncogene*, 36, 40, 5648 - 5657.
- Frigola J, Sabarinathan R, Mularoni L, Muiños F, Gonzalez-Perez A & **López-Bigas N** 2017, 'Reduced mutation rate in exons due to differential mismatch repair', *Nature Genetics*, 49, 1684-1692

### Selected research activities

Elected Member of the European Molecular Biology Organization (EMBO)

Chair of ICREA-FIJC Conference, Across tumor heterogeneity and evolution in cancer: from in silico studies to clinical impact, talk: "Cancer drivers and their therapeutic opportunities", 6-7 March 2017, Barcelona (Spain)

Keynote BC2: Basel Computational Biology Conference, 13 Sep, 2017 Basel (Switzerland)

Invited Speaker: AACR Annual meeting 2017, "Coding and non-coding cancer variants interpretation", 1-5 April 2017, Washington (USA)

Organizer educational session: AACR Annual meeting 2017, 1-5 April 2017, Washington (USA)



Dan López de Sa  
 Universitat de Barcelona (UB)  
 Humanities

I am ICREA Research Professor at the Departament de Filosofia of the Universitat de Barcelona. I did my PhD in Barcelona (visiting ANU for a short while). I was Arché Postdoc in St Andrews (2004-06), Fullbright-GenCat Postdoc at NYU (2006-07), ICREA Researcher (2007-12) and then RyC (2012-13). I have published papers in *Analysis*, *Erkenntnis*, *Mind*, *Noûs*, *Philosophers' Imprint*, *Philosophical Studies*, *Proceedings of the Aristotelian Society*, and *Synthèse*, among others.

### Research interests

I work on matters issuing from words -vagueness, contextualism/relativism, rigidity- and issues where words don't really matter (much) -truthmaking, grounding, time, disagreement, values-. In between, I have an increasing interest in topics around gender, race, and sexuality.

### Selected publications

- **López de Sa D** 2017, 'Making Beautiful Truths' in Young J (ed.), *The Semantics of Aesthetic Judgements*, Oxford University Press, UK.

### Selected research activities

- Principal investigator of Spanish Government Research Project "*DM — Derivative Metaphysics: The Existence and Significance of the non-Fundamental*" (FFI2015-66372-P, 2016-18)
- Associate Editor of *Teorema* for "Metaphysics" ([www.unioviado.es/teorema](http://www.unioviado.es/teorema))
- Member of the "network of excellence" (Consolider) "*Facts and Thoughts in Perspective: New Issues*" (FFI2016-81858-REDC, 2017-18) and the interuniversity *BIAP-Barcelona Institute of Analytic Philosophy* (UB, UPF, UdG)
- Member of the *Societat Catalana de Filosofia* (IEC), the *Sociedad Española de Filosofía Analítica*, the *European Society of analytic Philosophy* and the *American Philosophical Association*.
- In 2017, I convened the weekly *SM-Seminar In Metaphysics* and co-convened the weekly *LOGOS Seminar & Colloquium*, at the Universitat de Barcelona.
- Co-organizer of two international workshops: "*DM1 — Metaphysics in the Law*" and "*DM2 — Social Metaphysics*."
- Invited talks: "Significant Verbal Disputes and so-called 'Metalinguistic Negotiations'" (Lisboa, GRSeminar), "*Constructing Social Constructions*" (GRSeminar)
- My student Aurélien Darbellay defended his PhD dissertation on "Writing social reality into the book of the world". I supervised or co-supervised three other PhD students and one MA thesis.



**Gábor Lugosi**  
Universitat Pompeu Fabra (UPF)  
Social & Behavioural Sciences

Gábor Lugosi received his PhD from the Hungarian Academy of Sciences in 1991 in electrical engineering. Since September 1996, he has been at the Department of Economics, Pompeu Fabra University. He became ICREA Research Professor in 2006.

### Research interests

Gábor Lugosi has mostly worked on problems in probability, mathematical statistics, the mathematics of learning theory, information theory, and game theory. His research has been motivated by applications in telecommunications and computer science and also by game-theoretic learning. Recently he has mostly worked on high-dimensional problems in statistics, random graphs, "on-line" learning and sequential optimization, and inequalities in probability theory.

### Selected publications

- Bubeck S, Devroye L & **Lugosi G** 2017, 'Finding Adam in random growing trees', *Random Structures and Algorithms*, 50:158-172.
- Devroye L, Györfi L, **Lugosi G** & Walk H 2017, 'On the measure of Voronoi cells', *Journal of Applied Probability*, 54, 394-408.
- Arias-Castro E, **Lugosi G** & Verzelen N 2017, 'Detecting a path of correlations in a network', *ALEA*, 14:33-44.
- Joly E, **Lugosi G** & Oliveira RI 2017, 'On the estimation of the mean of a random vector', *Electronic Journal of Statistics*, vol. 11, no. 1, 440-451.
- Seldin Y & **Lugosi G** 2017, 'An Improved Parametrization and Analysis of the EXP3++ Algorithm for Stochastic and Adversarial Bandits', *JMLR Workshop and Conference Proceedings*, 65 (COLT).
- Liu T, **Lugosi G**, Neu G & Tao D 2017, 'Algorithmic stability and hypothesis complexity', *Proceedings of the 34th International Conference on Machine Learning (ICML)*.



## María J. Macías

Institut de Recerca Biomèdica de Barcelona (IRB Barcelona)  
Life & Medical Sciences

Since 2002 at the IRB Barcelona working in the Structural and Computational Biology Programme as GL of the Structural Characterization of Macromolecular Assemblies group. Past positions: 1998- 2002, Staff Scientist at the EMBL (Structural Biology) Heidelberg, Germany 1993-1998 Post Doctoral position at the EMBL (Structural Biology) Heidelberg, Germany in the group of Prof. Dr. H. Oschkinat 1993-PhD Degree: PhD in Organic Chemistry, Salamanca University (Spain), supervised by Prof. M. Grande Research Fields: Structural Biology, NMR, X-ray crystallography, Computational Biology, Signaling Current Research: Structural determination of protein domains and complexes involved in splicing, transcription and signaling Protein folding and stability Analysis of tumor mutations

### Research interests

Our research interest is focused on deciphering the mechanisms that correlate cell signaling with gene expression using high resolution structural biology. We also aim at discovering how these mechanisms are regulated, and their consequent implications in human diseases from the structural point of view. Recently our work has been focused on the family of transcription factors Smads, where we have discovered a mechanism that labels these key components of the TGF-beta pathway first for activation and then for degradation. Using NMR and X-ray crystallography we are currently characterizing the interactions of Smad proteins and cofactors with DNA promoters, to provide a first understanding of how these molecular machines work and to pave the basis for the design of small molecular inhibitors specifically targeted towards tumor-derived SMAD forms.

### Selected publications

- Spengler J, Barker M, Schelhorn C, Garcia J, **Macias MJ** & Albericio F 2017, 'The synthesis of an EDTA-like chelating peptidomimetic building block suitable for solid-phase peptide synthesis', *Chemical Communications*, 53, 17, 2634 - 2636.
- Martin-Malpartida P, Batet M, Kaczmarek Z, Freier R, Gomes T, Aragon E, Zou Y, Wang Q, Xi Q, Ruiz L, Veá A, Marquez JA, Massague J, **Macias MJ** 2017, 'Structural basis for genome wide recognition of 5-bp GC motifs by SMAD transcription factors', *Nature Communications*, 8, 2070.

### Selected research activities

Member of the equality and diversity committee of the IRB Barcelona.

Invited talks at the FMP Berlin (Germany), at the iNEXT users meeting in Brno (Czech Republic) and during the 16th congress of the Spanish Biophysical Society in Sevilla.

Communication at the Federation of American Societies for Experimental Biology (FASEB) in Lisbon (Portugal).



## Marco Madella

Universitat Pompeu Fabra (UPF) & Institució Milà i Fontanals  
(CSIC - IMF)  
Humanities

After graduating at the University of Milan (Italy) in Natural Sciences (Botany), I worked as a contract scientist at the Archaeological Museum of Como and left the team in 1993 to start a PhD at the University of Cambridge. After finishing my PhD I took up a position as research fellow at the McDonald Institute for Archaeological Research, also teaching archaeology and human evolution at the Institute for Continuing Education (Madingly Hall) of the University of Cambridge. In 2004 I became affiliated lecturer in the Department of Archaeology and in 2005 director of studies in archaeology and anthropology at St. Edmund's College in the University of Cambridge. Since July 2005 I am ICREA research professor first at the IMF-CSIC and from 2014 at Universitat Pompeu Fabra. I currently coordinate the Complexity and Socio-Ecological Dynamics (CaSEs) research group and I teach in the UPF Master in Global History.

### Research interests

My background is in archaeobotany and environmental archaeology, and I investigate the socio-ecological dynamics of past human populations from Mediterranean to tropical environments. My interests span from past vegetation histories, the modelling and simulation of processes in human behavioural change, people-plants co-evolutionary dynamics, long term trajectories of biodiversity and sustainability in prehistoric societies, and the origin and resilience of agriculture. Agriculture had an immense impact on humans and non-humans, and the future of our world is linked to making agriculture sustainable by maintaining biodiversity, revaluating traditional knowledge and mitigating environmental impact. Key areas for my work are South and West Asia, and South America.

### Selected publications

- **Reyes-Garcia V**, Zurro D, Caro J & **Madella M** 2017, 'Small-scale societies and environmental transformations: coevolutionary dynamics', *Ecology And Society*, 22, 1, 15.
- Biagetti S, Merlo S, Adam E, Lobo A, Conesa FC, Knight J, Bekrani H, Crema ER, Alcaina-Mateos J & **Madella M** 2017, 'High and Medium Resolution Satellite Imagery to Evaluate Late Holocene Human-Environment Interactions in Arid Lands: A Case Study from the Central Sahara', *Remote Sensing*, 9, 4, 351.
- Friesem DE, Lavi N, **Madella M**, Boaretto E, Ajithparsingh P & French C 2017, 'The formation of fire residues associated with hunter-gatherers in humid tropical environments: A geo-ethnoarchaeological perspective', *Quaternary Science Reviews*, 171, 85 - 99.
- Salpeteur M, **Madella M**, Patel HR & **Reyes-Garcia V** 2017, 'Adaptation, Access to Resources and Mobility: from Contemporary Pastoral Systems to Ancient Societies', *Nomadic Peoples*, 21, 2, 191 - 213.
- Out WA & **Madella M** 2017, 'Towards improved detection and identification of crop by-products: Morphometric analysis of bilobate leaf phytoliths of *Pennisetum glaucum* and *Sorghum bicolor*', *Quaternary International*, 434, B, 1 - 14.
- Calegari MR, **Madella M**, Tagliari Brustolin L, Ruiz Pessenda L, Buso Jr AA, Francisquini MI, Bendassolli JA & Vidal-Torrado P 2017, 'Potential of soil phytoliths, organic matter and carbon isotopes for small-scale differentiation of tropical rainforest vegetation: A pilot study from the campos nativos of the Atlantic Forest in Espírito Santo State (Brazil)', *Quaternary International*, 437, B, 156 - 164.

### Selected research activities

I am global co-coordinator of the *LandCover6k* workgroup of PAGES (Past Global Changes), a member of the Future Earth Cluster *Modeling Sustainable Futures* ([www.futureearth.org](http://www.futureearth.org)) and I serve as an advisory member in the *Human and the Biosphere Commission* of the INQUA (International Union for Quaternary Science). I have been visiting researcher at the Department of Soil Science, ESALQ-Universidade de São Paulo (Brazil).



## Vivek Malhotra

Centre de Regulació Genòmica (CRG)  
Life & Medical Sciences

Vivek Malhotra is one of world's leaders on protein secretion and cellular compartmentation. His work is focused on how cellular compartments are made and communicate with each other, and how cells duplicate their compartments during cell division. He has been studying these processes since the late 80s and is acknowledge world wide for his creativity and novel findings. He obtained his Ph.D from Oxford and was a postdoc at Stanford University. He was a professor at University of California San Diego for 18 years. He joined the Centre for Genomic Regulation, Barcelona as a coordinator of the Cell and Developmental Biology Programme and ICREA Research Professor.

### Research interests

We want to understand the mechanism by which eukaryotic cells model membranes to generate transport carriers based on their needs. For example, how bulky molecules such as the collagens are secreted, how mucins are secreted in a regulated manner, and how transport carriers form at the Golgi. Protein such as TANGO's, PIMS and PKD are helping us resolve this issue. We have uncovered a new pathway by which cells secrete proteins that cannot enter the ER-Golgi pathway of secretion. We hope this will help us understand the mechanism by which cells release various cytokines, growth and angiogenic factors in a signal dependent manner. Finally we are interested in the mechanism by which Golgi complex is built during repeated cycles of cell-division.

### Selected publications

- Villeneuve J, Duran J, Scarpa M, Bassaganyas L, Van Galen J, **Malhotra V** 2017, 'Golgi enzymes do not cycle through the endoplasmic reticulum during protein secretion or mitosis', *Mol Biol Cell.*, 28(1):141-151.
- Raote I, Ortega Bellido M, Pirozzi M, Zhang C, Melville D, Parashuraman S, Zimmermann T, **Malhotra V** 2017, 'TANGO1 assembles into rings around COPII coats at ER exit sites', *J Cell Biol.*, 216, 4, 901 - 909.
- Campelo F, van Galen J, Turacchio G, Parashuraman S, Kozlov MM, **García-Parajo M & Malhotra V** 2017, 'Sphingomyelin metabolism controls the shape and function of the Golgi cisternae', *Elife*, 6, pii: e24603.
- Capasso S, Sticco L, Rizzo R, Pirozzi M, Russo D, Dathan NA, Campelo F, van Galen J, Hölttä-Vuori M, Turacchio G, Hausser A, **Malhotra V**, Riezman I, Riezman H, Ikonen E, Luberto C, Parashuraman S, Luini A & D'Angelo G 2017, 'Sphingolipid metabolic flow controls phosphoinositide turnover at the *trans*-Golgi network', *EMBO J.*, 36(12):1736-1754.



## Mervi Mantsinen

Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC - CNS)  
Engineering Sciences

I graduated in Technical Physics at Helsinki University of Technology (HUT), now Aalto University, Finland in 1992. I carried out my research in the Plasma Physics and Fusion Group of HUT until 1995 when I moved to the JET Joint European Torus, the largest tokamak in the world, located in the UK. At JET, I worked as Ion Cyclotron Resonance Frequency (ICRF) Physics Expert, Scientific Coordinator, Responsible Officer for several large modelling codes and Physicist in Charge as well as trained as Session Leader of JET experiments. My thesis for the degree of Doctor of Science in Technology at HUT in 1999 was based on my research at JET. In 2003 I became Deputy Leader of Task Force Heating and Current Drive at JET, with approx. 80 members at several research institutions across Europe. In 2006 I joined the ICRF group of the Asdex Upgrade tokamak, Max-Planck-Institute for Plasma Physics, Germany and in October 2013 I was appointed ICREA Research Professor at BSC.

### Research interests

My research is directed towards contributing to the development of nuclear fusion as a source of energy and, in particular, to the ITER project. ITER is an international nuclear fusion R&D project, which is building the world's largest experimental tokamak nuclear fusion reactor in France. ITER aims to demonstrate that fusion energy is scientifically and technologically feasible. My research is focused in the numerical modelling of experiments in magnetically confined fusion devices in preparation for ITER operation, working towards the objectives of the European fusion research programme EUROfusion for Horizon 2020 in close collaboration with ITER, International Tokamak Physics Activity, EUROfusion and the Spanish national fusion laboratory CIEMAT. My overall objective is to enhance the modelling capabilities by code validation and optimization, with the ultimate goal of helping improve the performance of ITER and future fusion reactors.

### Selected publications

- Kazakov Ye O et al. 2017, 'Efficient generation of energetic ions in multi-ion plasmas by radio-frequency heating', *Nature Physics*, vol. 13, p. 973.
- **Mantsinen M** et al. 2017, 'The Role of Combined ICRF and NBI Heating in JET Hybrid Plasmas in Quest for High D-T Fusion Yield', *EPJ Web of Conferences*, vol. 157, p. 03032.
- Gallart D et al. 2017, 'Modelling of combined ICRF and NBI heating in JET hybrid plasmas', *EPJ Web of Conferences*, vol. 157, 03015.
- Kiptily VG et al. 2018 'Fusion product losses due to fishbone instabilities in deuterium JET plasmas', *Nucl. Fusion* **58** 014003
- Sharapov SE et al. 2018 'The effects of electron cyclotron heating and current drive on toroidal Alfvén eigenmodes in tokamak plasmas', *Plasma Phys. Control. Fusion*, vol. 60, p. 014026.
- Silburn S et al. 2017, 'Mitigation of Divertor Heat Loads by Strike Point Sweeping in High Power JET Discharges', *Physica Scripta*, no T170, p. 014040

### Selected research activities

Fusion Group Leader at BSC (fusion.bsc.es; 10 members and 1.25M€ funding to BSC since 2014).

Scientific Coordinator (SC) of EUROfusion flagship experiment 'Hybrid Scenario for DT' at the JET tokamak, UK (June 2015-July 2017).

SC of Task 'Fast ion modelling (stability & transport)' of EUROfusion Medium Size Tokamak Work Package.

6 weeks of research stays at JET (UK) and AUG (Germany).

Speaker at 44th EPS Conference on Plasma Physics & ITER ICRF Workshop.

Supervisor of 2 PhD and 2 MSc students at UAB & UPC.

Established MoU on Academic and Scientific Cooperation between BSC & ITER (2017-2021).

Chair of Magnetic Confinement Fusion Plasma Panel of the Program Committee for 45th EPS Conference on Plasma Physics (2018).

Member of EUROfusion HPC Allocation Committee for Marconi-Fusion, Italy.

Member of Evaluation Panel NT-3 of Swedish Research Council, Expert of Spanish National Agency of Evaluation, Reviewer for Netherlands Organisation for Scientific Research.

Leader of RIS3CAT Emerging Sector Fusion Proposal with 6 R&D centers and budget of 4 M€.



## Albert Marcet

Institut d'Anàlisi Econòmica (CSIC - IAE) & Fundació Markets, Organizations and Votes in Economics (MOVE)  
Social & Behavioural Sciences

\* PhD in Economics U. of Minnesota, 1987 \* Assistant professor, Carnegie Mellon University, 1986-1991 \* Full Professor, Universitat Pompeu Fabra, 1990-2004 \* Research Professor, IAE-CSIC, 2004-2009 \* Full Professor, London School of Economics, 2009-2011

### Research interests

**RECURSIVE CONTRACTS** In social sci. it is common to find models of dynamic stochastic optimization with forward-looking constraints, e.g., in models of optimal policy or optimal contracts. These models are not amenable to a standard Bellman equation treatment. We propose a new way of formulating recursively these dynamic optimization problems. Our approach has a very wide range of applications. **ASSET PRICES AND LEARNING** Asset prices show huge fluctuations over time that are hard to reconcile with actual fundamentals. We explore those agents that behave rationally and have an empirically plausible model of asset prices. We explain stock and housing price fluctuations. **DEBT MANAGEMENT** The European debt crisis highlights the importance of choosing appropriately the bond portfolio issued by governments (debt management). Fiscal sustainability may depend on what bonds mature and when. We analyze the optimal combination of bond maturities that should be issued over the business cycle.

### Selected publications

- Adam K, **Marcet A** & Beutel J 2017, 'Stock Price Booms and Expected Capital Gains', *American Economic Review*, 107, 8, 2352 - 2408.

### Selected research activities

#### Invited talks

#### 'Stock Price Booms and Expected Capital Gains'

- Emory University, 2 March, 2017.
- Federal Reserve Bank of Minneapolis, 25 April, 2017.
- Cambridge University, 30 May, 2017

#### 'Government Debt Management, the Long and the Short of it'

- Federal Reserve Bank of Atlanta, 28 Feb, 2017.
- University of Chicago, 21 April, 2017.
- 8-th Macroeconomics Workshop, Shanghai University of Finance and Economics, Keynote Speaker, 17-19 June, 2017

#### 'Optimal Policy with General Signal Extraction'

- University College of London, 25 October, 2017.

#### Conferences organised

- Workshop on Health Economics: New Technologies, Adoption and Hospital Management, 28 Nov, MOVE Foundation, Barcelona.
- XII REDg Workshop in Quantitative Economics, MOVE Foundation, 22-23 Set., Barcelona.
- Macro Winter Workshop in Bellaterra, 17 March, IAE-CSIC.





**Tomàs Marquès-Bonet**  
 Universitat Pompeu Fabra (UPF)  
 Life & Medical Sciences

Dr. Marquès-Bonet is the Principal Investigator of the group "Comparative Genomics" and director of the Institute of Evolutionary Biology (IBE; UPF/CSIC) and at the CRG-CNAG. He started his own lab in 2010 with an ERC Starting Grant and was selected as ICREA in 2011. In 2013 he was selected for the EMBO young Investigator award and from 2017 he is an HHMI International young investigator. He has been part of many genome consortia, leading the section of duplications and structural variation in most of them.

His group aims to characterize human specific genomics features, including the evolution of epigenetics in humans or the impact of CNVs in phenotypic traits. With a total of more than 100 peer-reviewed publications, he has published as a senior authorship in *Science* (2016), *Nature* (2013), *Genome Research* (2015), *Plos Genetics* (2013,2015) among others.

### Research interests

What makes us human? This is a fundamental question in many disciplines. Our team analyzes a wide range of genome variants to determine processes, variants and molecular features that are intrinsic to our species. To do so, we study full genome, epigenomes and transcriptomic sequences of humans and great apes for a better understanding of human specific features.

### Selected publications

- McConnell MJ et al. & Brain Somatic Mosaicism Network (including **Marques-Bonet T**) 2017, 'Intersection of diverse neuronal genomes and neuropsychiatric disease: The Brain Somatic Mosaicism Network', *Science*, 356(6336)
- Nater A, Mattle-Greminger MP, Nurcahyo A, Nowak MG, de Manuel M, Desai T, Groves C, Pybus M, Sonay TB, Roos C, Lameira AR, Wich SA, Askew J, Davila-Ross M, Fredriksson G, de Valles G, Casals F, Prado-Martinez J, Goossens B, Verschoor EJ, Warren KS, Singleton I, Marques DA, Pamungkas J, Perwitasari-Farajallah D, Rianti P, Tuuga A, Gut IG, Gut M, Orozco-terWengel P, Van Schaik CP, Bertranpetit J, Anisimova M, Scally A, **Marques-Bonet T**, Meijaard E & Krützen M, 'Morphometric, Behavioral, and Genomic Evidence for a New Orangutan Species', *Current Biology*, 27, 22, 3487.
- Kuderna LKF, Tomlinson C, Hillier LDW, Tran A, Fiddes IT, Armstrong J, Laayouni H, Gordon D, Huddleston J, Garcia Perez R, Povolotskaya I, Serres Armero A, Gomez Garrido J, Ho D, Ribeca P, Alioto T, Green RE, Paten B, Navarro A, Betranpetit J, Herrero J, Eichler EE, Sharp AJ, Feuk L, Warren WC & **Marques-Bonet T** 2017, 'A 3-way hybrid approach to generate a new high-quality chimpanzee reference genome (Pan\_tro\_3.0)', *Gigascience*, 6, 11.
- Librado P, Gamba G, Gaunitz C, ....., Keyser C, **Marques-Bonet T**, Ludes B, Crubezy E, Leeb T, Willerslev E & Orlando L 2017, 'Ancient genomic changes associated with domestication of the horse', *Science*, 356, 6336, 442 - 445.
- Solis-Moruno M, de Manuel M, Hernandez-Rodriguez J, Fonsere C, Gomara-Castano A, Valsera-Naranjo C, Crailsheim D, Navarro A, Llorente M, Riera L, Feliu-Olleta O & **Marques-Bonet T** 2017, 'Potential damaging mutation in LRP5 from genome sequencing of the first reported chimpanzee with the Chiari malformation', *Scientific Reports*, 7, 15224.



**Genoveva Martí**  
 Universitat de Barcelona (UB)  
 Humanities

I was born in Barcelona and I obtained my BA at the Universitat de Barcelona. In 1982 I joined the PhD program at Stanford University, where my PhD was awarded in January 1989. I have been Assistant Professor at the University of Washington, Seattle, Assistant and Associate Professor at the University of California, Riverside, and Reader at the London School of Economics. In 2014-15 I was Professor of Philosophy at Western University, Ontario (Canada). I have been coordinator of the research group LOGOS ([http://www.ub.es/grc\\_logos](http://www.ub.es/grc_logos)). I was awarded the Narcís Monturiol Medal by the Generalitat de Catalunya in 2012. I am an elected member of the Academia Europaea since 2009, and from January 2013 till July 2014 I was the Academic Director of the Academia Europaea Knowledge Hub in Barcelona. In 2017 I was elected Chair of the Philosophy, Theology and Religious Studies Section of the Academia Europaea.

### Research interests

I am primarily interested in the exploration of reference, the relation between words and pieces of the world that makes it possible to talk about things. A traditional explanation of the relation of reference is the view that reference is mediated by our cognitive perspective on things. On this view, which objects we talk about is determined by the concepts we associate with the expressions we use. Against this view I defend an approach according to which what we refer to is not determined by our internal mental states nor by the concepts we entertain; it rather depends on social and causal factors that are external to our mind. This area of research is connected to other research areas, especially in Linguistics and Psychology.

### Selected publications

- **Martí G** 2017, 'Names, predicates and the object-property distinction'. De Ponte M & Korta K (eds.), *Reference and Representation in Thought and Language*. Oxford University Press, Oxford.
- **Martí G** & Martínez-Fernández J 2017, 'Experimental Philosophy - Introduction', *Teorema*, 36, 3, 5 - 12.

### Selected research activities

#### Presentations in International Conferences

'Kripke and Putnam on Essentialism and Kind Terms'. Invited talk at the *Conference on Natural Kinds: Ontology and Semantics*. Madrid. Universidad Complutense. March 2017

'Natural kinds and legal disputes'. Co-authored with Lorena Ramírez-Ludeña. Invited talk at the conference *Metaphysics and the Law*. Barcelona. Universitat de Barcelona. May 2017.

'Natural Kind Terms: challenging the new-wave anti-essentialism and descriptivism' (with Carl Hoefer). *European Philosophy of Science Association* meeting (EPSA 17). Exeter. September 2017 (refereed presentation).

'Natural kinds and underlying properties. Reassessing the role of Twin-Earth cases' (invited presentation of joint work with Carl Hoefer). *Natural Kinds Workshop*. Institute for Advanced Studies. University of Bristol. November 2017.

#### Honors

Elected Chair of the Philosophy, Theology and Religious Studies Section of the *Academia Europaea*.

#### Ongoing funded projects

Member of project DIAPHORA. EU Horizon 2020. Marie Skłodowska-Curie. Coordinator: S. Rosenkranz (ICREA/UB). 2016-2019.

Co-principal Investigator (with José Martínez-Fernández) of project 'Localism and Globalism in Logic and Semantics'. MINECO FFI2015-70707-P. 2016-2019.

Member of project 'Perspectival Thoughts and Facts: New Questions'. MINECO FFI2016-81858-REDC. Coordinator : M. García-Carpintero. 2017-2019.

#### PhD Funding

Iñigo Valero. FPI associated with project FFI2015-70707-P.



**Jaime F. Martínez-García**  
 Centre de Recerca en Agrigenòmica (CRAG)  
 Life & Medical Sciences

After graduating in Biology, I've got my PhD (01/1993, Universitat de València) working on how plants regulate their growth in response to environmental light conditions. Next, I did three postdocs: in Cathie Martin's group (John Innes Center, Norwich, UK) working on plant transcription factors (03/1993-10/1995); in Peter Quail's team (Plant Gene Expression Center, UC-Berkeley, USA) to work on phytochrome signaling in *Arabidopsis thaliana* (01/1996-01/2000); and Salomé Prat laboratory (Instituto de Biología Molecular de Barcelona, CSIC, Barcelona, Spain), working on photoperiod-regulated potato tuberization (01/2000-10/2001). In November 2001, I've got a permanent position as an ICREA Research Professor and established my own research group. Currently, I develop my research in the CRAG (Barcelona), studying how plants see and respond to vegetation proximity.

### Research interests

Plants respond to vegetation proximity by eliciting a series of responses known as the shade avoidance syndrome (SAS). In our model system *Arabidopsis thaliana*, the most obvious SAS response is the induction of the hypocotyl elongation in seedlings. To modulate these responses, plants employ a large amount of regulatory components that form a complex transcriptional regulatory networks. Many of these components are transcriptional regulators, as well as specific components of the nuclear pore complex. Recently, we have expanded our research to other plant species closely related to *A. thaliana* that tolerate (instead of avoid) plant shade. This is the case of *Cardamine hirsuta*, a species that is amenable for genetic, cellular and molecular analyses. This new approach is allowing us to perform comparative genetic analyses between both model systems.

### Selected publications

- Llorente B, **Martinez-Garcia JF**, Stange C & Rodriguez-Concepcion M 2017, 'Illuminating colors: regulation of carotenoid biosynthesis and accumulation by light', *Curr Opin Plant Biol*, 37, 49-55.
- Paulišić S, Molina-Contreras MJ, Roig-Villanova I & **Martinez-Garcia JF\*** 2017, 'Approaches to study light effects on brassinosteroid sensitivity'. In: *Brassinosteroids: Methods and Protocols. Methods Mol Biol*, 1564, 39-47.
- Gallemí M, Molina-Contreras MJ, Paulišić S, Salla-Martret M, Sorin C, Godoy M, Franco-Zorrilla JM, Solano R & **Martínez-García JF\*** 2017, 'A DNA-binding independent activity for the *Arabidopsis* transcription factor ATHB4 in the regulation of vegetation proximity responses', *New Phytol*, 216:798-813.

### Selected research activities

- Organizing Committee of the Fisiología Vegetal 2017 (XXII Reunión de la SEFV - XV Congreso Hispano-Luso de Fisiología Vegetal). June 2017, Barcelona.
- Invited talks at the Dipartimento di Bioscienze (Università degli Studi di Milano, Italy - 8 September) and at Copenhagen Plant Science Centre (Copenhagen, Denmark; invited by Dr Stephan Wenkel, 7 December).
- Supervisor of the PhD thesis of Maria Jose Molina: "Regulación de las respuestas a la proximidad vegetal en *Arabidopsis thaliana* y especies afines". UB. 09/2017.
- Supervisor of the Master thesis of Benjamin Alary (Master II Biologie et Environnement. Université Clermont Auvergne, France), Estefania López Ortíz (Master in Plant Biology and Biotechnology, UAB) and Violeta Sánchez Retuerta (Master in Plant Biology and Biotechnology, UAB).
- PhD thesis committee of Amelia Felipo Benavent ("Modulation of primary meristem activity by gibberellins through DELLA-TCP interaction in *Arabidopsis*", Universitat Politècnica de València, Spain).
- Participation in the outreach project for 5<sup>th</sup> year school kids entitled "Plantas mutantes", funded by FECYT-MINECO (FCT-16-10825) and lead by Zoila Babot (CRAG). Pilot workshop celebrated 18-19 May in CRAG. Four additional journeys were celebrated 14-17 November in CRAG.



## Bienvenido Martínez-Navarro

Institut Català de Paleoecologia Humana i Evolució Social (IPHES)  
Humanities

Degree in Geology (1987) and PhD in Paleontology (1991). I work on Plio-Pleistocene large mammals and participate at different projects in Plio-Pleistocene sites around the World, been the co-leader of the Baza and Incarcas projects (Spain), and the Oued Sarrat (Tunisia) and Engel Ela-Ramud Basin (Eritrea) projects, but I participate too in the research of Buia (Eritrea), Melka Wakena (Ethiopia), Atbara River (Sudan), `Ubeidiya, Gesher Benot Ya'aqov, and Bizat Ruhama (Israel), Dmanisi (Georgia), Argentario and Pirro Nord (Italy), and Vallonnet (France).

### Research interests

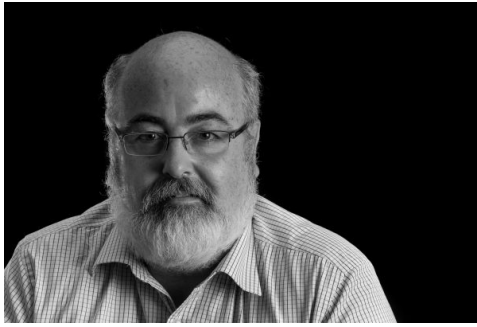
I am a paleontologist working on Quaternary mammals from Europe, Asia and Africa. My main interest is to describe the ecological scenario where our ancestors, the earlier members of the genus *Homo*, evolving and dispersing from Africa, were able to colonize the middle latitudes of Eurasia and survive in seasonal climates during the Pleistocene times. I have developed an intense research travelling around the world to study the African origin mammals dispersing into Eurasia, and the Eurasian origin mammals dispersing into Africa, in order to describe their systematics, phylogeny, biochronology, paleobiogeography, autoecology, and their potential ecological relationships among them and with hominins. I work on fossil hyenas, sabertoothed tigers, hunting dogs, bears, elephants, hippos, pigs, buffalos, antelopes, deers, giraffes, monkeys and other groups.

### Selected publications

- Ros-Montoya S, **Martínez-Navarro B**, Espigares MP, Guerra-Merchán A, García-Aguilar JM, Piñero P, Rodríguez-Rueda A, **Agustí J**, Oms O & Palmqvist P 2017. A new Ruscinian site in Europe: Baza-1 (Baza basin, Andalusia, Spain). *Comptes Rendus Palevol*, 16, 746-761.
- Amri L, Bartolini Lucenti S, Mtimet MS, Karoui-Yaakoub N, Ros-Montoya S, Espigares MP, Boughdiri M, Bel Haj Ali N & **Martínez-Navarro B** 2017, 'Canis othmanii sp nov (Carnivora, Canidae) from the early Middle Pleistocene site of Wadi Sarrat (Tunisia)', *Comptes Rendus Palevol*, 16, 7, 774 - 782.
- Medin T, **Martínez-Navarro B**, Rivals F, Madurell-Malapeira J, Ros-Montoya S, Espigares MP, Figueirido B, Rook L & Palmqvist P 2017. 'Late Villafranchian *Ursus etruscus* and other large carnivores from the Orce sites (Guadix-Baza basin, Andalusia, southern Spain): Taxonomy, biochronology, paleobiology, and ecogeographical context', *Quaternary International*, 431, 20-41.
- Lanata JL, Lozano S & **Martínez-Navarro B** 2017, 'Pleistocene human dispersals: climate, ecology and social behavior', *Quaternary International*. 431, 1-2. Also Eds. of the vol. 431.
- Chichkoyan KV, Figueirido B, Belinchon M, Lanata JL, Moigne A-M & **Martínez-Navarro B** 2017, 'Direct evidence of megamammal-carnivore interaction decoded from bone marks in historical fossil collections from the Pampean region', *PeerJ*, 5, e3117.
- Rodríguez-Gómez G, Palmqvist P, Ros-Montoya S, Espigares MP & **Martínez-Navarro B** 2017, 'Resource availability and competition intensity in the carnivore guild of the Early Pleistocene site of Venta Micena (Orce, Baza Basin, SE Spain)', *Quaternary Science Reviews* 164, 154-167.

### Selected research activities

During year 2017 I have conducted field research at the Engel Ela-Ramud basin (Eritrea), the Oued Sarrat basin (Tunisia), and the Baza basin (southern Spain). I have done lab work too at the National Museum of Georgia in Tbilisi, studying the fossil collection from the Early Pleistocene site of Dmanisi.



## Mario Martínez

Institut de Física d'Altes Energies (IFAE)  
Experimental Sciences & Mathematics

Born in Madrid, 1971, he studied Theoretical Physics at the Universidad Autónoma de Madrid. He spent many years in the DESY Laboratory in Hamburg (Germany) studying deeply inelastic electron-proton scattering processes in the ZEUS experiment, where he obtained his PhD and then worked as DESY researcher. In 2001, he moved to USA to work in Fermilab. He participated in the CDF experiment at the Tevatron proton-antiproton collider, with emphasis on searches for new physics. In 2007 he moved back to Europe and started working also in the ATLAS experiment at the Large Hadron Collider at CERN, that initiated operations in 2009. Since then he is acting as project leader of the IFAE-Barcelona group in CDF and ATLAS experiments. In 2015 he was appointed Head of IFAE Experimental Division, Scientific Manager of the Spanish High Energy Physics Program, and Scientific Delegate in CERN's Council.

### Research interests

I focused on QCD studies and searches for new physics beyond the Standard Model (Higgs boson, supersymmetry, dark matter, extra-dimensions, WIMPs, etc) at particle physics collider experiments in Europe and USA. This translates into hundreds of publications, tens of conference talks, and ten PhD theses that I supervised to date. Since 2009, I mostly focused on the LHC physics program at CERN. The Large Hadron Collider is the most powerful collider in the world. In 2012 the LHC experiments (ATLAS and CMS) discovered the Higgs boson. The LHC resumed operations in 2015 with a center-of-mass energy increased from 7-8 TeV to 13 TeV, and the promise to open a new era in fundamental physics. Since 2009, I lead a group of almost 30 scientists from IFAE-Barcelona that analyzes the data from the ATLAS experiment. Since 2015 I took new responsibilities as Head of IFAE Experimental Division, and Scientific Manager of the Spanish High Energy Physics Program.

### Selected publications

- ATLAS Collaboration, "Evidence for the  $H \rightarrow b\bar{b}$  decay with the ATLAS detector", JHEP 12 (2017) 024
- ATLAS Collaboration, "Search for dark matter at  $\sqrt{s}=13$  TeV in final states containing an energetic photon and large missing transverse momentum with the ATLAS detector ", Eur. Phys. J. C 77 (2017) 393
- ATLAS Collaboration, "Search for Dark Matter Produced in Association with a Higgs Boson Decaying to  $b\bar{b}$  using 36 fb<sup>-1</sup> of pp collisions at  $\sqrt{s}=13$  TeV with the ATLAS Detector ", Phys. Rev. Lett. 119 (2017) 181804
- ATLAS Collaboration, "Search for new phenomena with large jet multiplicities and missing transverse momentum using large-radius jets and flavour-tagging at ATLAS in 13 TeV pp collisions", JHEP 12 (2017) 034
- ATLAS Collaboration, "Search for dark matter in association with a Higgs boson decaying to two photons at  $\sqrt{s}=13$  TeV with the ATLAS detector", Phys. Rev. D 96 (2017) 112004
- ATLAS Collaboration, "Search for supersymmetry in events with b-tagged jets and missing transverse momentum in pp collisions at  $\sqrt{s}=13$  TeV with the ATLAS detector", JHEP 11 (2017) 195.
- ATLAS Collaboration, "Search for a scalar partner of the top quark in the jets plus missing transverse momentum final state at  $\sqrt{s}=13$  TeV with the ATLAS detector", JHEP 1712 (2017) 085

### Selected research activities

- \* Member of the LHCC committee at CERN for the revision of CMS Upgrade Technical Design Reports.
- \* Head of IFAE Experimental Division.
- \* Scientific Manager of the Spanish High Energy Physics Programme and Scientific Delegate in CERN's Council.
- \* One PhD Thesis concluded in 2017 and 1 additional PhD students under my direct supervision.
- \* One Master Thesis concluded in 2017.
- \* Master Lessons on Higgs and Supersymmetry at HASCO School (Goettingen, Germany).



## Javier Martínez-Picado

Institut de Recerca de la Sida - IrsiCaixa (IrsiCaixa)  
Life & Medical Sciences

Javier Martínez-Picado is ICREA Research Professor at the AIDS Research Institute IrsiCaixa in Barcelona, an institution that works to advance clinical research and translate results into patients care. He is also associate professor at the University of Vic (UVic-UCC). He received his PhD from the University of Barcelona where he subsequently became associate professor lecturing on different microbiology-related subjects. In 1996, he joined the Massachusetts General Hospital as postdoctoral fellow of the Harvard Medical School, where he engaged in AIDS research. In 2000, he obtained a position as biomedical researcher of the Spanish Health Department appointed to the Hospital "Germans Trias i Pujol" in Badalona (Barcelona). Dr. Martínez-Picado serves on different government, academic and industry advisory boards and has published extensively on HIV treatment strategies and HIV pathogenesis in international journals.

### Research interests

The main subject of our biomedical research is the Human Immunodeficiency Virus (HIV), a retrovirus that can lead to Acquired ImmunoDeficiency Syndrome (AIDS), a condition in humans in which the immune system begins to fail, leading to life-threatening opportunistic infections. Since the beginning of the epidemic, 76 million people have been infected with HIV, of which 35 million have died from AIDS. In 2016, 1 million people died from AIDS-related causes and 1.8 million became newly infected worldwide.

Our research programs are focused on understanding how HIV causes disease at the molecular and cellular level, tackling cellular and anatomical viral reservoirs, exploring new strategies to cure HIV/AIDS and collaborating on global HIV/AIDS vaccine development projects.

### Selected publications

- **Martinez-Picado J** et al 2017, 'Retroviruses as myeloid cell riders; what natural human Siglec-1 "knockouts" tell us about pathogenesis', *Front Immunol*, Nov 2017(8):1593.
- Morón-López S et al. 2017, 'Sensitive quantification of the HIV-1 reservoir in gut-associated lymphoid tissue', *PLoS One* 12(4):e0175899.
- Martínez-Bonet M et al 2017, 'Relationship between CCR5( $\Delta$ 32/WT) heterozygosity and HIV-1 reservoir size in adolescents and young adults with perinatally acquired HIV-1 infection', *Clin Microbiol Infec*, 23(5):318-24.
- Minuesa G et al 2017, 'Response to: Tenofovir disoproxil fumarate is not an inhibitor of human organic cation transporter 1'. *J Pharmacol Exp Ther* 360:343-5.
- Hancock G et al 2017, 'Evaluation of the immunogenicity and impact on the latent HIV-1 reservoir of a conserved region vaccine, MVA.HIVconsv, in ART-treated subjects', *J Int AIDS Soc* 20(1):21171.
- Codoñer FM et al 2017, 'Gag-protease coevolution analyses define novel structural surfaces in the HIV-1 matrix and capsid involved in resistance to protease inhibitor', *Sci Rep-UK* 7(1):3717.
- Rosas-Umbert M et al 2017, 'Virological and immunological outcome of treatment interruption in HIV-1-infected subjects vaccinated with MVA-B', *Plos One*, 12(9):e0184929.
- Ruiz-Riol M et al 2017, 'Identification of IL-27/IL-27RA as a critical immune axis for in vivo HIV control', *J Virol* 91(16):e00441-17
- Molinos-Albert LM et al 2017, 'Proteoliposomal formulations of an HIV-1 gp41-based miniprotein elicit a lipid-dependent immunodominant response overlapping the 2F5 binding motif', *Sci Rep-UK*, 7:40800.
- Baptista MJ et al 2017, 'Epstein-Barr viral loads and serum free light chains levels are potential follow up markers of HIV-related lymphomas', *Leukemia Lymphoma*, 58(1):211-213.



**Pedro Martínez**  
 Universitat de Barcelona (UB)  
 Life & Medical Sciences

I graduated in Chemistry (Biochemistry and Molecular Biology) in 1982 from the Universitat Autònoma de Barcelona, where I also obtained my PhD (in 1990). My training was completed in several places, but mainly at the California Institute of Technology (Pasadena, USA) and at the Centro Nacional de Biotecnología (Madrid, Spain). Before my ICREA appointment I was Associate Professor in the Faculty of Medicine at the University of Bergen (Norway). Currently I am an ICREA Research Professor at the Universitat de Barcelona, Departament de Genètica, a position that I hold since the year 2003. The area of my research is the Evolution of Developmental Mechanisms.

### Research interests

In our group we are interested in understanding how animals have evolved over time. We assume that the morphological changes have occurred as a consequence of modifications in the use of different genes during development. In this context, the main aim of our research is to study the origin of the bilateral animals, from radial ancestors. We compare the expression of genes in bilateral and radial animals, hoping to find what changes may have occurred when that transition happened (more than 500 million years ago). Recently we have extended the analysis using genome comparisons. We have sequenced the genomes of several basal bilaterian animals (members of the phylum Xenacoelomorpha) and are in the process of analyzing, and comparing, all types of genomic features. They should give us key insights into the mechanisms that underlie the origin and diversification of animals. The origin of the centralized nervous system is, at present, the major focus of our research efforts.

### Selected publications

- Ben Khadra Y, Sugni M, Ferrario C, Bonasoro F, Varela Coelho A, **Martinez P**, Candia Carnevali MD 2017, 'An integrated view of asteroid regeneration: tissues, cells and molecules', *Cell and Tissue Research*, 370, 13-28.
- Altenburger A, **Martinez P**, Budd GE & Holmer LE 2017, 'Gene Expression Patterns in Brachiopod Larvae Refute the "Brachiopod-Fold" Hypothesis', *Frontiers in Cell and Developmental Biology*, 5, 74.
- **Martinez P**, Perea-Atienza E, Gavilán B, Fernandez C & Sprecher S 2017, 'The study of xenacoelomorph Nervous Systems. Molecular and morphological perspectives', *Invertebrate Zoology*, 14 (1): 32-44.
- **Martinez P**, Hartenstein V & Sprecher SG 2017, 'Xenacoelomorpha Nervous Systems', in *Oxford Encyclopaedia of Neurosciences*, Oxford University Press.

### Selected research activities

#### Invited talks:

- "Xenacoelomorph nervous systems: from genomes to morphology". Department of Biology, University of Vienna. 3 Apr 2017
- "Understanding the enigmatic phylum Xenacoelomorpha, from morphology to genomics". Invitation to talk to the general assembly of the EMBRC network. Banyuls sur Mer (France). 16 May 2017
- "The Origin of Centralised Nervous Systems. The case of Xenacoelomorpha". 4th International Congress on Invertebrate Morphology (ICIM4). 18 Aug 2017
- "Understanding the phylum Xenacoelomorpha" Swiss Course on "Marine Biology", Observatoire Océanologique de Banyuls, France. 7 Sep 2017

#### Direction of PhD Thesis:

- "The nervous system of Xenacoelomorpha: a morphological and genomic perspective". Elena Perea Atienza. 14 Jul 2017

#### Courses Given:

- Professor of the Master's Course on: "Evolució de la regulació gènica i xarxes reguladores". Facultat Biologia/ Universitat Barcelona

#### New managing responsibilities:

- Board Member of the "International Society of Invertebrate Morphology" (ISIM). 2017- 2020



## Ruben Martin

Institut Català d'Investigació Química (ICIQ)  
Experimental Sciences & Mathematics

Ruben Martin was born in Barcelona in 1976. He received his PhD in 2003 at the Universitat de Barcelona with Prof. Antoni Riera. In January 2004 he moved to the Max-Planck-Institut für Kohlenforschung as a Humboldt postdoctoral fellow with Prof. Alois Fürstner and in May 2005 he undertook further postdoctoral studies at the Massachusetts Institute of Technology with Prof. Stephen L. Buchwald. In September 2008 he joined the ICIQ as a group leader. His current research interests concern the discovery and development of synthetically useful organometallic protocols. Ruben Martin was promoted to Associate Professor in July 2013 and to ICREA Research Professor in October 2013. During his time at ICIQ he has received the 2010 RSEQ Young Investigator Award, the 2011 Thieme Chemistry Journal Award, the Eli Lilly Young Research Investigator Award 2011 and the 2015 RSEQ Excellent Research Award. In 2011, he received the ERC Starting Grant awarded by the European Research Council. This year he received the 2017 Marcial Moreno Award, the 2017 OMCOS Award and the 2017 Liebig Award.

### Research interests

Our research is focused on the development of new catalytic protocols for producing synthetically relevant molecules from ubiquitous and simple precursors by activating inert, abundant and ubiquitous C-H, C-C and C-O bonds, probably the most fundamental linkages in nature. Additionally, my research has also been focused on the design of new catalytic protocols that utilize biomass-derived feedstocks such as carbon dioxide (CO<sub>2</sub>) for preparing valuable carboxylic acid derivatives under mild reaction conditions. During the last years, my research at ICIQ has provided solutions to relevant and challenging synthetic problems from both scientific and industrial standpoint, thus providing a new opportunities to build up molecular complexity from simple and abundant precursors

### Selected publications

- Shen Y, Cornella J, Julia-Hernandez F & **Martin R** 2017, 'Visible-Light-Promoted Atom Transfer Radical Cyclization of Unactivated Alkyl Iodides', *Acs Catalysis*, 7, 1, 409 - 412.
- Somerville R J & **Martin R** 2017, 'Forging C-C Bonds Through Decarbonylation of Aryl Ketones', *Angewandte Chemie-international Edition*, 56, 24, 6708 - 6710.
- Shimomaki K, Murata K, **Martin R** & Iwasawa N 2017, 'Visible-Light-Driven Carboxylation of Aryl Halides by the Combined Use of Palladium and Photoredox Catalysts', *Journal Of The American Chemical Society*, 139, 28, 9467 - 9470.
- Juliá-Hernandez F, Moragas T, Cornella J & **Martin R** 2017, 'Remote Carboxylation of Halogenated Aliphatic Hydrocarbons with Carbon Dioxide', *Nature*, 545, pp 84-88, DOI:10.1038/nature22316
- Zarate C, Nakajima M & **Martin R** 2017, "A mild & ligand-free Ni-catalyzed silylation via C-OMe cleavage", *Journal of the American Chemical Society*, 139, 1191.
- Reddy Yatham V, Shen Y & **Martin R** 2017, 'Catalytic Intermolecular Dicarbofunctionalization of Styrenes with CO<sub>2</sub> and Radical Precursors', *Angewandte Chemie-international Edition*, 56, 36, 10915 - 10919.
- van Gemmeren M, Borjesson M, Tortajada A, Sun S, Okura K & **Martin R** 2017, 'Switchable Site-Selective Catalytic Carboxylation of Allylic Alcohols with CO<sub>2</sub>', *Angewandte Chemie-international Edition*, 56, 23, 6558 - 6562.
- Gaydou M, Moragas T, Julia-Hernandez F & **Martin R** 2017, 'Site-Selective Catalytic Carboxylation of Unsaturated Hydrocarbons with CO<sub>2</sub> and Water', *Journal Of The American Chemical Society*, 139, 35, 12161 - 12164.
- Gu Y & **Martin R** 2017, "Ni-catalyzed stannylation of aryl esters via C-O bond cleavage", *Angewandte Chemie International Edition*, 56, 12, 3187 - 3190.





## Marc Martí-Renom

Centre de Regulació Genòmica (CRG)  
Life & Medical Sciences

I obtained a Ph.D. in Biophysics from the UAB where I worked on protein folding under the supervision of Professors B. Oliva, F.X. Avilés and M. Karplus (Nobel Laureate in 2013). After that, I went to the US for a postdoctoral training on protein structure modeling at the Sali Lab (Rockefeller University) as the recipient of the Burroughs Wellcome Fund fellowship. Later on, I was appointed Assistant Adjunct Professor at UCSF. Between 2006 and 2011, I headed the Structural Genomics Group at the CIPF in Valencia (Spain). Since October 2013, I am ICREA Research Professor and lead the Genome Biology Group at the National Center for Genomic Analysis (CNAG) and the Structural Genomics Group at the Centre for Genomic Regulation (CRG), both in Barcelona. Our group is broadly interested on how RNA, proteins and genomes organize and regulate cell fate. I have published over 90 articles in international peer-reviewed journals with over 10000 citations (Google Scholar indexed).

### Research interests

How biomolecules fold and function in a three-dimensional space is one of the most challenging questions in biology. For example, we have limited knowledge on how the 2-meter-long DNA molecule folds in the micro-sized nucleus or how RNA, proteins and small chemical compounds fold and interact to perform their most basic functions of the cell. Our research group employ the laws of physics and the rules of evolution to develop and apply experimental and computational methods for predicting the 3D structures of macromolecules and their complexes.

### Selected publications

- Serra F, Bau D, Goodstadt M, Castillo D, Filion G & **Marti-Renom MA** 2017, 'Automatic analysis and 3D-modelling of Hi-C data using TADbit reveals structural features of the fly chromatin colors', *Plos Computational Biology*, 13, 7, e1005665.
- Trussart M, Yus E, Martinez S, Bau D, Tahara YO, Pengo T, Widjaja M, Kretschmer S, Swoger J, Djordjevic S, Turnbull L, Whitchurch C, Miyata M, **Marti-Renom MA**, Lluch-Senar M & **Serrano L** 2017, 'Defined chromosome structure in the genome-reduced bacterium *Mycoplasma pneumoniae*', *Nature Communications*, 8, 14665.
- Martinez-Jimenez F, Overington JP, Al-Lazikani B & **Marti-Renom MA** 2017, 'Rational design of non-resistant targeted cancer therapies', *Scientific Reports*, 7, 46632.
- Cattoni DI, Cardozo Gizzi AM, Georgieva M, Di Stefano M, Valeri A, Chamousset D, Houbbron C, Dejardin S, Fiche J-B, Gonzalez I, Chang J-M, Sexton T, **Marti-Renom MA**, Bantignies F, Cavalli G & Nollmann M 2017, 'Single-cell absolute contact probability detection reveals chromosomes are organized by multiple low-frequency yet specific interactions', *Nature Communications*, 8, 1753.
- Goodstadt M & **Marti-Renom MA** 2017, 'Challenges for visualizing three-dimensional data in genomic browsers', *FEBS Letters*, 591 2505-2519
- Le Dily F, Serra F & **Marti-Renom MA** 2017, '3D modeling of chromatin structure: is there a way to integrate and reconcile single cell and population experimental data?', *Wiley Interdisciplinary Reviews-computational Molecular Science*, 7, 5, e1308.
- Quilez J, Vidal E, Le Dile F, Serra F, Cuartero Y, Stadhouders R, Graf T, **Marti-Renom MA**, Beato M & Filion G 2017, 'Managing The Analysis Of High-Throughput Sequencing Data', *GigaSciences*, 6 1-6

### Selected research activities

Since 2016, I coordinate efforts within the 4DNucleome Initiative in Europe (<http://www.4dnucleome.eu>).

During 2017 I continued serving as Treasurer of the Catalan Society of Biology, Associate Editor of PLOS Computational Biology and Editor of BMC Structural Biology.



## Daniel Maspoch

Institut Català de Nanociència i Nanotecnologia (ICN2)  
Engineering Sciences

Born in L'Escala (Girona) in 1976. He graduated in chemistry at the Universitat de Girona and obtained his PhD in materials science at the Universitat Autònoma de Barcelona & Institut de Ciència de Materials de Barcelona. He then moved to Northwestern University, where he worked as a postdoctoral fellow in the group of professor Chad A. Mirkin. He moved back to the Institut Català de Nanotecnologia (ICN) thanks to a Ramón y Cajal contract, where he founded the Supramolecular NanoChemistry & Materials Group. Since September 2011 he is ICREA Research Professor and Group Leader at the Institut Català de Nanociència i Nanotecnologia (ICN2). He is a recipient of an European Research Council (ERC) Consolidator Grant.

### Research interests

My research interests are focused on controlling the assembly *-Supramolecular Chemistry-* of molecules, metal ions and nanoparticles for the creation of functional nanostructured materials *-Nanotechnology-* with empty spaces; and use them to encapsulate, store, separate, react and deliver molecules of interest. My main contributions are in the fields of *nanoporous Metal-Organic Frameworks (MOFs) and Delivery Systems* for applications in myriad areas, including Energy (e.g. gas storage), Catalysis, the Environment (e.g. pollutant removal, CO<sub>2</sub> storage), Encapsulation (e.g. long-lasting fragrances), and Life Science *-Medicine and animals health-* (e.g. drug-delivery systems and contrast agents).

### Selected publications

- Garzón-Tovar L, Pérez-Carvajal J, Imaz I & **Maspoch D** 2017, 'Composite salt in porous Metal-Organic Frameworks for adsorption heat transformation', *Advanced Functional Materials*, 1606424.
- Garzon-Tovar L, Rodriguez-Hermida S, Imaz I & **Maspoch D** 2017, 'Spray Drying for Making Covalent Chemistry: Postsynthetic Modification of Metal-Organic Frameworks', *Journal Of The American Chemical Society*, 139, 2, 897 - 903.
- Rubio-Martinez M, Avci-Camur C, Thorton A, Imaz I, **Maspoch D** & Hill MR 2017, 'New Synthetic Routes towards MOF Production at Scale', *Chemical Society Reviews*, 46, 3453-3480.
- Yazdi A, Abo Markeb A, Garzon-Tovar L, Patarroyo J, Moral-Vico J, Alonso A, Sanchez A, Bastus N, Imaz I, Font X, **Puntes V & Maspoch D**, 2017, 'Core-shell Au/CeO<sub>2</sub> nanoparticles supported in UiO-66 beads exhibiting full CO conversion at 100 degrees C', *Journal Of Materials Chemistry A*, 5, 27, 13966 - 13970.
- Fernandez-De-Retana S, Cano-Sarabia M, Marazuela P, Sanchez-Quesada JL, Garcia-Leon A, Montanola A, Montaner J, **Maspoch D** & Hernandez-Guillamon M 2017, 'Characterization of ApoJ-reconstituted high-density lipoprotein (rHDL) nanodisc for the potential treatment of cerebral beta-amyloidosis', *Scientific Reports*, 7, 14637.
- Garzon-Tovar L, Avci-Camur C, Rodriguez-San-Miguel D, Imaz I, Zamora F & **Maspoch D** 2017, 'Spray drying for making covalent chemistry II: synthesis of covalent-organic framework superstructures and related composites', *Chemical Communications*, 53, 82, 11372 - 11375.

### Selected research activities

- Co-founder of the company Ahead Therapeutics.
- Signature of the Technology Transfer Contract "Iron encapsulation for food products" with the company Lipofoods S.L.
- License of the patent "Liposome-based immunotherapy" (Apl. EP 14151629)



## David Mateos

Universitat de Barcelona (UB)  
Experimental Sciences & Mathematics

I was born in 1974 in Barcelona. I obtained my PhD in Theoretical Physics from the University of Barcelona in 2000. After that I enjoyed many years of wonderful postdoctoral life at Cambridge University, UK (2 years), Perimeter Institute, Canada (3 years) and University of California at Santa Barbara, USA (3 years). I am an ICREA Research Professor at the Dep. of Fundamental Phys. at the University of Barcelona since July 2008. In 2012 I was awarded a Starting Grant from the European Research Council (1.4 M€).

### Research interests

My main goal is to understand the physics of the Universe at the most fundamental level. Our present understanding is based on two theories. General relativity is a classical theory that provides a good description of gravitational interactions at large, macroscopic scales. The other three interactions, the electromagnetic, the strong and the weak interactions, are unified in a quantum theory, the so-called Standard Model of elementary particles. The answers to many important questions in fundamental physics require a unified, quantum theory of all interactions; these questions include the quantum properties of black holes, cosmology and the origin of the Universe, particle physics beyond the Standard Model, etc. For this reason I work on string theory, a quantum theory that has the potential to describe all forces and particles in Nature in a single, unified framework.

### Selected publications

- Faedo AF, **Mateos D**, Pantelidou C & Tarrío J 2017, 'Towards a Holographic Quark Matter Crystal', *JHEP*, 1710, 139.
- Attems M, Casalderrey-Solana J, **Mateos D**, Santos-Olivan D, Sopena DF, Triana M & Zilhao M 2017, 'Paths to equilibrium in non-conformal collisions', *JHEP*, 1706, 154.
- Attems M, Bea Y, Casalderrey-Solana J, **Mateos D**, Triana M & Zilhao M 2017, 'Phase Transitions, Inhomogeneous Horizons and Second-Order Hydrodynamics', *JHEP*, 1706, 129.
- Faedo AF, **Mateos D**, Pravos D & Subils JG 2017, 'Mass Gap without Confinement', *JHEP*, 1706, 153.
- Faedo AF, **Mateos D**, Pantelidou C & Tarrío J 2017, 'Holography with a Landau pole', *JHEP*, 1702, 047.
- Attems M, Casalderrey-Solana J, **Mateos D**, Santos-Olivan D, Sopena CF, Triana M & Zilhao M 2017, 'Holographic Collisions in Non-conformal Theories', *JHEP*, 1701, 026.

### Selected research activities

#### Colloquia

*Extreme Holography*, Institute for Theoretical Physics, U of Utrecht, Netherlands.

#### Invited Conference Talks

*Extreme Holography*, 'Holography, gauge theory and black holes', STAG Research Centre, U of Southampton, UK.

*Extreme Holography*, 'Canterbury Tales of Hot QFTs in the LHC Era', St John's college, Oxford, UK.

*Extreme Holography*, 'Holography and Quantum Matter', IFT, Madrid, Spain.

*Holography and Quark Matter*, 'Holographic dense QCD and neutron stars', ENS, Paris, France.

*Extreme Holography*, 'Aspects of Time-dependent Holography', U of Amsterdam, Netherlands.

#### Research Stays

University of California at Santa Barbara, USA (Aug 2017).

#### Supervised Theses

Miquel Triana (PhD), Sep 2017, U of Barcelona.

Daniel Perez (Master), Sep 2017, U of Barcelona.

#### Teaching

*Frontiers of Theoretical Physics*, Master Course at U of Barcelona.

#### Managerial

Member of the advisory board of the Institute for Cosmos Sciences, U of Barcelona.

Guarantor of the Maria de Maeztu project of the Institute for Cosmos Sciences, U of Barcelona.



## Paolo Melchiorre

Institut Català d'Investigació Química (ICIQ)  
Experimental Sciences & Mathematics

Paolo Melchiorre is an ICREA Research Professor at the Institute of Chemical Research of Catalonia (ICIQ) in Tarragona. Paolo, born in 1973, studied Chemistry at the University of Bologna (Italy) where he graduated in 1999. Then he began his doctoral studies in Chemistry working in the area of enantioselective catalysis. Before obtaining his PhD in 2003, he spent a research period in Denmark working with Prof. Karl Anker Jørgensen, Århus University, where his studies centered on asymmetric organocatalysis. Afterwards, he worked as a postdoctoral associate at the Industrial Chemistry Faculty of the Bologna University. There, he began his independent studies on the development of novel organocatalytic asymmetric transformations. In October 2007, he took a permanent position as an Assistant Professor at Bologna University.

In September 2009, Paolo moved to Catalonia as ICREA Research Professor and ICIQ Senior Group Leader.

### Research interests

My main interest is on the discovery and mechanistic elucidation of new enantioselective organocatalytic and photochemical processes that address unsolved problems in synthetic methodology. My research on light-driven stereocontrolled processes aims at increasing process efficiency using a mechanistically-guided approach, controlling reaction selectivity, and reducing the environmental impact of chemical synthesis. My approach is based on the combination of two powerful fields of molecule activation, visible light photocatalysis and metal-free organocatalysis, to develop fundamentally new and ground-breaking strategies to asymmetric catalysis via the intermediacy of light-mediated open-shell redox processes and excited-state reactivity patterns. The motivation is that the use of light excitation to bring a molecule from its ground state to an electronically excited state can unlock previously inaccessible reaction pathways, thereby creating new synthetic opportunities.

### Selected publications

- Silvi M, Verrier C, Rey Y P, Buzzetti L & **Melchiorre P** 2017, 'Visible-light excitation of iminium ions enables the enantioselective catalytic  $\beta$ -alkylation of enals', *Nature Chemistry*, 9, 868 - 873.
- Bahamonde A, Murphy JJ, Savarese M, Bremond E, Cavalli A & **Melchiorre P** 2017, 'Studies on the Enantioselective Iminium Ion Trapping of Radicals Triggered by an Electron-Relay Mechanism', *Journal Of The American Chemical Society*, 139, 4559 - 4567.
- Dell'Amico L, Fernandez-Alvarez VM, Maseras F & **Melchiorre P** 2017, 'Light-Driven Enantioselective Organocatalytic  $\beta$ -Benzoylation of Enals', *Angewandte Chemie-International Edition*, 56, 3304 - 3308.
- Filippini G, Silvi M & **Melchiorre P** 2017, 'Enantioselective formal  $\alpha$ -methylation and  $\alpha$ -benzylation of aldehydes by means of photo-organocatalysis', *Angewandte Chemie-International Edition*, 56, 4447-4451.
- Cuadros S, Dell'Amico L & **Melchiorre P** 2017, 'Forging Fluorine-Containing Quaternary Stereocenters by a Light-Driven Organocatalytic Aldol Desymmetrization Process', *Angewandte Chemie-International Edition*, 56, 39, 11875 - 11879.
- Buzzetti L, Prieto A, Roy S R, & **Melchiorre P** 2017, 'Radical-based C-C bond-forming processes enabled by the photoexcitation of 4-alkyl-1,4-dihydropyridines', *Angewandte Chemie-International Edition*, 56, 15039-15043.

### Selected research activities

- \* Start of the 4-year European project "PHOTO-TRAIN" (722591) within the frame of H2020-MSCA-ITN-2016.
- \* Three of his students have been awarded the PhD degree.
- \* PM has delivered lectures at 12 International congresses and symposia (e.g. 18<sup>th</sup> Netherlands' Catalysis and Chemistry Conference - Noordwijkerhout, Netherlands; Beilstein Organic Chemistry Symposium 2017; Japanese National Symposium in Organocatalysis - Sendai, Japan) and 10 at international Universities or companies (e.g. University of Cambridge; University of Tokyo; Syngenta, Stein).
- \* Member of the International Advisory Boards of ChemCatChem (Wiley), *Advanced Synthesis and Catalysis* (Wiley) and *ChemPhotoChem* (Wiley).



## Maurizio Mencuccini

Centre de Recerca Ecològica i Aplicacions Forestals (CREAF)  
Experimental Sciences & Mathematics

BSc degree in Forest Science at University of Firenze (Italy, 1992). Research Associate at Istituto Sperimentale per la Selvicoltura (Italy, 1992). PhD in plant environmental biology at the University of Firenze (Italy, 1993-1995). Postdoc at Boyce Thompson at Cornell University (USA, 1995-1997). Lecturer, senior lecturer, reader, then Professor of Forest Science at Edinburgh University (UK, 1997-2016).

### Research interests

I work at the frontier between biological and environmental sciences, interfacing with global change. My major contributions to current debates have been in the study of forest dynamics, particularly carbon and water cycles. I worked in Boreal, temperate, tropical and Mediterranean forests in Europe, N and S America, Australia and Africa. I authored >170 peer-reviewed papers. I am very involved in international debates concerning how longer and more intense droughts, as a consequence of climate change, can accelerate tree mortality. I also work closely with the forestry sector on a range of themes including growth and carbon sequestration by forests using modelling, data assimilation and remote sensing. I supervised >40 scientists, of whom >20 are still active in science (in senior academic positions or universities). I advised the Kenyan government on ecosystem payment schemes. I spoke at several high-profile conferences.

### Selected publications

- **Mencuccini M**, Salmon Y, Mitchell P, Holttta T, Choat B, Meir P, O'Grady A, Tissue D, Zweifel R, Sevanto S & Pfautsch S 2017, 'An empirical method that separates irreversible stem radial growth from bark water content changes in trees: theory and case studies', *Plant, Cell & Environment*, 40, 2, 290 - 303.
- Semerci A, Ekmekci Y, Çicek N, Semerci H, Çaliskan B & **Mencuccini M** 2017, 'Morphological and physiological responses to drought stress of European provenances of Scots pine.', *European Journal of Forest Research*, 136, 1, 91 - 104.
- Nair R, Perks MP & **Mencuccini M** 2017, 'Decomposition nitrogen is better retained than deposition nitrogen in a temperate forest', *Global Change Biology*, 23(4):1711-1724.
- Nguyen HT, Meir P, Wolfe J, **Mencuccini M** & Ball MC 2017, 'Plumbing the depths: extracellular water storage in specialized leaf structures and its functional expression in a three-domain pressure-volume relationship', *Plant, Cell & Environment*, 40, 7, 1021 - 1038.
- Smallman TL, Exbrayat J-F, **Mencuccini M**, Bloom AA & Williams M 2017, 'Assimilation of repeated woody biomass observations constrains decadal ecosystem carbon cycle uncertainty in aggrading forests', *Journal Of Geophysical Research-biogeosciences*, 122, 3, 528 - 545.
- Sperry JS, Venturas MD, Anderegg WRL, **Mencuccini M**, Mackay DS, Wang Y & Love DM 2017, 'Predicting stomatal responses to the environment from the optimization of photosynthetic gain and hydraulic cost', *Plant, Cell & Environment*, 40: 816-830.
- Adams H & the Drought-Mortality Synthesis Group 2017, 'A multi-species synthesis of physiological mechanisms in drought-induced tree mortality', *Nature Ecology and Evolution*, 1: 1285-1291.

### Selected research activities

- Continued involvement in six funded grants (NERC, NSF, ARC, Ministerio).
- Led proposal writing for three grant proposals (two Ministerio, one ERC).
- Examiner of one PhD thesis (Barcelona).
- Seven papers published or accepted in 2017.
- Fieldwork in the Amazon, Brazil.



## Raúl Méndez

Institut de Recerca Biomèdica de Barcelona (IRB Barcelona)  
Life & Medical Sciences

Raúl Méndez studied biology (biochemistry) in the Universidad Autónoma de Madrid. He obtained his PhD in 1993 for work carried out at the Centro de Biología Molecular Severo Ochoa under the supervision of César de Haro. He did postdoctoral work in the laboratory of Robert E. Rhoads at the Louisiana State University Medical Center (1994-1997) and then in the laboratory of Joel D. Richter (1997-2001) at the University of Massachusetts and in 2001 he joined the Centre de Regulació Genòmica of Barcelona as a group leader. In 2010 his group moved to the Institut de Recerca Biomèdica de Barcelona, where he is a senior scientist and ICREA Research Professor. Since the time of his PhD work, his research has focused on how mRNAs are translated into proteins and how this process is regulated during cell division and differentiation. EMBO member since 2012.

### Research interests

The primary interest of our group is to understand the molecular mechanisms that dictate alternative 3' UTR formation and the temporal and spatial translational control of specific mRNAs during cell cycle progression and chromosome segregation, senescence and related pathologies. Cell cycle progression is programmed, at least in part, by stored silent mRNAs whose translation is specifically regulated by sequences located at their 3'-untranslated regions (3'-UTRs) and their binding proteins. Our work in the past years has focused on three main questions: First, to elucidate the mechanisms underlying the translational control by cytoplasmic polyadenylation cis-acting elements and trans-acting factors. Second, to define how this translational control circuit regulates cell cycle progression by establishing a molecular circuit, stabilized by positive and negative feed-back loops. Third, to explore the contribution of these mechanisms in the reprogramming of gene expression in cancer.

### Selected publications

- Villanueva E, Navarro P, Rovira-Rigau M, Sibilio A, **Mendez R** & Fillat C 2017, 'Translational reprogramming in tumour cells can generate oncoselectivity in viral therapies', *Nature Communications*, 8, 14833.
- Weill L, Belloc E, Lara Castellazzi C & **Mendez R** 2017, 'Musashi 1 regulates the timing and extent of meiotic mRNA translational activation by promoting the use of specific CPEs', *Nature Structural & Molecular Biology*, 24, 8, 672.
- Garcia-Pras E, Gallego J, Coch L, Mejias M, Fernandez-Miranda G, Pardal R, Bosch J, **Mendez R** & Fernandez M 2017, 'Role and therapeutic potential of vascular stem/progenitor cells in pathological neovascularisation during chronic portal hypertension', *Gut*, 66, 7, 1306 - 1320.
- Maillo C, Martín J, Sebastián D, Hernández-Alvarez M, García-Rocha M, Reina O, Zorzano A, Fernandez M & **Méndez R** 2017, 'Circadian- and UPR-dependent control of CPEB4 mediates a translational response to counteract hepatic steatosis under ER stress', *Nat Cell Biol.*, 19(2):94-105.

### Selected research activities

#### Patent:

- Nucleic acid constructs and vectors for oncoselective expression of a transgene (N/Ref.: P12889EP00) Eneko Villanueva, Cristina Fillat and Raúl Méndez.

#### Invited conferences:

- Gordon Research Conference: Translation Machinery in Health & Disease. Galveston TX United States, 03/19/2017 - 03/24/2017.
- EMBO Workshop on Metabolic disorders and liver cancer. April 23-26 2017.
- Cellular organelle dysfunction at the origin of metabolic diseases (3<sup>rd</sup> MetNet International Meeting), May 10<sup>th</sup> 2017.
- QBM Lecture Series (Ludwig-Maximilians-University Munich, Germany) May 15<sup>th</sup> 2017.
- Joint Congress SEG+SEBC+SEBD 2017, 24 - 27 October 2017.



## Pablo Menéndez

Institut de Recerca contra la Leucèmia Josep Carreras (IJC)  
Life & Medical Sciences

Born in Avilés, Asturias, in 1974. Biochemist by University of Salamanca (1997) and PhD in Medicine (Hematology) by the same University in 2002, under the supervision of Prof. Alberto Orfao and Prof. Jesus San Miguel. Postdoctoral training in stem cell biology (Mick Bhatia Laboratory, London, ON, Canada; 2002-2005) and in childhood leukemia (Mel Greaves Laboratory, London, UK; 2005-2007). In 2007, I was appointed Director of the Andalusian Stem Cell Bank, and was leading my own lab at CIBM (Granada, Spain) until July 2011 when I moved to GENyO (Granada, Spain) as Principal Investigator. In June 2013 I was appointed ICREA Research Professor and Research Director of The Josep Carreras Leukemia Research Institute-Campus Clínic, Barcelona, Spain.

### Research interests

- 1.-Modeling MLL-rearranged and MLL-germline Acute Lymphoblastic Leukemia in children. We use DNA and RNA whole genome sequencing/pyrosequencing, gene editing approaches in primary stem cells and patient-derived xenografts.
- 2.-Leukemic cell-niche environment interactions and targeted therapies in Acute Myeloid Leukemia. A role for BM-stroma in therapy resistance
- 3.-Deciphering the intrinsic determinants and signaling pathways underlying hematopoietic from human pluripotent stem cells.
- 4.- Adoptive T-cell-based CAR immunotherapy for B-cell, T-cell ALL and AML.

### Selected publications

- Romero-Moya D,.....**P Menendez\***. **Stem Cell Res** 2017
- A Gentilella ... **P Menéndez**, SC Kozma and G Thomas. A. **Mol Cell** 2017;67:1-9
- Díaz de la Guardia R..... **Menendez P.Br J Haematol** 2017 IN PRESS
- D. Romero-Moya, **Pablo Menendez\*** 2017. **STEM CELLS** 35(7):1687-1703.
- J Domingo,.... **P. Menendez...**, V. Ramos-Mejía. **Stem Cell Res** 2017;25:286-290.
- R. Torres-Ruiz, **P Menendez**, J.C. Cigudosa, S. Rodriguez-Perales. **Stem Cell Rep** 2017;8:1408-20
- C Prieto, .... **P Menéndez\***. **Leukemia** 2017 (in press).
- J. Castaño, **P. Menendez\*** 2017, **Stem Cell Res**, 21, 137 - 140.
- R. Torres, .... P. Menendez. **Haematologica** 2017;102:1467-68
- R Díaz de la Guardia, **P Menéndez\***. **Stem Cell Rep** 2017;8:1-14
- Martin M, ...Menéndez P,...., Marin MC. **Cell Death Dis** 2017;8:e3034
- M Sierra,.....P. Menendez,..... MF Fraga. **NANOTOXICOLOGY** 2017;11:857-870
- S. Body,....**P. Menendez**, ..., G Roue, B Sola. **Sci Reports** 2017; 7:13946.
- Navarro-Montero, Menendez, Pablo\*; Real, Pedro \*. 2017, **Stem Cells**, 35,1,2253 - 2266.
- O. Pelkonen, **P. Menendez**, S. Hougaard, on behalf of the EFSA WG EPI. **Arch Toxicology** 2017; 91:2763-2780
- Romero-Moya, D **Stem Cell Research**, 24,144 -147.
- Macía, Angela... Menendez, Pablo; ... Garcia-Perez, Jose L. 2017, **Genome Research**, 27, 3, 335 - 348.
- Giorgetti, A; Menendez, P.. **Experimental Hematology**, 2017;45:85-93.
- Matas-Cespedes, Alba; ....Menendez, Pablo; ...; Perez-Galan, Patricia 2017, **Clinical Cancer Research**, 23, 6, 1493 - 1505.
- Lopez-Millan, Belen; ...Menendez, Pablo 2017. **Experimental Molecular Medicine**, 49, e290.
- **P. Menendez**. **Stem Cell Investig** 2017;4:55-60.

### Selected research activities

#### Patent:

Inventor: **Pablo Menéndez**

Title: NG2 antigen as a therapeutic target in MLL-rearranged acute leukemia

Reference: EPI17382551.4 · Country: España · Date: SJuly 30<sup>th</sup> 2017

Property/Company/University: IJC

#### Nomination:

Member of the Management Committee of the e-COST action 'LEukaemia GENE Discovery by data sharing, mining', 2017-2021.



## Arben Merkoçi

Institut Català de Nanociència i Nanotecnologia (ICN2)  
Engineering Sciences

ICREA Research Professor and head of Nanobioelectronics & Biosensors Group at ICN2 (Institut Català de Nanociència i Nanotecnologia). He obtained his PhD at University of Tirana working on ion selective electrodes. Since 1992 he has been doing research as postdoctoral fellow and research professor at Polytechnic Univ. of Budapest, Univ. of Ioanina, Univ. degli Studi di Padua, Univ. Politècnica de Catalunya, Univ. Autònoma de Barcelona and New Mexico State Univ. His research is focused on the integration of biological molecules and other species with micro- and nanostructures with interest for the design of novel (bio)sensors. He has published more than 260 articles and supervised 27 PhD thesis. He is co-founder of two spin-off companies, PaperDrop dedicated to nanodiagnostics and GraphenicaLab to electronic printing.

### Research interests

1. Nanoparticles study and application in innovative sensing technologies. 2. Development of novel nanostructured, nanochannel flexible platforms based on nanoimprinting and ink-jet printing technologies. 3. Study of graphene related materials and their integration into biosensing platforms. 4. Development of novel paper-based platforms with improved architecture, microfluidics and enhanced detection capabilities. 5. Design and application of lab-on-a-chip devices for biosensing, drug screening and other applications.

### Selected publications

- Morales-Narvaez E, Florio Sgobbi L, Spinola Machado SA & **Merkoçi A** 2017, 'Graphene-encapsulated materials: Synthesis, applications and trends', *Progress In Materials Science*, 86, 1 - 24.
- Morales-Narváez E, Baptista-Pires L, Zamora-Gálvez A & **Merkoçi A** 2017, 'Graphene-Based Biosensors: Going Simple', *Advanced Materials*, 29, 7, UNSP 1604905.
- Cheeveewattanagul N, Morales-Narvaez E, Hassan A-RHA, Bergua FJ, Surareungchai W, Somasundrum M & **Merkoçi A** 2017, 'Straightforward Immunosensing Platform Based on Graphene Oxide-Decorated Nanopaper: A Highly Sensitive and Fast Biosensing Approach', *Advanced Functional Materials*, 27, 38, 1702741.
- Siepi M, Morales-Narvaez E, Domingo N, Monti DM, Notomista E & **Merkoçi A** 2017, 'Production of biofunctionalized MoS<sub>2</sub> flakes with rationally modified lysozyme: a biocompatible 2D hybrid material', *2d Materials*, 4, 3, 035007.
- Álvarez-Diduk R, Orozco J & **Merkoçi A** 2017, 'Paper strip-embedded graphene quantum dots: a screening device with a smartphone readout', *Scientific Reports* 7, Article number: 976.
- Chalupniak A & **Merkoçi A** 2017, 'Toward integrated detection and graphene-based removal of contaminants in a lab-on-a-chip platform', *Nano Research*, 10, 7, 2296 - 2310.
- Golmohammadi H, Morales-Narvaez E, Naghdi T & **Merkoçi A** 2017, 'Nanocellulose in Sensing and Biosensing', *Chemistry Of Materials*, 29, 13, 5426 - 5446.
- Monton H, Medina-Sanchez M, Soler JA, Chalupniak A, Nogues C & **Merkoçi A** 2017, 'Rapid on-chip apoptosis assay on human carcinoma cells based on annexin-V/quantum dot probes', *Biosensors & Bioelectronics*, 94, 408 - 414.
- Quesada-González D & **Merkoçi A** 2017, 'Mobile phone-based biosensing: An emerging "diagnostic and communication" technology', *Biosensors and Bioelectronics*,





Andreas Meyerhans  
Universitat Pompeu Fabra (UPF)  
Life & Medical Sciences

### University Education

- 1987 PhD in Chemistry, University of Hamburg, Germany.
- 1982 Diploma in Chemistry, University of Hamburg, Germany.

### Professional Positions

- Since 2010 ICREA Research Professor at Pompeu Fabra University, Barcelona.
- 1998-2009 Full Professor, Saarland University, Germany.
- 1990-1998 Assistant Professor, University of Freiburg, Germany.
- 1988-1990 Postdoctoral Fellow, Institute Pasteur, Paris, France.
- 1987-1988 Postdoctoral Fellow, Institute Biotechnological Research, Braunschweig, Germany.

### Research interests

Infections with non-cytopathic viruses usually have 2 different outcomes. They may be eliminated by host immune responses (acute infections) or they may persist lifelong (persistent infections). Medically important examples are the Hepatitis B virus (HBV), the Human Immunodeficiency virus (HIV) and the Hepatitis C virus (HCV) that in adults usually follow an acute (HBV), a persistent (HIV) or an either acute or persistent (HCV) infection course. My laboratory is interested (i) to understand the factors that regulate the decision between an acute versus a persistent infection course, (ii) to define the factors that control the dynamic balance of virus expansion and immune control in persistent infections, (iii) to generate quantitative descriptions of the virus/immune system dynamics by mathematical modeling, and (iv) to identify small chemical compounds with broad-spectrum antiviral activities.

### Selected publications

- Chen HC, Martinez JP, Zorita E, **Meyerhans A** & Fillion GJ 2017, 'Position effects influence HIV latency reversal', *Nature Structural & Molecular Biology*, 24(1):47-54.
- Fleta-Soriano E, Smutna K, Martinez JP, Lorca Oro C, Sadiq SK, Mirambeau G, Lopez-Iglesias C, Bosch M, **Pol A**, Bronstrup M, Diez J & **Meyerhans A** 2017, 'The Myxobacterial Metabolite Soraphen A Inhibits HIV-1 by Reducing Virus Production and Altering Virion Composition', *Antimicrobial Agents And Chemotherapy*, 61, 8, e00739-17.
- Koutsoudakis G, Paris de Leon A, Herrera C, Dorner M, Perez-Vilaro G, Lyonnais S, Grijalvo S, Eritja R, **Meyerhans A**, Mirambeau G & Diez J 2017, 'Oligonucleotide-Lipid Conjugates Forming G-Quadruplex Structures Are Potent and Pangenotypic Hepatitis C Virus Entry Inhibitors In Vitro and Ex Vivo', *Antimicrobial Agents And Chemotherapy*, 61, 5, e02354-16.
- Bouchnita A, Bocharov G, **Meyerhans A** & Volpert V 2017, 'Towards a Multiscale Model of Acute HIV Infection', *Computation*, 5, 6.
- Bouchnita A, Bocharov G, **Meyerhans A** & Volpert V 2017, 'Hybrid approach to model the spatial regulation of T cell responses', *Bmc Immunology*, 18, 29.
- Neubauer JC, Sébastien I, Germann A, Müller SC, **Meyerhans A**, von Briesen H & Zimmermann H 2017, 'Towards Standardized Automated Immunomonitoring: an Automated ELISpot Assay for Safe and Parallelized Functionality Analysis of Immune Cells', *Cytotechnology*, 69(1): 57-73.

### Selected research activities

- (1) June-September 2017: Visiting Professor at Department of Chemical and Systems Biology (Professor James Ferrell), Stanford University, USA
- (2) Finalising a book entitled "Mathematical Immunology of Virus Infections" by Gennady Bocharov, Vitaly Volpert, Burkhard Ludewig, Andreas Meyerhans. Springer/Nature, to appear (ISBN 978-3-319-72316-7).



## Marco Milán

Institut de Recerca Biomèdica de Barcelona (IRB Barcelona)  
Life & Medical Sciences

Marco Milán graduated in Biology at the Universidad Complutense (Madrid, 1991) and obtained his PhD in the laboratory of Antonio García-Bellido at the Center of Molecular Biology (Madrid, 1995). A couple of years later, he joined the laboratory of Stephen M. Cohen at the EMBL in Heidelberg, where he got a position as Staff Scientist until 2003. In 2003, he got his present position as ICREA Research Professor at the Institute for Research in Biomedicine (IRB Barcelona) leading the Development and Growth Control Laboratory. Since 2007, he is the Head of the Cell and Developmental Biology Programme of the IRB. In 2007, he was elected EMBO Young Investigator. He was Visiting Professor at the National University of Singapore in 2010. He is member of the editorial boards of EMBO Journal, EMBO reports and Disease, Models and Mechanisms.

### Research interests

My lab is interested in how the size of a developing organ is controlled by the activity of morphogens, growth promoting genes and systemic hormones. We use the *Drosophila* wing because of its suitability for genetic and molecular manipulations, its well-described developmental biology and its simple epithelial architecture. We take an integrative approach as we address how size is regulated not only during normal development but also in stress conditions. In this regard, we are dissecting the molecular mechanisms underlying the homeostatic capacity of the tissue to several insults (with a special interest in genomic instability) and its potential impact in tumorigenesis. This integrative approach unravels the interplay between morphogens, growth promoting genes and systemic hormones in normal development or upon stress, and contributes to identify emerging stress signalling molecules involved in regeneration and tumorigenesis.

### Selected publications

- Recasens-Alvarez C, Ferreira A & **Milán M** 2017, 'JAK/STAT controls organ size and fate specification by regulating morphogen production and signalling', *Nature Communications*, 8, 13815.
- Terriente-Felix A, Perez L, Bray SJ, **Nebreda AR** & **Milán M** 2017, 'A *Drosophila* model of myeloproliferative neoplasm reveals a feed-forward loop in the JAK pathway mediated by p38 MAPK signalling', *Disease Models & Mechanisms*, 10, 4, 399 - 407.
- Barrio L & **Milán M** 2017, 'Boundary Dpp promotes growth of medial and lateral regions of the *Drosophila* wing', *eLife*, 6, e22013.
- Muzzopappa M, Murcia L & **Milán M** 2017, 'Feedback amplification loop drives malignant growth in epithelial tissues', *Proceedings Of The National Academy Of Sciences Of The United States Of America*, 114, 35, E7291 - E7300.

### Selected research activities

- Co-organizer of the "Morphogenetic engineering" BBVA & IRB Barcelona Biomed Conference, November 2017, Barcelona (Spain).



## Ramon Miquel

Institut de Física d'Altes Energies (IFAE)  
Experimental Sciences & Mathematics

Born in 1962 in Gelida (Barcelona). Graduated in physics in 1985 at Universitat de Barcelona (UB). PhD in experimental high-energy physics in 1989 at Universitat Autònoma de Barcelona. Post-doctoral stay at CERN, Geneva (Switzerland) from 1991 to 1996, mostly working on the ALEPH experiment at the LEP accelerator. "Professor Titular" at UB 1997-2000. Moved to the Lawrence Berkeley National Laboratory, Berkeley (USA) as a Career Staff Scientist in 2001, where started a transition towards observational cosmology. Since 2006, ICREA Research Professor at Institut de Física d'Altes Energies (IFAE). Associate Director of IFAE from 2008 to 2014. Director since 2015. Working mostly on the "Dark Energy Survey" (DES), "Dark Energy Spectroscopic Instrument" (DESI), and IFAE-led "Physics of the Accelerated Universe" (PAU) projects. All of them try to shed light into the nature of the "dark energy" that is causing the current acceleration of the expansion of the Universe.

### Research interests

I am an experimental particle physicist trying to understand the ultimate building blocks of the Universe and their interactions, through both experiments involving particle accelerators and astronomical observations. Recently, my work has been mostly devoted to planning instruments and performing observations to try to unveil the nature of the so-called "dark-energy" component of the Universe, which accounts for about 70% of the matter-energy of the Universe, counters the attractive effect of gravity on all other forms of matter and energy, and drives the current accelerated expansion of the Universe.

### Selected publications

- Kwan J et al. (DES Collaboration) 2017, 'Cosmology from large-scale galaxy clustering and galaxy-galaxy lensing with Dark Energy Survey Science Verification data', *MNRAS*, 464, 4045.
- Sanchez C et al. (DES Collaboration) 2017, 'Cosmic voids and void lensing in the Dark Energy Survey Science Verification data', *MNRAS*, 465, 746.
- Kovacs A et al. (DES Collaboration) 2017, 'Imprint of DES superstructures on the cosmic microwave background', *MNRAS*, 465, 4166.
- Clampitt J et al. (DES Collaboration) 2017, 'Galaxy-galaxy lensing in the Dark Energy Survey Science Verification data', *MNRAS*, 465, 4204.
- Prat J et al. (DES Collaboration) 2017, 'Galaxy bias from galaxy-galaxy lensing in the DES Science Verification data', *MNRAS*, 473, 1667.
- Albert A et al. (Fermi-LAT and DES Collaborations) 2017, 'Searching for dark matter annihilation in recently discovered Milky Way satellites with Fermi-LAT', *ApJ*, 834, 110.
- Abbott BP et al. 2017a, 'Multi-messenger observations of a binary neutron star merger', *ApJL*, 848, L12.
- Soares-Santos M et al. 2017, 'The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/Virgo GW170817. I. Discovery of the Optical Counterpart Using the Dark Energy Camera', *ApJL*, 848, 2, L16.
- Abbott BP et al. 2017b, 'A gravitational-wave standard siren measurement of the Hubble constant', *Nature*, 551, 85.

### Selected research activities

- Adviser of the PhD thesis "Dark energy properties from the combination of large-scale structure and weak gravitational lensing in the Dark Energy Survey," by Carles Sánchez (UAB, 28/9/2017). Grade: Excellent cum laude.
- Member of the Scientific Advisory Committee of APPEC, the Astroparticle Physics European Consortium of funding agencies.
- Spanish representative in the Management Committee of the "Dark Energy Survey" (DES) Collaboration.
- Member of the DES Publication Board, the DES Builders' Committee, and the Advisory Board to the DES Director.
- Member of the Speakers Board of the "Dark Energy Spectroscopic Instrument" (DESI) Collaboration.



Jordi Miralda-Escudé  
Universitat de Barcelona (UB)  
Experimental Sciences & Mathematics

I learned physics at the Autonomous University of Barcelona, and astronomy on my own and through some amateur associations in Catalonia. I did my PhD in astrophysics at Princeton University, graduating in 1991 with a thesis on gravitational lensing by clusters and large-scale structure. I was a postdoc at the Institute of Astronomy in Cambridge, and a Long-Term Member at the Institute for Advanced Study. I joined the University of Pennsylvania as a professor of astrophysics in 1996, and then moved to The Ohio State University in 2000. I have been back to Catalonia with an ICREA position since 2005, and I am at present doing research on astrophysics and cosmology at the Institut de Ciències del Cosmos at the University of Barcelona.

### Research interests

I enjoy searching for physical explanations for what we observe in the Universe. My interests range over the formation of galaxies and their large-scale distribution in space, the composition and evolution of the universe as a whole, observations of the intergalactic medium and the distribution of diffuse matter in space, the formation of massive black holes and the nuclear regions of galaxies, and gravitational lensing as a probe to the nature of dark matter. Over the last few years I have focused on the large-scale distribution of intergalactic gas as probed by quasar absorption spectra in the Baryon Oscillation Spectroscopic Survey of the SDSS-III Collaboration, where absorption in the Lyman alpha line of hydrogen gas is observed. This is revealing crucial clues on both the initial conditions of the Universe and the formation of galaxies. I have worked on Damped Lyman Alpha Systems, which are gas clouds that are involved in the process of formation of galaxies. At present I am also looking at various techniques to inquire on the nature of the dark matter, among them the observation of extremely magnified high-redshift stars close to the critical curves of clusters of galaxies acting as gravitational lenses.

### Selected publications

- Sadoun R, Zheng Z & **Miralda-Escudé J** 2017, 'On the decreasing fraction of strong Lyman alpha emitters at  $z \sim 6 - 7$ ', *The Astrophysical Journal*, vol. 839, no.1, 44 (13pp).
- Bautista JE, et al. 2017, 'Measurements of Baryon Acoustic Oscillations Correlations at  $z=2.3$  with SDSS-DR12 Lyman Alpha Forests', *Astronomy and Astrophysics*, vol. 603, 12.
- Venumadhav T, Dai L, **Miralda-Escudé J** 2017, 'Microlensing of Extremely Magnified Stars near Caustics of Galaxy Clusters', *Astrophysical Journal*, 850, 1, 49.
- Mas-Ribas L, **Miralda-Escudé J**, Pérez-Ràfols I, et al. 2017, 'The mean metal-line absorption spectrum of damped Lyman alpha systems in BOSS', *The Astrophysical Journal*, vol. 846, no.1, 4 (36pp).
- **Miralda-Escudé J** 2017, 'L'obra lul·liana i la ciència moderna', *Mètode*, vol. 93, pp 18-13.
- du Mas de Bourboux H, et al. 2017, 'Baryon Acoustic Oscillations from the complete SDSS-III Lyman alpha - quasar cross-correlation function at  $z=2.4$ ', *Astronomy and Astrophysics*, vol. 608, 130 (pp 22).

### Selected research activities

This year I also spent some time on a more interdisciplinary activity studying the medieval philosopher Ramon Llull and the relation of his writings to mathematical and scientific developments, writing an article in the magazine *Mètode* of the University of Valencia.



## Morgan W. Mitchell

Institut de Ciències Fotòniques (ICFO)  
Experimental Sciences & Mathematics

Born in 1968 in Palo Alto, California, USA, Morgan Mitchell earned his PhD in Physics from the University of California at Berkeley in 1999 with a thesis on the quantum optics of photon-photon interactions. In the group of Serge Haroche and Jean-Michel Raimond in Paris he worked on experimental cavity quantum electrodynamics with cold atoms. At Reed College he developed ultra-low power entangled photon sources, and in the group of Aephraim Steingberg in Toronto he demonstrated the first multi-photon NooN states and quantum process tomography. In 2004 he joined ICFO as a Junior Group Leader. His group "quantum optics with cold atoms and non-classical light" uses narrow-band quantum light sources and cold atomic ensembles to study interaction of light and matter at the most fundamental, quantum mechanical level. He was awarded an ERC Starting Grant in 2011, recognized with a Vanguardia de la Ciencia award in 2012, Ehrenfest Prize and Kavli Publication Prize in 2016.

### Research interests

I work on experimental quantum optics, quantum information and especially quantum sensing. Quantum sensing uses quantum effects to improve the sensitivity of the most demanding measurements. To study the interaction of light and matter at the quantum level, I use cold atoms and high coherence, atom-tuned quantum light sources. For this, my group has developed ultra-bright sources of entangled photon pairs, atom-tuned polarization squeezing and a quantum-noise-limited atomic ensemble system. We have demonstrated quantum non-demolition measurements using dynamical decoupling to reduce decoherence, and interaction-based measurements beyond the so-called "Heisenberg limit." The quantum optics of optical magnetometers, currently the best sensors for low-frequency magnetic fields, is of particular interest. Recently I demonstrated the first application of quantum optics to improve magnetometer sensitivity, and a high-spatial-resolution magnetometer based on cold atoms. Spin-offs from this research include extremely fast, high-quality random number generators, used in loophole-free Bell tests.

### Selected publications

- Colangelo G, Ciurana FM, Bianchet LC, Sewell RL & **Mitchell MW** 2017, 'Simultaneous tracking of spin angle and amplitude beyond classical limits', *Nature*, 543, 7646, 525.
- Colangelo G, Ciurana FM, Puentes G, **Mitchell MW** & Sewell RJ 2017, 'Entanglement-Enhanced Phase Estimation without Prior Phase Information', *Physical Review Letters*, 118, 23, 233603.
- Ciurana MF, Colangelo G, Slodicka L, Sewell RJ & **Mitchell MW** 2017, 'Entanglement-Enhanced Radio-Frequency Field Detection and Waveform Sensing', *Physical Review Letters*, 119, 4, 043603.
- Bera MN, **Acín A**, Kus M, **Mitchell MW** & **Lewenstein M** 2017, '**Randomness in quantum mechanics: philosophy, physics and technology**', *Rep. Prog. Phys.*, 80, 124001.
- Zielinska JA, Zukauskas A, Canalias C, Noyan MA & **Mitchell MW** 2017, 'Fully-resonant, tunable, monolithic frequency conversion as a coherent UVA source', *Optics Express*, 25, 2, 1142 - 1150.

### Selected research activities

Principal investigator for "The BIG Bell Test," an international project to perform quantum physics experiments employing human-generated randomness.



**Sandra Montón-Subías**  
 Universitat Pompeu Fabra (UPF)  
 Humanities

1988: BSc Geography and History (Universitat de Barcelona, Spain). 1993: PhD History (Universitat Autònoma de Barcelona). I began my research at Universitat Autònoma de Barcelona, studying processes of emerging complexity in Mediterranean Bronze Age societies. Since then, I have worked at the University of Athens, at the McDonald Institute for Archaeological Research, at the University of Cambridge, at the Universitat Autònoma de Barcelona, at Universitat Pompeu Fabra, at the University of California Santa Cruz, at the Northwestern University, at the National Taiwan University, at the University of Guam, at German Archaeological Institute/Roman-Germanic Commission in Frankfurt and at the University of Oslo. I was co-chair of the EAA working party AGE <http://www.upf.edu/materials/fhuma/age/> for the period 2009-2015.

### Research interests

I am an archaeologist with broad interests in social and theoretical archaeology. My current fields of research are the Archaeology of Modern Iberian Colonialism and Gender Archaeology. Most specifically, I am analysing the consequences that Spanish colonialism and Jesuit missionization had on the native Chamorro populations of Guam and the Mariana Islands (western Pacific), with a specific focus on the effects that such domination had on power relationships, gender systems and maintenance activities. As a historical archaeologist, I converge historical written documents and material culture in my research. Although I focus on the study of modern colonial processes, I investigate much broader cultural sequences that include previous developments of local oral populations, thus bridging the long-debated prehistory/history divide.

### Selected publications

- **Montón-Subías S 2017**, 'On Treherne's warrior's beauty', *European Journal of Archaeology*, 20 (1).
- Frieman CJ, Bruck J, Rebay-Salisbury K, Bergerbrant S, **Monton-Subias S**, Sofaer J, Knusel CJ, Vandkilde H, Giles M & Treherne P 2017, 'Aging Well: Treherne's "Warrior's Beauty" Two Decades Later', *European Journal Of Archaeology*, 20, 1, 36 - 73.

### Selected research activities

#### Grants and Research Groups:

- Principal Coordinator in *Cultura Material, Colonialismo y Género. Una perspectiva arqueológica*, HAR2016-77564-C2-1-P, Ministerio de Economía y Competitividad (2017-2019).
- Principal Investigator in *ABERIGUA. Arqueología del Colonialismo Ibérico en Guam, Pacífico occidental*, Fundación Palarq (2017-2018).
- Principal Investigator in *ABERIGUA. Arqueología del Colonialismo Ibérico en Guam, Pacífico occidental*, Instituto del Patrimonio Cultural de España (IPCE), Ministerio de Educación, Cultura y Deporte (2017-2018).
- Coordinator of the UPF Research Group "Colonialism, Gender and Materialities" (CGyM).

#### Invited talks, conferences and workshops:

- Bodies of colonialism. Identity and bodily care in the Mariana Islands. EAA, Maastricht.
- Gender, Change and Continuity in Colonial Guam (1668-1700), New University of Lisbon.
- La Arqueología de Género y las Actividades de Mantenimiento. Tona City Hall.
- Arqueología del Contacto Cultural y del Colonialismo Español en las Islas Marianas. Museo Arqueológico Nacional, Madrid.

#### Other:

- Co-director of the 2017 San Dionisio's Church and Cemetery excavations, Umatac, Guam (Mariana Islands).
- Section Editor of *Encyclopedia of Global Archaeology* (2nd edition).
- Scientific Committee for the Spanish TAG (Theoretical Archaeological Group).
- Master Thesis "Argentina Negra", Paula Mirkin (September 13).



**Massimo Motta**  
Universitat Pompeu Fabra (UPF)  
Social & Behavioural Sciences

Massimo Motta (BSc Bocconi, Milan, 1987; PhD Louvain, 1991) is Research Professor at ICREA, Universitat Pompeu Fabra (UPF) and Barcelona GSE. He was Chief Economist at the European Commission in 2013-2016, where he coordinated the EC's economic analysis and advised the Competition Commissioner on antitrust, merger and state aid. He was previously professor at Univ. Bologna (2007-2010), European University Institute, Florence (1998-2008) and UPF (1992-1998). He is Research Fellow of CEPR, of CESifo, and a Fellow of the European Economic Association. His research is on industrial organization and has been published in the top international journals. Massimo's book on *Competition Policy: Theory and Practice* (Cambridge, 2004) is the standard reference on antitrust. His new (co-authored) book on *Exclusionary Practices* (Cambridge, 2018) has just been published.

### Research interests

I have been working on practices - such as predation, rebates, exclusive contracts, tying, refusal to deal - that dominant firms may adopt to exclude rivals from the market. Building on original models, existing literature and case studies, the rationale and effects of such practices are studied in *Exclusionary Practices*, with C Fumagalli and C Calcagno (Cambridge, 2018). Related research with C Fumagalli investigates the incentives of a vertically integrated firm to refuse to deal with downstream rivals in markets which change over time. Another project (also with C Fumagalli) studies whether an incumbent firm's above-cost pricing may exclude less (or as-) efficient rivals in an anti-competitive way, and to what extent price-cost tests may be helpful. Another stream of work (with E Tarantino) deals with the effects of mergers on investment and innovation, a controversial issue in many high-profile merger cases.

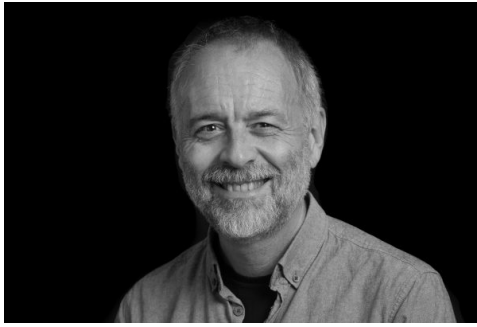
### Selected publications

- Fumagalli C & **Motta M** 2017, 'On the Use of Price-Cost Tests in Loyalty Discounts and Exclusive Dealing Arrangements: Which Implications from Economic Theory Should Be Drawn?', *Antitrust Law Journal*, Vol. 81, Issue 2, pp. 537-585.

### Selected research activities

Keynote talks:

- Día de la Competencia, Fiscalía Nacional Económica, Santiago de Chile
  - Escuela Iberoamericana de Competencia, Comisión Nacional de Mercados y Competencia, Madrid
  - Annual Conference of CRESSE, Crete
  - Annual Conference of the Leibniz ScienceCampus MaCCI - University of Mannheim
- Organisation of intensive courses (Barcelona Graduate School of Economics)
- "Quantitative methods for competition analysis",
  - "Competitive effects of mergers",
  - "Competition in pharmaceuticals and healthcare services".



**Salvador Moyà-Solà**  
 Institut Català de Paleontologia (ICP)  
 Life & Medical Sciences

PhD in Geological Sciences by the Universitat Autònoma de Barcelona in 1983. Researcher of the Institute of Paleontology M. Crusafont from 1985 to 2005. ICREA Research Professor in the Unit of Biological Anthropology of the Faculty of Biosciences of the Universitat Autònoma de Barcelona in 2006. ICREA Research Professor and Director of the Catalan Institute of Palaeontology (Bellaterra-Sabadell) since 2006. He participates in several national and international projects, among them the RHOI Project (Revealing Hominid Origin Initiative, directed by Dr. T.D. White from the University of California at Berkeley (USA)). He has published more than 300 papers in journals like Science, Nature, PNAS, Trends in Ecology and Evolution, Brain Behaviour and Evolution, Biological Journal of the Linnean Society, American Journal of Anthropology, and many others.

### Research interests

My main research interest is Hominoid (Primates) evolution in the context of the Neogene climatic change, considering faunistic and paleoecological context. The main objective is to reconstruct their evolutionary history, in particular the origin and first radiation of this group. This discussion currently tackles the question of the role of the Mediterranean area as the cradle of Hominidae (great ape and human clade) and of the two main clades that form this group, the Asian (Pongo) and the African one (Pan, Gorilla and Homo). The Vallès-Penedès Neogene basin yields an outstanding record between 15 and 8 Ma that permits to reconstruct the 7 million years of evolution of this group on the European continent. Currently the interest is centred on the section of Els Hostalets de Pierola (Anoia, Barcelona). The final objective is to determine if Hominoids, as currently defined, is a monophyletic group or they're originated independently from more primitive non-orthograde forms.

### Selected publications

- Minwer-Barakat R, Marigo J, Femenias-Gual J, Costeur L, De Esteban-Trivigno S & **Moya-Sola S** 2017, 'Microchoerus hookeri nov sp., a new late Eocene European microchoerine (Omomyidae, Primates): New insights on the evolution of the genus Microchoerus', *J. Hum. Evol.*, 102, 42 - 66.
- Madurell-Malapeira J, Alba D, Espigares MP, Vinuesa V, Palmqvist P, **Martinez-Navarro B** & **Moya-Sola S** 2017, 'Were large carnivorans and great climatic shifts limiting factors for hominin dispersals? Evidence of the activity of *Pachycrocuta brevirostris* during the Mid-Pleistocene Revolution in the Vallparadis Section (Valles-Penedes Basin, Iberian Peninsula)', *Quat. Inter.*, 431, B, 42 - 52.
- Femenias-Gual J, Minwer-Barakat R, Marigo J, Poyatos-More M & **Moya-Sola S** 2017, 'Agerinia marandati sp nov., a new early Eocene primate from the Iberian Peninsula, sheds new light on the evolution of the genus Agerinia', *PeerJ*, 5, e3239.
- Lucenti SB, Alba DM, Rook L, **Moya-Sola S** & Madurell-Malapeira J 2017, 'Latest Early Pleistocene wolf-like canids from the Iberian Peninsula', *Quaternary Science Reviews*, 162, 12 - 25.
- Ruiz-Ramoni D, Rincon AD, Solorzano A & **Moya-Sola S** 2017, 'The first fossil Platyrrhini (Primates: Anthropeida) from Venezuela: A capuchin monkey from the Plio-Pleistocene of El Breal de Orocuál', *J. Hum. Evol.*, 105, 127 - 131.
- Ibáñez-Gimeno P, Manyosa J, Galtés I, Jordana X, **Moyà-Solà S** & Malgosa A 2017, 'Forearm rotational efficiency in A.L. 288-1 (*Australopithecus afarensis*) and MH2 (*Australopithecus sediba*): Insights into their locomotor and manipulative habits', *Amm Jour. Phys. Anthropol.* 164,4: 788-800.
- Femenias J, Marigo J, Minwer-Barakat R & **Moyà-Solà S** 2017, 'New dental and postcranial material of *Agerinia smithorum* (Primates, Adapiformes) from the type locality Casa Retjo-1 (early Eocene, Iberian Peninsula)', *J. Hum. Evol.*, 113, 127 - 136.





## Aitor Mugarza

Institut Català de Nanociència i Nanotecnologia (ICN2)  
Engineering Sciences

Aitor Mugarza graduated and obtained his PhD in Physics both at the University of Basque Country. After his doctoral studies, he was awarded a Marie Curie fellowship to work as a postdoctoral scientist at the Lawrence Berkeley National Laboratory, USA, and at the Materials Science Institute of Barcelona (ICMAB). He later joined the Catalan Institute of Nanoscience and Nanotechnology-ICN2 (formerly ICN) starting as a Ramon y Cajal Fellow in 2007, and as Tenure Track Group Leader of the Atomic Manipulation and Spectroscopy Group at ICN2 since 2013. He is author of 58 articles, and of more than 40 invited talks at international conferences, universities and schools. His research activity is based on the investigation of quantum properties of matter on the nanoscale, and developing strategies to manipulate them with atomic precision.

### Research interests

The research interests of Aitor Mugarza focus on the atomic-scale engineering of the quantum properties of novel nanomaterials. At the nanoscale, the properties of materials are dominated by quantum effects and interfacial phenomena, which impose strong limitations on the control and reproducibility of device performances, but also open up avenues for engineering new physical properties. The aim of Aitor Mugarza and his group is to understand and control quantum phenomena with atomic precision by chemical and structural manipulation, nanostructuring and interfacing materials that are identified as strategic in the roadmap for new technologies (hybrid metal-organic heterostructures, graphene-based 2D materials, topological insulators...).

### Selected publications

- Parreiras SO, Gastaldo M, Moreno C, Martins M D, Garcia-Lekue A, Ceballos G, Paniago R & **Mugarza A** 2017, 'Symmetry forbidden morphologies and domain boundaries in nanoscale graphene islands', *2D Mater.*, 4, 025104.
- Bonell F, Cuxart MG, Song K, Robles R, Ordejon P, **Roche S, Mugarza A & Valenzuela SO** 2017, 'Growth of Twin-Free and Low-Doped Topological Insulators on BaF<sub>2</sub>(111)', *Crystal Growth & Design*, 17, 9, 4655 - 4660.
- Lerch A, Fernández L, Ilyn M, Gastaldo M, Paradinas M, Valbuena M A, **Mugarza A**, Ibrahim ABM, Sundermeyer J, Hoefler U & Schiller F 2017, 'Electronic Structure of Titanylphthalocyanine Layers on Ag(111)', *J. Phys. Chem. C*, 121, 25353–25363.

### Selected research activities

#### Organization of conferences:

- Chairman of the Organizing Committee of the first "Spain-Taiwan International Workshop on 2D Materials and Interfaces for Spintronics", October 23-25, 2017, Barcelona (Spain).

#### Invited talks:

- "Manipulating charge and spin of single molecules by chemical doping", International Conference on Operating Quantum States in Atoms and Molecules at Surfaces, September 10-14, 2017, Ascona (Switzerland)
- "Spin-dependent electron scattering in 2D electron systems", Nanospain, March 7-10, 2017, Donostia (Spain).
- "Charge and spin manipulation at hybrid organic/metal and organic/topological insulator interfaces", Technical University of Dortmund, November 16, 2017, Dortmund (Germany).
- "Electron confinement on surfaces studied by scanning tunneling spectroscopy", Instituto de Ciencia de Materiales de Aragón, May 26, 2017, Zaragoza (Spain).



## Kilian Muñiz

Institut Català d'Investigació Química (ICIQ)  
Experimental Sciences & Mathematics

Kilian Muñiz is an ICREA Research Professor at the Institute of Chemical Research of Catalonia (ICIQ), in Tarragona. He was born in 1970 in Hildesheim, Germany. From 1990 to 1996 he studied Chemistry at the Universities of Hannover (Germany), Oviedo (Spain) and Imperial College London (UK), and in 1996 he graduated with a Diploma in Chemistry from Hannover University. From 1996 to 1998 he worked in the group of Prof. Carsten Bolm at the RWTH Aachen (Germany) to obtain his PhD in Organic Chemistry. In 1999/2000 he carried out research as a postdoctoral associate with Prof. Ryoji Noyori at Nagoya University (Japan). He started his independent research in 2001 at Bonn University (Germany) as a Liebig fellow and defended his Habilitation Thesis in 2005. The same year he moved to the University of Strasbourg as an Associate Professor. He was promoted to Full Professor in 2006. In November 2009 he moved to Spain and joined ICIQ as Group Leader. He has been with ICREA since 2010.

### Research interests

Our research deals with the discovery of novel chemical transformations to provide direct access to nitrogen containing molecules, which are key players in a variety of compounds of biological, medicinal and pharmaceutical interest. Recently, the group has started to devise entirely new oxidative amination reactions based on transformations that do not require any metal promoters. To this end, defined monomeric hypervalent iodine reagents in the unusual iodine oxidation state of +III incorporating unprecedented iodine-nitrogen bonds were developed. These serve as versatile tools in a variety of novel amination reactions comprising all common hydrocarbon entities. An enantioselective version has already found application in the synthesis of relevant pharmaceuticals. This chemistry is continuously expanded to other iodine catalyses in order to generate effective conceptual tools for advanced oxidation at different stages of chemical synthesis.

### Selected publications

- **Muñiz K**, Barreiro L, Romero RM & Martínez C 2017, 'Catalytic Asymmetric Diamination of Styrenes', *J. Am. Chem. Soc.*, 139, 4354-4357
- Becker P, Duhamel T, Stein CJ, Reiher M & **Muñiz K** 2017, 'Cooperative Light-Activated Iodine and Photoredox Catalysis for the Amination of C-sp<sup>3</sup>-H Bonds', *Angewandte Chemie-international Edition*, 56, 27, 8004 - 8008.
- Becker P, Duhamel T, Stein CJ, Reiher M & **Muñiz K** 2017, 'Kooperative Licht-aktivierte Iod- und Photoredox-Katalyse zur Aminierung von Csp<sup>3</sup>-H Bindungen', *Angewandte Chemie*, 129, 27, 8117 - 8121.
- Zhang H & **Muñiz K** 2017, 'Selective Piperidine Synthesis Exploiting Iodine-Catalyzed C-sp(3)-H Amination under Visible Light', *ACS Catalysis*, 7, 6, 4122 - 4125.
- Aertker K, Rama RJ, Opalach J & **Muñiz K** 2017, 'Vicinal Difunctionalization of Alkenes under Iodine(III) Catalysis involving Lewis Base Adducts', *Advanced Synthesis & Catalysis*, 359, 8, 1290 - 1294.
- **Muñiz K**, Garcia B, Martinez C & Piccinelli A 2017, 'Dioxiodane Compounds as Versatile Sources for Iodine(I) Chemistry', *Chemistry-a European Journal*, 23, 7, 1539 - 1545.

### Selected research activities

Thieme SYNTHESIS Best Paper Award for 2016

Main Organizer of the Spanish-Japanese Symposium on Modern Synthetic Methodology, Gijón, 24-26 April 2017

Main Organizer of the Spanish-German Symposium on Frontiers in Chemistry, Tarragona, 25-27 September 2017

Main Organizer of the Organic Symposium at the Spanish Royal Society Chemistry (RSEQ) Meeting, Sitges, 27-29 June 2017

Co-Organizer of the Barluenga Lectureship, Oviedo, 9-10 November 2017

Co-Organizer of the ICIQ Summer School 2017

Guest Editor for Special Issue on Hypervalent Iodine Chemistry in the *Journal of Organic Chemistry*

International Advisory Board Member, *Journal of Organic Chemistry* and *Chemical Record*

Plenary, Keynote and Invited Lectures at international conferences and research institutions

Mentor of three successful PhD defenses in 2017

Teacher in the ICIQ-URV Master Programme



**Pura Muñoz-Cánoves**  
 Universitat Pompeu Fabra (UPF)  
 Life & Medical Sciences

Pura Muñoz-Cánoves studied Pharmacology in the University of Valencia. She obtained her PhD in 1990 in the Autonomous University of Madrid for work carried out at The Scripps Research Institute (La Jolla, USA). She did postdoctoral work at the University of California-San Diego and The Scripps Research Institute, and in 1994 she joined the Cancer Research Institute in Barcelona as a postdoc, becoming an independent group leader in 1997. In 2002 her group moved to the Center for Genomic Regulation (CRG) in Barcelona, and she became a senior scientist in 2007 in that Institution. Late 2008 she moved to the Pompeu Fabra University (UPF) after becoming an ICREA Research Professor. Through the UPF, she holds a collaborative agreement with the Spanish National Center on Cardiovascular Research. Her research focuses on deciphering the mechanisms regulating skeletal muscle regeneration and growth, in physiology and disease.

### Research interests

Our main objective is to understand the mechanisms regulating stem cell homeostasis and regenerative functions: how stem cells maintain quiescence, are activated, transit to proliferative expansion and differentiation, and finally self-renew, and how they interact with the external inflammatory environment. Research is specially focused on stem cells of skeletal muscle. Recent studies from the laboratory have shed light on 1) age-associated muscle decline and wasting (sarcopenia) and loss of stem-cell regenerative functions with aging; and 2) the physiopathology of muscular dystrophies, with a specific interest in the contribution of inflammation and fibrosis to dystrophy progression. These findings are relevant for regenerative medicine.

### Selected publications

- Bengal E, Perdiguero E, Serrano AL & **Muñoz-Cánoves P** 2017, 'Rejuvenating stem cells to restore muscle regeneration in aging.' *F1000Res.* 25;6:76
- García-Prat L, **Muñoz-Cánoves P** & Martínez-Vicente M 2017, 'Monitoring Autophagy in Muscle Stem Cells'. *Methods Mol Biol.*, 1556:255-280.
- Testoni G, Duran J, García-Rocha M, Vilaplana F, Serrano AL, (...) **Muñoz-Cánoves P** & Guinovart JJ. 2017, 'Lack of Glycogenin Causes Glycogen Accumulation and Muscle Function Impairment', *Cell Metab.*, 1:256-266
- Serrano AL & **Muñoz-Cánoves P** 2017, '**Fibrosis development in early-onset muscular dystrophies**', *Semin Cell Dev Biol*, 64:181-190
- Garcia-Prat L & **Munoz-Canoves P** 2017, 'Aging, metabolism and stem cells', *Molecular And Cellular Endocrinology*, 15;445:109-117
- Garcia-Prat L, Sousa-Victor P & **Munoz-Canoves P** 2017, 'Proteostatic and Metabolic Control of Stemness', *Cell Stem Cell*, 20:593-608
- Lopez-Luppo M, (...) **Munoz-Canoves P**, Nacher V & Ruberte J. 2017, 'Cellular Senescence Is Associated With Human Retinal Microaneurysm Formation During Aging', *Investigative Ophthalmology & Visual Science*, 7:2832-2842
- Romero-Moya D, Santos-Ocana C, (...), Perdiguero E, (...), **Munoz-Canoves P**, Artuch R, Navas P & Menendez P 2017, 'Genetic Rescue of Mitochondrial and Skeletal Muscle Impairment in an Induced Pluripotent Stem Cells Model of Coenzyme Q(10) Deficiency', *Stem Cells*, 7:1687-1703
- Perdiguero E, Serrano AL & **Munoz-Canoves P** 2017, 'Cilia Control Fat Deposition during Tissue Repair', *Developmental Cell*, 2:114-116
- Solanas G, Peixoto FO, Perdiguero E, Jardí M, Ruiz-Bonilla V, (...) Sassone-Corsi P, **Muñoz-Cánoves P** & Benitah SA 2017, 'Aged Stem Cells Reprogram Their Daily Rhythmic Functions to Adapt to Stress.' *Cell*. 170:678-692

### Selected research activities

- Keystone Symposia on Inflammation and Fibrosis. USA.
- International Society of Stem Cell Research. Switzerland.
- Gordon Conference, Myogenesis. Italy.
- Gordon Conference, Biology of Aging. Switzerland.
- ConBio, Japan.



## Silvia Muro

Institut de Bioenginyeria de Catalunya (IBEC)  
Life & Medical Sciences

Dr. Muro obtained her PhD in Sciences from *Universidad Autónoma de Madrid* and then moved to University of Pennsylvania as a Postdoctoral Associate and Research Assistant Professor in Pharmacology. In 2008 she joined the Bioengineering Department and the Institute for Bioscience and Biotechnology Research at the University of Maryland, where she was a tenured Associate Professor since 2012. Since November 2017, she is an ICREA Professor in the Institute for Bioengineering of Catalonia. Dr. Muro has published 80+ articles and chapters in drug delivery and has received awards from the Controlled Release Society, the American Society for Nanomedicine, the UMD Outstanding Life Sciences Invention in 2011, the Junior Faculty Outstanding Engineering Research award, and is a member of the NIH Nanotechnology Study Section.

### Research interests

Dr. Muro's research sits at the interface between molecular-cellular biology and nanotechnology-drug delivery. Her lab studies the biological mechanisms ruling how our cells and tissues transport cargoes to precise destinations within our bodies, and then applies this knowledge toward the design of "biologically-controlled" nanodevices for improved delivery of therapeutic agents to specific disease sites. Focusing on genetic conditions that cause metabolic, neurodegenerative and cardiovascular syndromes, as well as on a new transport pathway she helped discover, her goal is to gain non-invasive, efficient, and specific access within the body and its cells, to enable effective treatment of these life-threatening disorders and other maladies characterized by similar pathological traits.

### Selected research activities

In 2017 and through her affiliation in University of Maryland, Prof. Muro was awarded a \$1.5 million, 4-year R01 grant from the U.S. National Institute of Health for the project entitled "*Targeted replacement of defective lysosomal enzymes in the lung and brain*", which aims to design new nanomedicine approaches to treat lysosomal disorders, a group of inherited and fatal conditions whose treatment remains largely unresolved.

She was also awarded a *Maryland Innovation Initiative* award from State of Maryland Technology Development Corporation, to develop a new fusion-enzyme therapeutic to treat types A-B Niemann-Pick disease, and she secured a Collaborative Research Agreement with *Genisphere LLC*, a nano-bio-technology company based on Pennsylvania, to advance a new 3DNA-based drug-carrier platform for diverse therapeutic applications.

Prof. Muro's Maryland group published 7 articles in 2017, among them a highly innovative work (*Kim et al., Biomaterials. 2017 Dec;147:14-25*) describing for the first time the combination of targeting molecules and anti-phagocytic elements on the surface of drug nanocarriers, which significantly enhanced the specific tissue uptake of these therapeutic devices in preclinical animal models.

Two of Prof. Muro's U.S. patents, filed through University of Pennsylvania, were granted in 2017 ("*Targeted nanocarriers for intracellular drug delivery*" and "*Targeted protein replacement for the treatment of lysosomal storage disorders*").

She was also an invited speaker in the Frontiers in CNS Drug Delivery Symposium held in Berlin (Germany) and the Gordon Research Conference on Lysosomal Diseases held in Barga (Italy), and after joining ICREA and her host institution, IBEC, Prof. Muro participated as a keynote speaker in the International NanoBio&Med Conference 2017, where she spoke of "*Receptor-targeted drug delivery: biological mechanisms and applications*".



**Toni Naco del Hoyo**  
 Universitat de Girona (UdG)  
 Humanities

Prof. Toni Naco del Hoyo (PhD 1996, Barcelona) is an Ancient Historian of the Classical World. A former Fulbrighter (UC Berkeley, 2004), before joining ICREA in 2009 he held Catalan and Spanish funded postdoctoral positions at Wolfson College Oxford (1998-2002), where he remains a member, as well as a Ramón y Cajal Fellowship at UAB (2004-9). Research awards as PI: H.F. Guggenheim Foundation (2007), RICIP (2010; 2012-3), Spanish Government R+D Grants (2011-3; 2015-8), Acción Complementaria (2011), ARCS (2012), Icrea Conference Award (2012), Margo Tytus Visiting Fellowship at Cincinnati (summer 2014). Since 2012 he has been yearly Visiting Scholar at the Classics Faculty (Oxford). He has supervised 4 already finished PhD dissertations. In September 2015 he moved to Universitat de Girona, where he is currently a member of the Executive Commission of the Doctorate Programme in Humanities.

### Research interests

As an ancient historian, Prof. Naco del Hoyo mostly deals with the Hellenistic and Roman Republican periods. Thanks to Spanish funding (currently prorogued for 2018), he is leading a team on the history and the archaeology of the Roman intervention in the West (NE Hispania) from the financial and military logistic standpoints. Also, he has conducted research on collateral damage, garrisoning strategies, asymmetrical warfare, military intelligence, crisis management, international relations and peacebuilding studies in the Classical World, and last but not least he has recently revisited his old work on Roman Republican taxation. He has most recently co-edited a book on Rome's military intervention in pre-Sertorian Hispania (Barcelona 2017). Likewise, in December 2017 a co-edited volume on War, Warlords and Interstate relations in the Ancient Mediterranean was published by Brill Ed. (Leiden-Boston), with a high profile line-up of multidisciplinary contributors.

### Selected publications

- Principal J, **Naco del Hoyo T**, Duran M & Mestres I (eds.) 2017, *Roma en la Península Ibérica presertoriana. Escenarios de implantación militar provincial*, Colección Instrumenta, Barcelona. 256 pp.).
- **Naco del Hoyo T** 2017, "'Conectividad', integración militar y 'estrés bélico' en el N.E. de Hispania Citerior (c.125-100 a.C.)', in Principal J, **Naco del Hoyo T**. et al. (eds.), *Roma en la Península Ibérica presertoriana....* Barcelona. pp. 17-38.
- Principal J, **Naco del Hoyo T**, Mestres I, Duran M 2017, 'Presentación', in Principal J, **Naco del Hoyo T**, et al. (eds.), *Roma en la Península Ibérica presertoriana....*Barcelona. pp. 9-11.

### Selected research activities

- 1 PhD Thesis examined as a co-supervisor: Dr Pau Valdés, 'La logística del ejército romano durante la República Media' (UB, 28th July), cum laude, and 2 Master Dissertations examined as supervisor: Mr Gerard R. Ventós and Mr Ferran Sisa (UdG, 12th September).
- Conference papers and lectures presented in New York, Barcelona, Ghent, UdG, Bochum, Cambridge (UK).
- 3 research stays as a *Visiting Scholar (Classics, Oxford Univ.)*, several weeks each.
- Organisation of *II Colloquium Libera Res Publica. Forum of Spanish Historians of the Roman Republic* (Girona, 21-2 Sep 2017).
- Member of the *International Network 'Structural Determinants of Economic Performance in the Roman World'* (Ghent - Brussels, 2017-2021).
- Member of Editorial Board: 'EMPÚRIES. Revista de prehistòria, arqueologia i etnologia' (Museu d'Arqueologia de Catalunya).



**Rosemarie Nagel**  
Universitat Pompeu Fabra (UPF)  
Social & Behavioural Sciences

Rosemarie Nagel received her PhD in economics in 1994 from the University of Bonn with Reinhard Selten as her advisor. In 1994-1995 she was post doc with Al Roth, University Pittsburgh. Since 1995 she has been working in the Department of Economics and Business in Universitat Pompeu Fabra; in 2006 she was promoted to full professor and in 2007 she joined ICREA as a research professor. Her main research is in experimental and behavioral economics, especially in macro economic experiments and in neuro economics. She has published in the American Economic Review, Econometrica, Review of Economic Studies, Economic Journal, Proceedings of the National Academy of Sciences (PNAS), Financial Times, Spektrum der Wissenschaft, etc.

### Research interests

I work in the area of experimental economics focusing on simplified economic situations of risk, coordination and competition. I develop descriptive models departing from game theory and decision theory, introducing knowledge from psychology and neurosciences related to theory of mind. I link behavioural data created in experiments with brain activity gained through functional magnetic resonance imaging (fMRI) or eye-tracking data co-working with cognitive scientists, neuro-scientists, biologists, and psychologists. Furthermore, with other experimental economists and macro theorists I promote the interaction between the two groups with summer schools, workshops, and research using experimental tools to tackle macro questions. Finally, with colleagues from UPF we integrate economic experiments as teaching tools in undergraduate courses to better understand the mathematical models and show the relationship between students' own behavior in economic experiments and theoretical outcomes.

### Selected publications

- Nagel RC, Buehren C & Bjöm F 2017, 'Inspired and Inspiring: Hervé Moulin and the discovery of the beauty contest game', *Mathematical Social Science*, 90, 191 - 207.
- Levine SS, Bernard M & Nagel R 2017, 'Strategic Intelligence: The Cognitive Capability to Anticipate Competitor Behavior', *Strategic Management Journal*, 38, 12, 2390 - 2423.

### Selected research activities

#### Invited speaker in:

- Cambridge INET Institute: IBSEN Workshop on Large Scale Experiments.
- Workshop on Microfoundations of Expectations in MPI Leizig for Mathematics in the Natural Sciences.
- Amsterdam workshop on Handbook of Computational Economics, Heterogeneous Agent models.
- Contributed session of the 70th European Meeting of the Econometric Society.



## Mario Nemirovsky

Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC - CNS)  
Engineering Sciences

Mario Nemirovsky is an ICREA Research Professor at the Barcelona Supercomputing Center, where he has been since 2007. He received his PhD in ECE from University of California, Santa Barbara, in 1990. Presently he is conducting pioneering work in the area of IoT (Fog as platform for IoT and HEB - Hierarchical Emergent Behaviors), Disaggregated Computing, HPC, Memory systems, Cloud Computing. He holds 65 USA patents. During his tenure with the University of California, Santa Barbara, Mario co-authored seminal works on simultaneous multithreading. Mario has made key contributions to other areas of computer architecture, including high performance, real-time, and network processors. He founded Miraveo Inc., Vilynx Inc., ConSentry Networks Inc., Flowstorm Inc. and XStream Logic Inc. Before that, he was a chief architect at National Semiconductor, PI Researcher at Apple Computers, and Chief Architect at Weitek Inc. and Delco Electronics, General Motors (GM).

### Research interests

- Internet of the Things (IoT)
- Fog Computing
- Hierarchical Emergent Behaviors
- Cloud computing
- Disaggregated Computing
- Multithreaded Architectures
- High performance processors
- Real time architectures
- Performance Analysis and Evaluation
- New simulation methodologies

### Selected publications

- Roca D, Milito R, **Nemirovsky M** & Valero M 2017, 'Tackling IoT Ultra Large Scale Systems: Fog Computing in Support of Hierarchical Emergent Behaviors', *Fog Computing in the Internet of Things*, pp. 33-48, Springer International Publishing.
- Roca D, Nemirovsky D, **Nemirovsky M**, Casas M, Moreto M & Valero M 2017, 'iQ: An Efficient and Flexible Queue-based Simulation Framework', in *IEEE 25th International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (Mascots)*.
- Nemirovsky D, Arkose T, Markovic N, **Nemirovsky M**, Unsal O & Cristal A 2017, 'A Machine Learning Approach for Performance Prediction and Scheduling on Heterogeneous CPUs', *29th International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD)*.
- Meyer H, Sancho JC, Quiroga JV, Zylkyarov F, Roca D & **Nemirovsky M** 2017, 'Disaggregated Computing. An Evaluation of Current Trends for Datacentres', *Procedia Computer Science*, Volume 108, Pages 685-694.
- Roca D, Quiroga JV, Valero M & **Nemirovsky M** 2017, 'Fog Function Virtualization: A flexible solution for IoT applications', *Second International Conference on Fog and Mobile Edge Computing (FMEC)*, Valencia, Spain, pp. 74-80.



**László Neumann**  
 Universitat de Girona (UdG)  
 Engineering Sciences

I was born in 1955 in Budapest, Hungary. MSc. in Engineering and Mathematics, 1978 TU Budapest, Mechanical Engineering: computer tomography. PhD 1982, Applied Mathematics: economical modeling. Publications: conference proceedings 51, journals 32, 3 books, chapters in books 20, others 55. As a head of industrial departments and projects, I led research and software development in architectural CAD, cartography, medical imaging, 3D face modeling, color harmony design, and numerical methods. Between 1995-2007: visiting lecturer at TU Vienna. Since 2002 ICREA Research Professor. My strengths are the interdisciplinary approach, mathematical modeling and motivating people. I am member of over a dozen IPC and other committees.

### Research interests

My research has an interdisciplinary character in the common focus of computer imagery and applied mathematics. This wide field covers image processing, color science, computer graphics, computational photography and numerical methods. My profile in VICOROB at Universitat de Girona encompasses underwater and medical color image enhancement and visualization, efficient gradient domain solvers, illumination fusion, de-hazing and HDRI techniques. My most important results have been achieved here in the field of high quality large-area undersea image mosaicing. In this challenging field we computed the largest ever seamless deep-water gigamosaic images. After twelve years of thorough research, I am going to accomplish development of the Coloroid Renotation system and their applications, based on a huge amount of observations. On the other hand, in color research I am currently focusing on high-precision color calibration techniques of digital cameras with noise analysis.

### Selected publications

- Garcia R, Gracias N, Nicosevici T, Prados R, Hurtos N, Campos R, Escartin J, Elibol A, Hegedus R & **Neumann L** 2017, Chapter 4 - 'Exploring the Seafloor with Underwater Robots', in book *Computer Vision in Vehicle Technology: Land, Sea, and Air*, edited by Antonio M. Lopez and Atsushi Imiya and Tomas Pajdla and Jose M. Alvarez, John Wiley & Sons, ISBN 978-1-118-86807-2, pp.75-99.
- Gracias N, Garcia R, Campos R, Hurtos N, Prados R, Shihavuddin ASM, Nicosevici T, Elibol A, **Neumann L** & Escartin J 2017, Chapter 7 - 'Application Challenges of Underwater Vision', in book *Computer Vision in Vehicle Technology: Land, Sea, and Air*, edited by Antonio M. Lopez and Atsushi Imiya and Tomas Pajdla and Jose M. Alvarez, John Wiley & Sons, ISBN 978-1-118-86807-2, pp.133-159.
- Bianco G & **Neumann L** 2017, 'A fast enhancing method for non-uniformly illuminated underwater images', OCEANS '17 MTS/IEEE Conference, September 18-21, Anchorage, Alaska.
- Magdics M, Szirmay-Kalos L & **Neumann L** 2017, 'Gradient-Domain PET Reconstruction', *Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)*, 2017 IEEE, Atlanta, Georgia, USA, 21-28.
- Ancuti CO, Ancuti C, Devleeschouwer C, **Neumann L** & Garcia R 2017, 'Color transfer for underwater dehazing and depth estimation', *IEEE Int. Conference on Image Processing (IEEE ICIP)*, September 17-20, Beijing, China.
- Prados R, Garcia R, Gracias N, **Neumann L** & Vågstøl H 2017, 'Real-time Fish Detection in Trawl Nets', Proc. of the MTS/IEEE OCEANS 2017 Conference, Aberdeen, UK.





Konstantin M. Neyman  
Universitat de Barcelona (UB)  
Experimental Sciences & Mathematics

Konstantin Neyman is ICREA Professor at the Department de Ciència dels Materials i Química Física and the Institut de Química Teòrica i Computacional, Universitat de Barcelona, leading the group *Reactivity of Nanostructures*. He obtained his PhD in Chemistry from the Inst. of Inorganic Chemistry in Novosibirsk and completed his Habilitation (*Venia Legendi*) in Theoretical Chemistry at the Technische Universität München. He published a book, 10 reviews, over 180 articles in referred journals and has made 320 presentations at conferences and in universities, 115 of them as invited lectures. His publications were cited 6700 times, h-index = 47 since 1991. Before joining ICREA, Dr. Neyman held positions as a senior research associate in Germany: at the TU München, Ludwig-Maximilian Universität München and Fritz-Haber-Institut (Berlin) of the Max-Planck Society. He has contributed to the attraction of funds for more than 40 research projects.

### Research interests

My research group deals with modelling of advanced, in particular, nanostructured inorganic materials important for catalysis, hydrogen technology, energy storage and related applications. A general aim is to understand at the atomic level, by carrying out large-scale quantum mechanical computer calculations, how the structure and composition of a material are related with its function in a given chemical process. It is often hardly possible to obtain this information experimentally. Yet, its absence drastically hinders creation of materials with desired improved properties.

### Selected publications

- Wolfbeisser A, Kóvacs G, Kozlov SM, Föttinger K, Bernardi J, Klötzer B, **Neyman KM** & Rupprechter G 2017, 'Surface composition changes of CuNi-ZrO<sub>2</sub> catalysts during methane decomposition: An operando NAP-XPS and density functional study', *Catalysis Today*, vol 283, pp 134-143.
- Neitzel A, Kovács G, Lykhach Y, Kozlov SM, Tsud N, Skála T, Vorokhta M, Matolín V, **Neyman KM** & Libuda J 2017 'Atomic ordering and Sn segregation in Pt-Sn nanoalloys supported on CeO<sub>2</sub> thin films', *Topics in Catalysis*, vol 60, pp 522-532.
- Kovács G, Kozlov SM & **Neyman KM** 2017, 'Versatile optimization of chemical ordering in bimetallic nanoparticles', *J Phys Chem C*, vol 121, pp 10803-10808.
- Lykhach Y, Figueroba A, Skála T, Duchoň T, Tsud N, Aulická M, Neitzel A, Veltruská K, Prince KC, Matolín V, **Neyman KM** & Libuda J 2017, 'Redox-mediated conversion of atomically dispersed platinum to sub-nanometer particles', *J Mater Chem A*, vol 5, pp 9250-9261.
- Lykhach Y, Bruix A, Fabris S, Potin V, Matolínová I, Matolín V, Libuda J & **Neyman KM** 2017, 'Oxide-based nanomaterials for fuel cell catalysis: The interplay between supported Pt atoms and particles', *Catal Sci Technol*, vol 7, pp 4315-4345.
- Aleksandrov HA, Kozlov SM, Vayssilov GN & **Neyman KM** 2017, 'Approaching complexity of alkyl hydrogenation on Pd by density functional modelling', *Phys Chem Chem Phys*, vol 19, pp 21514-21521.
- Figueroba A, Bruix A, Kovács G & **Neyman KM** 2017, 'Metal-doped ceria nanoparticles: Stability and redox processes', *Phys Chem Chem Phys*, vol 19, pp 21729-21738.
- Brummel O, Waidhas F, Khalakhan I, Vorokhta M, Kovács G, Aleksandrov HA, **Neyman KM**, Matolín V & Libuda J 2017, 'Structural transformations and adsorption properties of PtNi nanoalloy thin film electrocatalysts prepared by magnetron co-sputtering', *Electrochim Acta*, vol 251, pp 427-441.

### Selected research activities

20 keynote/invited lectures at International conferences and university seminars. Successful PhD Thesis defence under my supervision. Scientific Committee Member of 3 Internat. conferences.



## Josep Nogués Sanmiquel

Institut Català de Nanociència i Nanotecnologia (ICN2)  
Engineering Sciences

ICREA Research Professor and Group Leader of the Magnetic Nanostructures group at the Institut Català de Nanociència i Nanotecnologia. Graduated in Physics from the Universitat Autònoma de Barcelona in 1986, earned his PhD in Condensed Matter Physics from the Royal Institute of Technology (Stockholm, Sweden) in 1993. He was post-doc fellow at the University of California San Diego from 1993 to 1997. From 1997-2001 research associate at the Universitat Autònoma de Barcelona and since 2001 ICREA Research Professor at the same university. In 2007 he moved to the ICN2 - Institut Català de Nanociència i Nanotecnologia. His research interests are on the magnetic properties of thin films, lithographed nanostructures and nanoparticles and the exchange coupling between dissimilar magnetic materials and magnetoplasmonic materials for biomedical applications.

### Research interests

We study the magnetic properties of different types of exchange coupled nanostructures, e.g., lithographically patterned structures and core-shell type nanoparticles. The idea is to use magnetic interactions that arise between different magnetic materials to improve the overall magnetic properties of the materials. We correlate the different structural, morphological or magnetic parameters with the enhanced magnetic properties. We also investigate magnetoplasmonic nanostructures for biomedical applications (e.g., hyperthermia).

### Selected publications

- Menéndez E et al. 2017, 'Lateral Magnetically Modulated Multilayers by Combining Ion Implantation and Lithography' *Small*, 3, 11, 1603465.
- Gonzalez JA et al. 2017, 'Maximizing Exchange Bias in Co/CoO Core/Shell Nanoparticles by Lattice Matching between the Shell and the Embedding Matrix', *Chem. Mater.*, 29, 12, 5200 - 5206.
- Fantechi E et al. 2017, 'Seeded Growth Synthesis of Au-Fe<sub>3</sub>O<sub>4</sub> Heterostructured Nanocrystals: Rational Design and Mechanistic Insights', *Chem. Mater.*, 29, 9, 4022 - 4035.
- De Toro JA et al. 2017, 'Remanence Plots as a Probe of Spin Disorder in Magnetic Nanoparticles', *Chem. Mater.*, 29, 19, 8258–8268.
- Quintana A et al. 2017, 'Voltage induced coercivity reduction in nanoporous alloy films: A boost towards energy-efficient magnetic actuation', *Adv. Funct. Mater.*, 27, 32, 1701904.
- Serrà A et al. 2017, 'Magnetically-actuated mesoporous nanowires for enhanced heterogeneous catalysis', *Appl. Catal. B*, 217, 81-91.
- Belec B et al. 2017, 'Novel Ba-hexaferrite structural variations stabilized on the nanoscale as building blocks for epitaxial bi-magnetic hard/soft sandwiched maghemite/hexaferrite/maghemite nanoplatelets with out-of-plane easy axis and enhanced magnetization', *Nanoscale*, 9, 44, 17551-17560.
- García-Muñoz JL et al. 2017, 'Unveiling a New High-Temperature Ordered Magnetic Phase in  $\epsilon$ -Fe<sub>2</sub>O<sub>3</sub>', *Chem: Mater.*, 29, 22, 9705-9713.

### Selected research activities

#### Selected Talks

##### Keynote

'Formation of Mn<sub>3</sub>O<sub>4</sub>/Fe<sub>3</sub>O<sub>4</sub> hollow oxide nanoparticles by galvanic replacement'

International Union of Materials Research Societies - Int. Conf. Advanced Materials; Japan

##### Invited

'Synthesis of Fe<sub>3</sub>O<sub>4</sub> nanorods using different approaches and their potential biomedical applications'

Int. Conf. Composites/Nano Engineering; Italy

'Understanding the synthesis of Au-Fe<sub>3</sub>O<sub>4</sub> heterostructures'

Autumn Japanese Society of Applied Physics; Japan

'Multifunctional magneto-plasmonic nanodomains for combined magnetic manipulation multi-modal imaging and photo-thermal therapies'

Collaborative Conf. Materials Research; Korea



## Sergei Odintsov

Institut de Ciències de l'Espai (CSIC - ICE)  
Experimental Sciences & Mathematics

ICREA Research Professor at ICE (CSIC-IEEC) since 2003. He wrote about 500 journal articles, with more than 34000 citations. Three ms written while in ICREA were cited more than 1000 times, 2 books and 6 articles-more than 500 times. Foreign Member of the Royal Norwegian Academy, member of European Phys. Soc. and Italian Grav. Soc. Awarded by Amaldi Gold Medal: European Prize for Gravitational Physics 2014. Editorial Board Member of six journals and referee of about 20 journals (with excellence certificates from PLB, EPL, PRD). Hirsh index  $h=92$ (Google Scholar) and  $h=86$ (inspirehep). Supervisor of 12 PhDs. Speaker/lecturer/participant of about 120 conf. and Org. Comm.member/organizer of about 40 int. workshops. Top Cited Thomson-Reuters Researcher in 2014, 2015,2016,2017,Web.of Science 2017 Award. Awarded by several short-term JSPS fellowships to conduct research at KMI, Nagoya Univ.

### Research interests

I develop the theory which should describe our universe history. My main purpose is to formulate the consistent alternative to Einstein gravity in order to resolve the fundamental puzzle of modern cosmology: why and how the universe accelerates? In fact, I proposed the first modified gravity which may describe the unification of the early-time inflation (including singular one) and late-time acceleration. We also proposed a bouncing universe in modified gravity as scenario that is alternative to the inflation. The alternative gravity we develop should describe the whole sequence of the universe eras: inflation, radiation-matter dominance and dark energy era with consistent transitions from one era to other era. The study of current universe should clarify its future: if it will expand eternally or if its evolution will be finished in the future singularity (actually much before via the disintegration of bound objects).

### Selected publications

- S.D. Odintsov and V.K. Oikonomou, 'Inflationary dynamics with a smooth slow-roll to constant-roll era transition', JCAP 1704(2017) 041
- Nojiri S, **Odintsov SD** & Oikonomou VK 2017, 'Ghost-free F(R) gravity with Lagrange multiplier constraint', Phys Lett B, 775,44-49
- Nojiri S & **Odintsov SD** 2017, 'Regular multi-horizon black holes in modified gravity with non-linear electrodynamics', Phys. Rev. D 96:104008
- Nojiri S, **Odintsov SD** & Oikonomou VK 2017, 'Constant-roll inflation in F(R) gravity', Class.Quant.Grav. 34 p.245012
- Addazi A, Nojiri S & Odintsov SD 2017, 'Evaporation and anti-evaporation instability of a Schwarzschild-deSitter braneworld: The case of five-dimensional F(R) gravity', Physical Review D95,124020
- **Odintsov SD** & Oikonomou VK 2017, 'Autonomous dynamical system approach for F(R) gravity', Physical Review D, 96:104049
- **Odintsov SD** & Oikonomou VK 2017, 'Early-time cosmology with stiff era from modified gravity', Physical Review D96(2017)104059
- **Odintsov SD** & Oikonomou VK 2017, 'Inflation with a smooth constant-roll to constant-roll era transition', Physical Review D96,024029
- Nojiri S & **Odintsov SD** 2017, 'Covariant generalized holographic dark energy and accelerating universe', Eur. Phys. J. C 77. 528.
- **Odintsov SD**, Saez-Gomez D & Sharov GS 2017, 'Is exponential gravity a viable description for the whole cosmological history?', Eur Phys J C 77.862
- Nojiri S, **Odintsov SD** & Oikonomou VK 2017, 'Modified Gravity Theories on a Nutshell:Inflation, Bounce and Late-time Evolution', Physics Reports 692, p.1-104

### Selected research activities

- Int.conf. on High-Energy Physics, Kuala-Lumpur, Feb;
- Gravitation and Cosmology, Rhodes, July;
- Geometric Foundations of Gravity, Tartu, Aug.;
- Inv. speaker at Quantum Vacuum and Cosmology, Segovia, Sept.;
- Modern Physics of Compact Stars, Erevan, Sept.;
- Symmetry, Barcelona, Oct.;
- Petrov Winter School, Kazan, December.



**Serena Olsaretti**  
Universitat Pompeu Fabra (UPF)  
Humanities

I studied at the University of Oxford where I obtained a BA in Philosophy, Politics and Economics, an MPhil and a PhD in Political Philosophy. I then moved to Cambridge where I was a Research Fellow at Emmanuel College before joining the Faculty of Philosophy and St. John's College. ICREA Research Professor at UPF since October 2010.

### Research interests

My work is in moral and political philosophy. I have worked on the ethics of markets, egalitarianism, and theories of well-being. Since September 2015, I am the PI of an ERC Consolidator project on "Justice and the Family. An Analysis of the Normative Significance of Procreation and Parenthood in a Just Society". The project examines what liberal egalitarian theorists of justice should think about how the costs and benefits of children should be distributed, both among contemporaries and across generations. I hold we need to address these relatively neglected questions to develop a complete and defensible theory of justice.

### Selected publications

- **Olsaretti S** 2017, 'Children as negative externalities?', *Politics Philosophy & Economics*, 16, 2, 152 - 173.
- **Olsaretti S** 2017, 'Liberal Equality and the Moral Status of Parent-Child Relationships', in Sobel D, Vallentyne P, Wall S (eds.), *Oxford Studies in Political Philosophy*, Volume 3, Oxford University Press.
- **Olsaretti S** 2017, 'Voluntariness, Coercion, Self-Ownership', in Schmidtz D & Pavel C (eds.), *The Oxford Handbook of Freedom*, Oxford University Press.

### Selected research activities

- Invited speaker at the European Congress for Analytic Philosophy, LMU University Munich; at the Institute of Futures Studies, Stockholm; at the New Scholarship on Population Ethics Conference, Duke University.
- Visiting Researcher, Institute for Futures Studies, Stockholm
- PI of ERC Consolidator Grant on *Justice and the Family: An Analysis of the Normative Significance of Procreation and Parenthood in a Just Society*



Ciara O'Sullivan  
Universitat Rovira i Virgili (URV)  
Engineering Sciences

Ciara O' Sullivan received a BSc in Analytical Chemistry from Dublin City University in 1992, a PhD in Biotechnology from Cranfield University in 1996 and then went on to lead the sensors group at University College Cork from 1996-99. She then took up a Marie Curie Fellowship at the Universitat Rovira i Virgili (1999-2001) and was then awarded a Ramón y Cajal Fellowship which she pursued for 1 year prior to taking up her current position as ICREA Research Professor and establishing the Nanobiotechnology and Bioanalysis Group at the Universitat Rovira i Virgili. She is group leader of the GENCAT funded Consolidated Group INTERFIBIO.

### Research interests

Her research interests lie in the development of electrochemical and optical biosensors exploiting advances in tailored biocomponents. Presently, her work focuses on reducing to practise cost-effective molecular diagnostics for screening and monitoring of disease, as well as on the development of aptamers for application in optical and electrochemical molecular aptamer beacons. The approaches for molecular diagnostics being developed include parallelised real-time electrochemical next generation sequencing, electrochemical array based primer extension and elongation for multiplexed SNP detection, multiplexed electrochemical miRNA detection and quantitative paper diagnostics as companion tools for the future paradigm of pharmacogenomics and personalised medicine.

### Selected publications

- Pourhassan H, Clergeaud G, Hansen AE, Østrem RG, Fliedner FP, Melander F, Nielsen OL, **O'Sullivan CK**, Kjær A & Andresen TL 2017, 'Revisiting the use of sPLA2-sensitive liposomes in cancer therapy', *Journal of Controlled Release*, 261, 163-173.
- Skouridou V, Jauset-Rubio M, **Ballester P**, Bashammakh AS, El-Shahawi MS, O Alyoubi AO & O'Sullivan CK 2017, 'Selection and characterization of DNA aptamers against the steroid testosterone', *Microchimica Acta*, 184:1631-1639
- Leonardo S, Rambla-Alegre M, Samdal IA, Miles CO, Kilcoyne J, Diogène J, **O'Sullivan CK** & Campàs M 2017, 'Immunorecognition magnetic supports for the development of an electrochemical immunoassay for azaspiracid detection in mussels', *Biosensors and Bioelectronics*, 92, 200-206.
- Acero Sanchez JL, Henry OYF, Joda H, Werne Solnestam B, Kvastad L, Johansson E, Akan P, Lundeberg J, Lladach N, Ramakrishnan D, Riley I & **O'Sullivan CK** 2017, 'Electrochemical genetic profiling of single cancer cells', *Analytical Chemistry*, 89(6), 3378-3385
- Svobodová M, Skouridou V, Botero ML, Jauset-Rubio M, Schubert T, Bashammakh AS, El-Shahawi MS, Alyoubi AO & **O'Sullivan CK** 2017, 'The characterization and validation of 17 $\beta$ -estradiol binding aptamers', *Journal of Steroid Biochemistry and Molecular Biology*, 167, 14-22.
- Debela AM, Svobodová M, Thorimbert S, Hasenknopf B, Ortiz M & **O' Sullivan CK** 2017, 'PCR incorporation of polyoxometalate modified deoxynucleotide triphosphates and their application in molecular electrochemical sensing of Yersinia Pestis', *Chemistry: A European Journal*, 23, 10597-10603.
- Rubio JM, El-Shahawi M, Bashammakh AS, Alyoubi AO & **O'Sullivan CK** 2017, 'Advances in aptamer based lateral flow assays', *TRAC*, 97, 385-398.

### Selected research activities

- Executive Editor, *Analytical Biochemistry*.
- Partner in H2020 NMBP-13-2017, **Project ID:** 767325, PoC in-office device for identifying individuals at high risk of Osteoporosis and osteoporotic fracture, **From** 2017-10-01 **to** 2021-09-30.
- Two PhD students defended PhD.



## Paolo Padoan

Universitat de Barcelona (UB)  
Experimental Sciences & Mathematics

Academic Degrees: PhD in Astrophysics, Niels Bohr Institute, Copenhagen, 1997 Degree in Astronomy, University of Padova, 1992  
Academic Positions: ICREA Research Professor, University of Barcelona, March 2010 - present Associate Professor, UC San Diego, June 2007 - February 2010 Assistant Professor, UC San Diego, June 2003 - June 2007 Postdoctoral Fellow, Jet Propulsion Laboratory, Caltech, 2001 - 2003 Postdoctoral Fellow, Harvard University, 1999 - 2001 Postdoctoral Fellow, INOAE, Puebla, 1998 - 1999

### Research interests

A major goal of my research is to understand the origin of stars. Star formation is a central problem in the study of galaxy evolution and cosmology. Stars are a dominant energy source to the interstellar medium of galaxies and control their chemical enrichment; the first massive stars in the universe contributed to its re-ionization. Because star-forming gas in galaxies is highly turbulent, the study of star formation involves the investigation of turbulence as well. A general theory of turbulence does not exist, but computer simulations provide valuable information on universal properties of turbulent flows. I conduct numerical experiments of super-sonic, self-gravitating magneto-hydrodynamic turbulence with physical parameters appropriate for describing star-forming gas in galaxies. Using adaptive mesh refinement methods, numerical simulations may span a huge range of scales, from the size of a galactic disk to that of an individual circumstellar disk.

### Selected publications

- **Padoan P**, Haugbolle T, Nordlund A & Frimann S 2017, 'Supernova Driving. IV. The Star-formation Rate of Molecular Clouds', *Astrophysical Journal*, 840, 1, 48.

### Selected research activities

- Organization of the Special Session SS9 at the conference EWASS 2017, Prague 26-30 June 2017.
- Member of the "Milky Way, ISM, and nearby galaxies" working group for the Origin Space Telescope.
- Six talks at international conferences.



## Emilio Palomares

Institut Català d'Investigació Química (ICIQ)  
Experimental Sciences & Mathematics

Emilio Palomares (València, 1974). He studied Biology at the Universitat de València (1997). After graduating he joined Prof. Hermenegildo García's group at the Universitat Politècnica de València where he got his PhD (2001). In 2001 he was awarded a "Marie Curie" Fellowship at Imperial College of London (UK). There he began his work with molecular devices for energy conversion, under the direction of Prof. James R. Durrant. In 2004 Emilio got a "Ramón y Cajal" Fellowship at the ICMol-UVEG. In April 2006 he took a position at ICIQ, where he currently leads a research group which is focussed on energy conversion devices. In 2009 he was awarded an ERC starting grant to work on quantum dots for energy conversion devices and a ERC PoC in 2015. In 2006, Prof. Palomares got the Young Chemist Award by the Spanish Royal Society of Chemistry and in 2010, the INNOVA 2010 Award by the SusChem Spanish Association.

### Research interests

My research is focused on several aspects of light induced electron transfer reactions in supramolecular structures and nanostructured inorganic materials. Such research activity has evolved towards the control and improvement of the reactions that govern the efficiency on molecular and supramolecular optoelectronic devices such as molecular solar cells - strategy which holds the promise for the achievement of low cost light-to-energy conversion devices- and the creation of new hybrid nanomaterials for hydrogen production and molecular based sensing devices to detect toxic substance on the environment. I'm personally also involved in promoting science and education in our society through chemistry workshops for primary and secondary schools. Last but not least, during the last years our group has contributed with efforts towards the use of nanomaterials for biomedical applications in human rare diseases.

### Selected publications

- Buglioni L, Riente P, **Palomares E** & Pericas MA 2017, 'Visible-Light-Promoted Arylation Reactions Photocatalyzed by Bismuth(III) Oxide', *European Journal Of Organic Chemistry*, , 46, 6986 - 6990.
- Montcada NF, Marin-Beloqui JM, Cambarau W, Jimenez-Lopez J, Cabau L, Cho KT, Nazeeruddin MK & **Palomares E** 2017, 'Analysis of Photoinduced Carrier Recombination Kinetics in Flat and Mesoporous Lead Perovskite Solar Cells', *Acs Energy Letters*, 2, 1, 182 - 187.
- Tao C, Van der Velden J, Cabau L, Montcada NF, Neutzner S, Kandada ARS, Marras S, Brambilla L, Tommasini M, Xu W, Sorrentino R, Perinot A, Caironi M, Bertarelli C, **Palomares E** & Petrozza A 2017, 'Fully Solution-Processed n-i-p-Like Perovskite Solar Cells with Planar Junction: How the Charge Extracting Layer Determines the Open-Circuit Voltage', *Advanced Materials*, 29, 15, 1604493.
- Jimenez-Lopez J, Cambarau W, Cabau L & **Palomares E** 2017, 'Charge Injection, Carriers Recombination and HOMO Energy Level Relationship in Perovskite Solar Cells', *Scientific Reports*, 7, 6101.
- Ryan J & **Palomares E** 2017, 'Photo-Induced Charge Carrier Recombination Kinetics in Small Molecule Organic Solar Cells and the Influence of Film Nanomorphology', *Advanced Energy Materials*, 7, 10, 1601509.
- Gelmetti I, Cabau L, Montcada NF & **Palomares E** 2017, 'Selective Organic Contacts for Methyl Ammonium Lead Iodide (MAPI) Perovskite Solar Cells: Influence of Layer Thickness on Carriers Extraction and Carriers Lifetime', *Acs Applied Materials & Interfaces*, 9, 26, 21599 - 21605.

### Selected research activities

- Invited Speaker en el SISF2017 (The 6th Sungkyun International Solar Forum 2017)Korea
- Invited Speaker "3rd International Conference on Perovskite Solar Cells and Optoelectronics"(PSCO17)Oxford
- XXXVI Reunión Bial de la Real Sociedad Española de Química/Coordinador en el Simposio" S2.Materiales Orgánicos Optoelectronicos para Conversión de Energía"
- Invited Talk at 10th European School on Molecular Nanoscience (ESMolNa2017)



Omiros Papaspiliopoulos  
 Universitat Pompeu Fabra (UPF)  
 Social & Behavioural Sciences

Previously to becoming ICREA Research Professor I had been Research Associate at Lancaster and Oxford University, Assistant Professor at Warwick University, and Professor at UPF. I am currently the director of the Masters in Data Science and the Data Science Center at Barcelona GSE. I have extensively published in the top journals in Statistics, have served as Associate Editor for several journals and as of January 2018 as Deputy Editor for *Biometrika*. I has delivered more than 80 invited talks, and given courses at ENSAE in Paris, the Berlin Mathematical School, the Department of Mathematics at University of Copenhagen, and the Engineering Department at Osaka University. In 2010 I was awarded the Royal Statistical Society's Guy Medal in Bronze, which is arguably the highest distinction in Statistics in Europe.

### Research interests

I develop modern statistical methodology appropriate for problems that arise in Economics, Finance, the Social Sciences and Biology. A unifying theme in my research is the statistical estimation of highly structured stochastic models from partially informative observations using computational methods. The work I do is at the intersection of Statistics, Machine Learning, Applied Probability and Applied Mathematics. I am interested in phenomena that exhibit temporal dependence that can be modelled using stochastic processes, e.g. stochastic differential equations, hidden Markov models, state-space models, and cross-sectional dependence, which can be modelled using networks and partial differential equations. I like Bayesian statistics. My research has focused on the development of new algorithms for statistical inference in such settings, and the theoretical analysis of their properties. In particular, I have worked extensively on Monte Carlo methods.

### Selected publications

- Agapiou S, **Papaspiliopoulos O**, Sanz-Alonso D & Stuart AM 2017, 'Importance Sampling: Intrinsic Dimension and Computational Cost', *Statistical Science*, 32, 3, 405 - 431.
- **Papaspiliopoulos O** & Rossell D 2017, 'Bayesian block-diagonal variable selection and model averaging', *Biometrika*, 104:2, 343-359.

### Selected research activities

#### Editorial activity:

*Biometrika*, *SIAM Journal of Uncertainty Quantification*, *Statistics and Computing*, *Bulletin of the Hellenic Mathematical Society*.

#### Leadership:

Scientific Director of the Master in Data Science, Barcelona Graduate School of Economics

Director of the Data Science Center at Barcelona Graduate School of Economics

Director of Data Science Summer School at Barcelona Graduate School of Economics

#### Seminars:

Department of Statistics, Newcastle University, May 2017

Department of Applied Mathematics, NTUA, June 2017

#### Invited talks at conferences and workshops:

Isaac Newton program on Statistical Foundations of Uncertainty Quantification for Inverse Problems, June 2017

#### Public lectures

What is Deep Learning and why everyone is talking about it, jointly with Alex Karatzoglou (Telefonica Research). Hub Events, March 2017, Athens, and Pasteur Institute, September 2017, Athens

#### Summer Schools:

Bayesian Machine Learning in Social Sciences

Instructors: Stephen Hansen (University of Oxford), Omiros Papaspiliopoulos (ICREA-UPF and Barcelona GSE), David Rossell





## Soraya Pelaz

Centre de Recerca en Agrigenòmica (Crag)  
Life & Medical Sciences

Born in Bilbao, started Biology studies in the Basque Country University but moved to Madrid to follow the Molecular Biology and Biochemistry specialty. She obtained her BSc at Autonomous University of Madrid (UAM) in 1989. For her PhD studies she joined Dr. Morata's laboratory at the CBM where she performed research on Developmental Genetics working with *Drosophila* with a Basque Predoctoral fellowship and got the PhD in 1993 at UAM. For her postdoctoral research she moved from flies to flowers by joining Dr. Yanofsky's laboratory at the University of California at San Diego. There she performed Developmental Biology on *Arabidopsis* with fellowships from the Spanish Ministry of Education and Science and from the Human Frontiers Science Program Organization. In 2001 she got a "Ramón y Cajal" contract at INIA in Madrid to establish her own line of research in Flower Development. In 2003 she joined ICREA and moved to Barcelona.

### Research interests

Floral induction is probably the most important process in plant development since it takes to the formation of flowers and fruits. Flowering must happen in a favorable time of the year to allow successful seed formation and reproduction. Our goal is to elucidate how plants know when to flower in response to a variety of external and endogenous signals and what genes are responsible for the flower development itself. Flowers are composed of four types of organs: sepals, petals, stamens and pistils, whose differentiation is the result of the coordinated action of different genes. Unraveling the intimate mechanisms governing these events became our main interest. As a consequence of our studies in plant development we lately focused on trichomes (plant hairs) as putative biofactories for anticancer and antimalarial compounds. We will generate hairy plants of species known for their anticancer properties with new compounds inside their trichomes to improve anticancer treatments.

### Selected publications

- Matias-Hernandez L, Jiang W, Yang K, Tang K, Brodelius PE & **Pelaz S** 2017, 'AaMYB1 and its orthologue AtMYB61 affect terpene metabolism and trichome development in *Artemisia annua* and *Arabidopsis thaliana*', *Plant Journal*, 90, 3, 520 - 534.

### Selected research activities

#### Funded Projects

- \* **Proyectos de I+D. Programa Estatal de Fomento de la Investigación Científica y Técnica de Excelencia. Subprograma Estatal de Generación de Conocimiento.** Evolution and Function of TEMPRANILLO in Plant Development and Adaptive Responses. MINECO (BFU2015-64409-P).
- \* Garante Researcher of **Centro de Excelencia Severo Ochoa** (SEV-2015-0533) awarded to Crag.
- \* **EXPLORA**. MINECO. "Hairy but Aromatic" plants: a possible solution to improve cancer treatment. (BIO2013-50388-EXP).
- \* **Torres Quevedo**. MINECO. Use of trichomes as "natural factories" for the pharmaceutical agriculture. A Crag-Sequentia Collaboration. (PTQ-13-06459).
- \* **SGR** (Grups de Recerca Reconeguts i Finançats). AGAUR. *Arabidopsis* Developmental Genomics. (2014-SGR-1406).

#### Outreach and Dissemination Activities

- \* Worldwide media coverage on our study about obtaining plants that double the production of artemisin. <https://www.cragenomica.es/outreach/transgenic-plants-against-malaria-in-the-media>
- \* "Mutant Plants" workshop for school children. <https://www.youtube.com/watch?v=JNHZFcQbXbo>
- \* 22<sup>a</sup> Dia de la ciència a las escoles. ¿Ojos, pelos...? ¿Hablamos de plantas? Institut d'Argentona. Argentona, Barcelona. November 15<sup>th</sup>
- \* Crag Open day, May 20<sup>th</sup>, 2017 (Fourth International Fascination of Plants Day). Experimental station of "Flowers and Hairs".



## Carles Pelejero

Institut de Ciències del Mar (CSIC - ICM)  
Experimental Sciences & Mathematics

Born in Barcelona in 1968, Carles Pelejero graduated in Chemistry at the Autonomous University of Barcelona in 1991, with a speciality in Organic Chemistry. He obtained his PhD in Chemistry at the University of Barcelona in 2000, doing research in the fields of paleoceanography and paleoclimatology through the study of molecular biomarkers in deep sea sediments. He then spent four years of postdoctoral research in Australia, at the Australian National University and Geoscience Australia. There, he developed new methodologies for the elemental and isotopic analysis of marine biogenic carbonates using MC-ICPMS and TIMS. In 2005 he moved to the Institut de Ciències del Mar (ICM-CSIC), in Barcelona, with a "Ramón y Cajal" contract. In October 2006 he was appointed ICREA Research Professor.

### Research interests

I am interested in understanding and quantifying how the marine environment and climate are changing today, in which ways they have changed in the past, and how will they influence marine organisms and ecosystems in the future. To this end, I analyse deep sea sediments and corals as archives of changes in the past, use systems to monitor the present, and run manipulative experiments in aquaria to simulate the future. A main environmental issue that I am currently studying is the progressive acidification of the oceans that is occurring due to the marine absorption of part of the CO<sub>2</sub> that humans are emitting to the atmosphere. I am also setting up culture-based systems to calibrate paleoceanographic proxies in corals, making use of the aquaria facilities at the ICM.

### Selected publications

- de la Fuente M, Calvo E, Skinner L, **Pelejero C**, Evans D, Müller W, Povea P & Cacho I 2017, 'The evolution of deep ocean chemistry and respired carbon in the Eastern Equatorial Pacific over the Last Deglaciation', *Paleoceanography*, vol. 32, pp 1371-1385.
- Aparicio FL, Nieto-Cid M, Calvo E, **Pelejero C**, López-Sanz A, Pascual J, Salat J, Sánchez-Pérez ED, De La Fuente P, Gasol JM, Marrasé C 2017, 'Wind-induced changes in the dynamics of fluorescent organic matter in the coastal NW Mediterranean', *Science of the Total Environment*, vol. 609, pp 1001 - 1012.

### Selected research activities

- PI of the MINECO Project SCORE: Sediments and cold water Corals to address key questions of the Oceans in the past: two case-study Regions and one Experiment (CGL2015-68194-R).
- Supervisor of the Marie Skłodowska-Curie Individual Fellowship, European Commission Horizon 2020 to Lydia Kapsenberg for the project EVOMA: The influence of Environmental Variability On Mussel Aquaculture and adaptation in the context of global ocean change (H2020-MSCA-IF-2016, C.N. 747637).
- Coordinator of the Research Group on Marine Biogeochemistry and Global Change. Generalitat de Catalunya (2014SGR1029).
- Participant of the European Commission Horizon 2020 Project CERES: Climate change and European aquatic RESources (H2020-B-2015-2, C.N. 678193).
- Lecturer of the class 'Oceans turning sour and breathless in the Anthropocene' and supervision of students on the topic "Anthropogenic effect (warming, acidification, deoxygenation, changes in primary production)" in the 2017 edition of the Ramon Margalef Summer Colloquia, ICM-CSIC, Barcelona.
- Conferences: "Experimental paleo-proxy calibration in the cold water coral *Desmophyllum dianthus*". 5<sup>th</sup> PAGES Ocean Sciences Meeting, Zaragoza, Spain; "Multi-proxy experimental calibration in cold water corals for high resolution paleoreconstructions", AGU Fall Meeting, New Orleans, US.



## Miguel Pérez-Enciso

Universitat Autònoma de Barcelona (UAB)  
Life & Medical Sciences

I am a Biologist and obtained my PhD in 1990 in Genetics (Universidad Complutense, Madrid). After that I moved to the USA and France during three years to carry out post doctoral studies, specializing in Bayesian Statistics applied to Animal Breeding and Quantitative Genetics. I worked at the Institut de Recerca i Tecnologia Agroalimentaria (IRTA) from 1993 - 1999 and at INRA (Toulouse, France) from 1999 til 2003, when I became an ICREA Research Professor. I am also part-time professor in Universitat Autònoma of Barcelona, and I am currently based at Centre for Research in Agricultural Genomics (CRAG) on UAB campus.

### Research interests

Most of the genes that are of socioeconomic importance, e.g., genes affecting disease susceptibility or that makes Iberian pig meat taste good, are very difficult to find because they are influenced by many genes of small effect. My main area of research is to develop statistical and computational tools that help us to identify these genes, now using high throughput sequencing technology. A topic of particular interest is combining different sources of molecular information, including complete genome sequence, to predict genetic merit. I am also concerned with studying how man has shaped the pattern of genetic variation in livestock species, mainly in the pig, through domestication and artificial selection, and how pigs have adapted to extreme environments. I participated in the consortium leading to the publication of the pig genome sequence (Nature, 2012) and I am responsible for the first genome sequence of an ancient pig, a sow that lived in the 16th century in Montsoriu Castle (Girona) and of the first Iberian pig genome.

### Selected publications

- **Perez-Enciso M**, Forneris N, de los Campos G & Legarra A 2017, 'Evaluating Sequence-Based Genomic Prediction with an Efficient New Simulator', *Genetics*, 205, 2, 939 - 953.
- **Perez-Enciso M** 2017, 'Animal Breeding learning from machine learning', *Journal Of Animal Breeding And Genetics*, 134, 2, 85 - 86.
- **Perez-Enciso M**, de los Campos G, Hudson N, Kijas J & Reverter A 2017, 'The 'heritability' of domestication and its functional partitioning in the pig', *Heredity*, 118, 2, 160 - 168.
- Leno-Colorado J, Hudson NJ, Reverter A & **Perez-Enciso M** 2017, 'A Pathway-Centered Analysis of Pig Domestication and Breeding in Eurasia', *G3-genes Genomes Genetics*, 7, 7, 2171 - 2184.
- Forneris N S, Vitezica ZG, Legarra A & **Perez-Enciso M** 2017, 'Influence of epistasis on response to genomic selection using complete sequence data', *Genetics Selection Evolution*, 49, 66.
- Yang B, Cui L, **Perez-Enciso M**, Traspov A, Crooijmans RPMA, Zinovieva N, Schook LB, Archibald A, Gatphayak K, Knorr C, Triantafyllidis A, Alexandri P, Semiadi G, Hanotte O, Dias D, Dovc P, Uimari P, Iacolina L, Scandura M, Groenen MAM, Huang L & Megens H-J 2017, 'Genome-wide SNP data unveils the globalization of domesticated pigs', *Genetics Selection Evolution*, 49, 71.



## Maria Petrova

Universitat Pompeu Fabra (UPF)  
Social & Behavioural Sciences

Maria Petrova received PhD from Harvard University in 2008. She spent 2012 - 2013 as a Visiting Associate Research Scholar at the Center for the Study of Democratic Politics at Princeton University. In 2012-2013, she was Research Director at the Center for New Media and Society at the New Economic School, Russia. Her research interests include political economy, mass media economics, and Internet Economics. She has published in *American Economic Review*, *Quarterly Journal of Economics*, *American Political Science Review*, *Proceedings of National Academy of Sciences*, *American Economic Journal: Applied Economics*, *Journal of Public Economics*, *Journal of Economic Behavior and Organization*, among others. Since 2016, she is a member of the Editorial Board of the *Review of Economic Studies* and a Co-Editor of the *Journal of Public Economics*.

### Research interests

I am an applied microeconomist whose focus is information economics, political economy, and development. I seek to understand how information flows affect complex links between economic and political phenomena. Existing works traditionally underestimate the role of information provision in media for different aspects of development, and my research fills this gap. The main question that I address in my work is how information affects political, economic, and financial outcomes in different countries. My recent research is focused on the political economy of traditional and social media, and on the determinants and implications of individual political donations.

### Selected research activities

In 2017, Maria Petrova continued to work as a Co-Editor of the *Journal of Public Economics* and a Member of the Editorial Board at the *Review of Economic Studies*.

She gave talks in multiple places and conferences, including Harvard University, UC Berkeley, Rice University, University of Chicago, University of Maryland, University of Mannheim, Hebrew University, University of Heidelberg.

She also co-organized "Economic Analysis of Electoral Politics" workshop at the Barcelona GSE Summer Forum in June 2017 and 15th Workshop in Media Economics in Barcelona in October 2017.



## Mira Petrovic

Institut Català de Recerca de l'Aigua (ICRA)  
Experimental Sciences & Mathematics

ICREA Research Professor since December 2005. PhD in Chemistry (1995), Faculty of Chemical Engineering and Technology, University of Zagreb, Croatia. From 1999-2011 research scientist at the Department of Environmental Chemistry, Institute for Environmental Assessment and Water Studies (IDAEA-CSIC), Barcelona. Since July 2011 senior researcher at the Catalan Institute for Water Research (ICRA), Girona, Spain. At ICRA she is responsible for the research line "Pollutants in wastewater". She has participated in 16 EU projects since 1999; published 180 papers in SCI journals (Hirsch Index 57); edited 7 books and published 36 book chapters. Coordinator of a MSCA EID project TreatREC (H2020).

### Research interests

My main expertise is in the field of analytical environmental chemistry, specifically analysis of trace organic contaminants, such as pharmaceuticals, endocrine disrupting compounds and surfactants by advanced mass spectrometric techniques (liquid chromatography-tandem and hybrid MS) and the study of their fate and behaviour in the aquatic environment and during wastewater and drinking water treatment. Specific research lines are: (i) non-target analysis and fingerprinting of organic substances in wastewater and receiving environment, (ii) the study of biotic and abiotic transformation of emerging contaminants, identification of transformation products, elucidation of transformation pathways; (iii) the study of occurrence and distribution of emerging contaminants in aquatic environment and environmental risk assessment and (iv) sustainable wastewater management; application of innovative wastewater treatment technologies; innovative practices for reuse of reclaimed waters.

### Selected publications

- Čelić M, Insa S, Škrbić B & **Petrović M** 2017, 'Development of a sensitive and robust online dual column liquid chromatography-tandem mass spectrometry method for the analysis of natural and synthetic estrogens and their conjugates in river water and wastewater', *Anal. Bioanal. Chem.*, 409, 5427-5440
- Mandarić L, Diamantini E, Stella E, Cano-Paoli K, Valle-Sistac J, Molins-Delgado D, Bellin A, Chiogna G, Majone B, Diaz-Cruz MS, Sabater S, Barcelo D & **Petrovic M** 2017, 'Contamination sources and distribution patterns of pharmaceuticals and personal care products in Alpine rivers strongly affected by tourism', *Sci.Total Environ.*, 590, 484 - 494.
- von Schiller D, Acuna V, Aristi I, Arroita M, Basaguren A, Bellin A, Boyero L, Butturini A, Ginebreda A, Kalogianni E, Larranaga A, Majone B, Martinez A, Monroy S, Munoz I, Paunovic M, Pereda O, **Petrovic M**, Pozo J, Rodriguez-Mozaz S, Rivas D, Sabater S, Sabater F, Skoulikidis N, Solagaistua L, Vardakas L & Elosegi A 2017, 'River ecosystem processes: A synthesis of approaches, criteria of use and sensitivity to environmental stressors', *Sci.Total Environ.*, 596, 465 - 480.
- Boy-Roura M, Mas-Pla J, **Petrovic M**, Gros M, Soler D, Brusi D & Mencia A 2017, 'Towards the understanding of antibiotic occurrence and transport in groundwater: Findings from the Baix Fluvià alluvial aquifer (NE Catalonia, Spain)', *Sci.Total Environ.*, 612, 1387 - 1406.
- Verlicchi P, Barcelò D, Mutavdžić Pavlović D, Papa M, **Petrović M**, Voulvolis N & Zambello E 2017, 'The impact and risks of micropollutants in the environment', in Lema JM & Suarez S (Eds) *Innovative Wastewater Treatment & Resource Recovery Technologies: Impacts on Energy, Economy and Environment*, IWA Publishing, London, UK. pp 510-533.

### Selected research activities

Editor-in-chief of Trends in Environmental Analytical Chemistry (Elsevier)



**José Luis Peydró**  
Universitat Pompeu Fabra (UPF)  
Social & Behavioural Sciences

Peydró is ICREA Research Professor at UPF, Professor of Economics at UPF, Barcelona GSE Research Professor, CREI Research Associate, CEPR Research Fellow, advisory scientific committee member of the European Systemic Risk Board, research advisor of the Bank of Spain, IESE research fellow, member of the Barcelona Center of Banking Studies and consultant in several central banks and international organizations. He has been a visiting scholar at Banque de France, Becker Friedman Institute at Chicago University, MIT-Sloan, Bank of Spain, IMF, De Nederlandsche Bank and the World Bank. He is recipient of an ERC Consolidator grant, a senior Houblon-Norman Fellowship from the Bank of England and two MINECO grants. He serves as an associate editor for the *Review of Finance* and the *Spanish Review of Financial Economics*, and as a panel member of *Economic Policy*.

### Research interests

Peydró specializes in Finance and Macroeconomics, mainly on systemic risk, financial crises, endogenous risk, central bank policies, monetary and prudential policy, financial globalization, financial contagion, financial innovation, macroeconomics and credit markets, capital and liquidity. He is also working on the effects of financial distress on households' welfare. He has recently coauthored the book *Systemic Risk, Crises and Macroprudential Regulation* at MIT Press.

### Selected publications

- Baskaya Y, di Giovanni J, Kalemli-Ozcan S, **Peydró JL** & Ulu MF 2017, 'Capital Flows, Credit Cycles and Macroprudential Policy', *Journal of International Economics*, vol. 108(S1), pp 15-22.
- Jiménez G, Ongena S, **Peydró JL** & Saurina J 2017, 'Macroprudential Policy, Countercyclical Bank Capital Buffers and Credit Supply: Evidence from the Spanish Dynamic Provisioning Experiments', *Journal of Political Economy*, 125, 6, 2126 - 2177.

### Selected research activities

Keynote lecture at ECBN-Bank of Slovenia-CEPR 3<sup>rd</sup> Policy Research Conference.

Conference presentations and discussions at Banco de Portugal Workshop 'Using Credit Register Data for Research: Past, Present, and Future', SAEe, ECB Conference 'Credit, Banking and Monetary Policy', 9<sup>th</sup> International Banking Conference 'Banking and Financial Regulation', 3<sup>rd</sup> Policy Research Conference 'Evaluating the Effectiveness of Macroprudential Policies', ECB Workshop 'Monetary Policy in Non-standard Times', AEFIN '25<sup>th</sup> Foro de Finanzas', NBER SI, Barcelona GSE Summer Forum FIR Workshop, €ABCN-BdF Conference "Recent Developments in Monetary Policy Research", CEPR "Modelling Credit Cycles" Conference, BoE London Financial Intermediation Workshop, and seminars at Bank of Portugal, INSEAD, U. C. del Sacro Cuore, Bocconi and CREI.

Organizer of the Workshop on Financial Intermediation and Risk (GSE Summer Forum); ECB Conference 'Credit, Banking and Monetary Policy', Banco de España-CEMFI 1<sup>st</sup> Conference on Financial Stability and UPF Departmental Seminar Series.

Teaching: Bank of Portugal and Deutsche Bundesbank courses 'Econometric Evaluation of Macroprudential Policies'; Barcelona GSE Banking Summer School; graduate courses on banking and systemic risk at Barcelona GSE-UPF, Financial Institutions Management at IDEC and CREI Barcelona Macroeconomics Summer School.



## Jordi Poater

Universitat de Barcelona (UB)  
Experimental Sciences & Mathematics

Born in 1977. I got my PhD in Chemistry in 2003 at the Universitat de Girona (UdG) with a thesis on the analysis of chemical bonding and aromaticity of organic systems with tools based on the electron-pair density. Next I moved to the Vrije Universiteit Amsterdam (VUA), with a Marie Curie postdoctoral fellowship, where I carried out research on the DNA replication mechanism by means of Kohn-Sham molecular orbital theory complemented with quantitative bond energy decomposition analyses. In 2008 I was awarded with a Ramón y Cajal tenure-track position at the Institute of Computational Chemistry and Catalysis of the UdG. Afterwards I was appointed Senior Associate Researcher at the Department of Theoretical Chemistry and Amsterdam Center for Multiscale Modeling of the VUA. I have published 120 scientific publications in peer-reviewed journals, which have received more than 4.050 citations. My H-Index is 35, and I appear as "Scientist" at the Essential Science Indicators.

### Research interests

My research takes off from two main lines, which are interconnected and reinforce each other. First, the study of aromaticity in organic and metal systems, with tools derived from the electron-pair density, with the purpose of analyzing the electronic structure and molecular bonding in a wide range of molecular systems. Afterwards, I have become an expert in the application of Kohn-Sham molecular orbital theory complemented with quantitative bond energy decomposition analyses to biological issues. In particular, the study of the DNA replication mechanism has become my main research line. I have got closer to experiment by studying the selectivity in DNA replication mechanism taking into study the steric shape, hydrogen bonds, pi-stacking and solvent effects in DNA bases.

### Selected publications

- Baus JA, **Poater J**, Bickelhaupt FM & Tacke R 2017, 'Silylene-Induced Reduction of [Mn-2(CO)(10)]: Formation of a Five-Coordinate Silicon(IV) Complex with an O-Bound [(OC)(4)Mn=Mn(CO)(4)](2-)Ligand', *European Journal Of Inorganic Chemistry*, 1, 186 - 191.
- Hamlin TA, **Poater J**, Guerra CF & Bickelhaupt FM 2017, 'B-DNA model systems in non-terran bio-solvents: implications for structure, stability and replication', *Physical Chemistry Chemical Physics*, 19, 26, 16969 - 16978.
- Orenha RP, Rocha MVJ, **Poater J**, Galembeck SE & Bickelhaupt FM 2017, 'Nature of the Ru-NO Coordination Bond: Kohn-Sham Molecular Orbital and Energy Decomposition Analysis', *ChemistryOpen*, 6, 3, 410 - 416.
- **Poater J**, Paauwe J, Pan S, Merino G, Fonseca Guerra C & Bickelhaupt FM 2017, 'Kekulene: Structure, stability and nature of H•••H interactions in large PAHs', *Molecular Astrophysics*, vol. 8, pp 19-26.
- Simó Padial J, **Poater J**, Nguyen DT, Tinnemans P, Bickelhaupt FM & Mecinovic J 2017, 'Stabilization of 2,6-Diarylanilinium Cation by Through-Space Cation- $\pi$  Interactions', *Journal of Organic Chemistry*, vol. 82, pp 9418-9424.
- Arnold N, Bertermann R, Bickelhaupt FM, Braunschweig H, Drisch M, Finze M, Hupp F, **Poater J** & Sprenger JAP 2017, 'Formation of a trifluorophosphane platinum(II) complex by PF bond activation of phosphorus pentafluoride with a Pt0 complex', *Chemistry A European Journal*, vol. 23, pp 5948-5952.

### Selected research activities

- Supervised PhD thesis: Dr. Ouissam El-Bakouri (22nd Nov 2017).
- Supervised 2 TFG undergraduate students.
- Delivered 3 talks in Pisen, Dubai and Lisbon.
- Member of 3 PhD dissertation committees (Amsterdam, Girona and Barcelona).
- PI of MINECO research grant (2017-2019).
- Dissemination in activities organized by Científicos Retornados en España (CRE); Fundación para la ayuda a niños y jóvenes de altas capacidades (Fanjac Girona); and Càtedra de Cultura Científica i Comunicació Digital (UdG).



## Albert Pol

Institut d'Investigacions Biomèdiques August Pi i Sunyer  
(IDIBAPS)

Life & Medical Sciences

In June 1993 I obtained my degree in Biology at the University of Barcelona (UB). I continued my studies in the Biochemistry Dept. and the Cell Biology Dept. of the Medical School (UB). In July 1998 I obtained my PhD and I moved to the laboratory of Prof RG Parton in the University of Queensland (Australia) as a NHMRC Research Officer. My professional independent research career started in 2002 when I was awarded a "Ramón y Cajal" grant from the Spanish Science and Technology Ministry. In November 2006 I obtained an I3 grant from the same ministry and in November 2007 I was incorporated as an ICREA Research Professor at the Cell Proliferation and Signalling team (IDIBAPS). In addition, I am Associated Professor in the Cell Biology Dept. of the Medical School (UB). Today I combine my research with teaching in biomedical sciences and in a PhD Programme for young investigators. [www.celltrafficbcn.cat/Home.html](http://www.celltrafficbcn.cat/Home.html).

### Research interests

The aim of our project is to characterize - in health and in disease - the cellular processes that are regulated or altered due to lipid accumulation within the cells. All prokaryote and eukaryote cells maintain the competence of accumulating lipids in organelles known as intracellular lipid droplets. In healthy cells, a small population of lipid droplets is present at all times, though these organelles become abundant in response to different physiopathological conditions such as obesity, diabetes, fatty liver, arteriosclerosis and even cancer. Recent advances in the cell biology of lipid droplets have shown that they are multifunctional organelles that are metabolically very active and thus constitute key elements in the complex exchange of lipids and proteins in constant movement within the cells. In this scenario, we are especially focused in the biological cost of the accumulation of cholesterol in organelles such as mitochondria and the role of caveolin in these fluxes.

### Selected publications

- Soriano-Castell D, Chavero A, Rentero C, Bosch M, Vidal-Quadras M, **Pol A**, Enrich C & Tebar F 2017, "ROCK1 is a novel Rac1 effector to regulate tubular endocytic membrane formation during clathrin-independent endocytosis" *Scientific Reports*, vol. 7, no.2, pp 6866.
- Fleta-Soriano E, Smutná K, Martínez JP, Lorca Oró C, Sadiq SK, Mirambeau G, Lopez-Iglesias C, Bosch M, **Pol A**, Brönstrup M, Diez J & Meyerhans A 2017 "The Myxobacterial Metabolite Soraphen A Inhibits HIV-1 by Reducing Virus Production and Altering Virion Composition" *Antimicrobial Agents And Chemotherapy*, vol. 61, no. 8, e00739-17.





## Antonio Postigo

Institut d'Investigacions Biomèdiques August Pi i Sunyer  
(IDIBAPS)  
Life & Medical Sciences

### CURRENT POSITION:

- \* ICREA Research Professor. IDIBAPS (Barcelona)
- \* Adjunct Visiting Professor, JG Brown Cancer Center (USA)

### PAST POSITIONS:

- \* Special Fellow & Research Instructor (Div Mol. Oncology, Washington Univ, USA)

### RESEARCH FUNDING:

- \* Public Agencies: European Commission, Ministry of Economy & Competitiveness (MINECO), AGAUR,
- \* Private Foundations: Leukemia Research Foundation, AVON Breast Cancer Campaign, La Marató de TV3 Foundation, La Caixa Foundation, Spanish Association Against Cancer (AECC), Olga Torres Foundation, Academy of Medical and Health Sciences of Catalonia & Balearic Islands

### Research interests

The group investigates the molecular mechanisms regulating gene expression during cell differentiation and cancer. As molecular models, we use the ZEB family of transcription factors (ZEB1 and ZEB2) and their different cofactors. Research in the laboratory aims at understanding the expression and function of ZEB factors in stem cell determination, normal cell differentiation, malignant transformation and tumor initiation and progression. Our work involves high throughput techniques as well as in vivo transgenic mouse models and uses normal and malignant cells from multiple tissue systems, namely, epithelial, skeletal muscle and hematopoietic.

### Selected publications

- Cortes M, Sanchez-Moral L, de Barrios O, Fernández-Aceñero MJ, Martínez-Campanario MC, Esteve-Codina A, Darling DS, Györfy B, Lawrence T, Dean DC & **Postigo A\*** 2017, 'Tumor-associated macrophages (TAMs) depend on ZEB1 for their cancer-promoting roles', *EMBO J.*, 36:3336-55. (\* corresponding author)
- de Barrios O, Györfy B, Fernández-Aceñero MJ, Sánchez-Tilló E, Sánchez-Moral L, Siles L, Esteve-Arenys A, Roué G, Casal JI, Darling DS, Castells A, **Postigo A\*** 2017, 'ZEB1-induced tumourigenesis requires senescence inhibition via activation of DKK1/mutant p53/Mdm2/CtBP and repression of macroH2A1', *Gut*, 66:666-82. (\* corresponding author). Note: Highlighted in a Commentary and selected for a video Abstract in the journal.

### Selected research activities

#### 1) **Director of Ph.D. dissertations that were defended during 2017: 3**

- O de Barrios (Univ of Barcelona), awarded Feb 2017
- M Cortes (Univ of Barcelona), awarded May 2017
- L Siles (Univ of Barcelona), awarded June 2017

#### 2) **Grant Evaluations for international agencies during 2017:**

- Medical Research Council (MRC), United Kingdom
- Institut National du Cancer (INCa), France
- Czech Science Foundation (GACR), Czech Republic

#### 3) **Appointments to the Editorial Board of Scientific Journals:**

- NEW appointments during 2017: 2 journals
- Total ongoing editorial board memberships: 11 journals



**Pilar Prieto**  
 Universitat Pompeu Fabra (UPF)  
 Humanities

Pilar Prieto is an ICREA Research Professor at the Department of Translation and Language Sciences at UPF (Universitat Pompeu Fabra), Barcelona, Catalunya. After obtaining her doctoral degree in Romance Linguistics at the University of Illinois at Urbana-Champaign, she worked as a postdoctoral fellow at Bell Laboratories (Murray Hill, New Jersey), where she continued working on the linguistic meaning of prosody across languages. Since 2008 she coordinates the "Prosodic Studies Group" at the Department of Translation and Language Sciences, Universitat Pompeu Fabra.

### Research interests

My main research goal is to understand the role of prosody and co-speech gestures in human communication from a crosslinguistic, developmental, and cognitive perspective. Three important strands of this research include: (a) to incorporate this knowledge into semantic models of language that model the interface areas with other components; (b) to empirically investigate how humans process prosodic and gestural patterns in combination with speech; and (c) to investigate the cognitive and developmental benefits of prosody and gesture in different areas, such as first and second language acquisition, as well as communication training for language impaired and non-impaired populations. The social significance of this research topic is high, as ICT training procedures based on prosodic and gestural awareness can be proven valuable to improve language abilities in populations with neurodevelopmental disorders characterized by impaired social interaction.

### Selected publications

- Esteve-Gibert N, Borràs-Comes J, Asor E, Swerts M & **Prieto P** 2017, 'The timing of head movements: The role of prosodic heads and edges', *Journal Of The Acoustical Society Of America*, 141, 6, 4727 - 4739.
- Esteve-Gibert N, **Prieto P** & Liskowski U 2017, 'Twelve-Month-Olds Understand Social Intentions Based on Prosody and Gesture Shape', *Infancy*, 22, 1, 108 - 129.
- González M, Roseano P, Borràs-Comes J, **Prieto P** 2017, 'Epistemic and evidential marking in discourse: effects of register and debatability'. *Lingua* 186 (7): 68-87.
- Gluhareva D & **Prieto P** 2017, "Training with rhythmic beat gestures favors L2 pronunciation in discourse-demanding situations", *Language Teaching Research*. 21, 5, 609 - 631.
- Hubscher I, Borràs-Comes J & **Prieto P** 2017, 'Prosodic mitigation characterizes Catalan formal speech: The Frequency Code reassessed', *Journal Of Phonetics*, 65, 145 - 159.
- Hübscher I, Esteve-Gibert N, Igualada A, **Prieto P** 2017, 'Intonation and gesture as bootstrapping devices in speaker uncertainty', *First Language*, 37 (1): 24-41.
- Igualada A, Esteve-Gibert N & **Prieto P** 2017, 'Beat gestures improve word recall in 3- to 5- year- old children', *Journal of Experimental Child Psychology* 156: 99-112.
- Rodero E, Potter RF & **Prieto P** 2017, 'Pitch Range Variations Improve Cognitive Processing of Audio Messages', *Human Communication Research*, 43, 3, 397 - 413.
- Vanrell MM, Armstrong ME & **Prieto P** 2017, 'Experimental Evidence for the Role of Intonation in Evidential Marking', *Language And Speech*, 60, 2, 242 - 259.
- Brown L & **Prieto P** 2017, '(Im)politeness: Prosody and gesture', Michael Haugh, Dániel Kádár, and J. Culpeper. *Palgrave Handbook of Linguistic Politeness*. New York: Palgrave, pp. 357-379.
- **Prieto P** 2017, 'Taller d'expressió oral. Altaveu. L



## Valerio Pruneri

Institut de Ciències Fotòniques (ICFO)  
Engineering Sciences

Valerio Pruneri is Corning Inc. Chair leading the Optoelectronics group at the Institute of Photonic Sciences (ICFO). Previously he worked for Avanex, Corning, Pirelli, and the University of Southampton. He has given about 70 invited talk and is inventor in about 40 patents. He has taken part in more than 40 technical or steering committees of international conferences. He serves on the QEOD board of the European Physical Society, the advisory board of ACREO AB Fiber Optic Centre, VLC Photonics, B-able seed funding capital and is technical advisor of Medlumics. He was awarded the Philip Morris Prize, Pirelli Fellowship, IBM Faculty award, Paul Ehrenfest award, Corning Inc. Professorship and Duran Farell Prize for technological research. His work has led to numerous industrial collaborations (e.g. Corning Inc., Carl Zeiss and HP) and the creation of two spin offs, quaside (2017) and sixsenso-water (to be launched 2018).

### Research interests

Valerio Pruneri leads the Optoelectronics group at the Institute of Photonic Sciences (ICFO). The group is working on ultrathin materials, nano-structured biomimetic surfaces, micro- and nano-engineered integrated and fibre optic devices for telecommunication, sensing, aerospace, energy and quantum cryptography. In particular the main driving is to carry out research which bridges the academic and the industrial worlds, by developing fundamental ideas which will have an impact on commercial products.

### Selected publications

- Rodrigo D, Tittl A, Limaj O, **Garcia de Abajo FJ, Pruneri V** & Altug H 2017, 'Double-layer graphene for enhanced tunable infrared plasmonics', *Light-science & Applications*, 6, e16277.
- Noyan MA, Guilhot D & **Pruneri V** 2017, 'Functionalized transparent surfaces with enhanced self-cleaning against ink aerosol contamination', *Adv. Mater. Technol.* 2, 1, 1600113.
- Mkhitarian VK, Ghosh DS, Rudé M, Canet-Ferrer J, Maniyara RA, Gopalan KK & **Pruneri V** 2017, 'Tunable complete optical absorption in multilayer structures including Ge<sub>2</sub>Sb<sub>2</sub>Te<sub>5</sub> without lithographic patterns', *Adv. Opt. Mater.* Volume 5, Issue 1.
- Perez JM, Jofre M, Martinez P, Yanez MA, Catalan V, Parker A, Veldhuis M & **Pruneri V** 2017, 'CMOS based image cytometry for detection of phytoplankton in ballast water', *Biomedical Optics Express*, 8, 2, 1240 - 1249.
- Gopalan KK, Janner D, Nanot S, Parret R, Lundeberg MB, **Koppens FHL & Pruneri V** 2017, 'Mid-infrared pyroresistive graphene detector on LiNbO<sub>3</sub>', *Advanced Optical Materials*, 5, 1600723.

### Selected research activities

- Founder of quaside, a spin-off to develop and commercialise quantum random number generators, launched in 2017
- Corning Inc. Professor and head of Corning Surface Laboratory at ICFO, renewed in 2017
- 3 patent applications filed in 2017



## Aurora Pujol

Institut d'Investigació Biomèdica de Bellvitge (IDIBELL)  
Life & Medical Sciences

Dr Aurora Pujol received her MD from the Autonomous University of Barcelona in 1993 and her PhD in Cellular and Molecular Biology from the University of Heidelberg/ German Cancer Research Center in 1998. She trained in Human Genetics with Prof Jean Louis Mandel at the IGBMC, Strasbourg, generating and characterizing mouse models for a rare neurometabolic disorder, X-linked adrenoleukodystrophy (X-ALD). In 2002, she obtained a position as clinician in Medical Genetics at the Louis Pasteur University Hospital, and combined genetic diagnosis with fundamental molecular genetics research as Junior Group Leader at the IGBMC. In 2005, she moved back to Barcelona as an ICREA Research Professor and Director of the Neurometabolic Diseases Laboratory at IDIBELL. In 2017 she obtained the certification in Clinical Genomics by the ABMGG, at the NIH, USA. Her lab is of international reference for genomic diagnostics and translational research for the leukodystrophies.

### Research interests

Our mission is to improve disease management of rare brain disorders through precision medicine. This spans the whole spectrum from genomic diagnosis to disease-modifying treatments and biomarker identification. A first research line revolves around adrenoleukodystrophy (ALD), a rare neurometabolic disease made popular by the movie *Lorenzo's oil*. We are applying strategies for integration of -omic approaches to gain insights into pathomechanisms. These involve redox and metabolic homeostasis, mitochondrial dynamics, proteostasis and cellular stress responses. Tailored preclinical tests have yielded four licensed patents on reprofiled drugs and three phase II/III clinical trials for ALD. A second research line aims at gene discovery through clinical genomics. We are identifying novel disease-causing genes and modeling disease using iPSC-derived organoid cultures and zebrafish. Results are advancing scientific knowledge while serving the undiagnosed community.

### Selected publications

- Fourcade S, Morató L, Parameswaran J, Ruiz M, Ruiz-Cortés T, Jové M, Naudí A, Martínez-Redondo A, Dierssen M, Ferrer I, Villarroya F, Pamplona R, Vaquero A, Portero-Otín M, **Pujol A\*** 2017, 'Loss of SIRT2 leads to axonal degeneration and locomotor disability associated with redox and energy imbalance', *Aging Cell*, 16(6):1404-141.
- Launay N, Ruiz M, Grau L, Ortega FJ, Ilieva EV, Martínez JJ, Galea E, Ferrer I, Knecht E, Fourcade S. & **Pujol A\***. 2017, 'Tauroursodeoxycholic bile acid arrests axonal degeneration by inhibiting the unfolded protein response in X-linked adrenoleukodystrophy'. *Acta Neuropathol.* 133(2):283-301.
- Ruiz M, Bégou M, Launay N, Ranea-Robles P, Bianchi P, López-Erauskin J, Morató L, Guilera C, Petit B, Vaurs-Barriere C, Guéret-Gonthier C, Bonnet-Dupeyron MN, Fourcade S, Auwerx J, Boespflug-Tanguy O, **Pujol A\***. Oxidative Stress and Mitochondrial Dynamics Malfunction are linked in Pelizaeus-Merzbacher Disease. *Brain Pathol.* 2017 Dec 26.
- Falkenberg KD, Braverman NE, Moser AB, Steinberg SJ, Klouwer FCC, Schlüter A, Ruiz M, **Pujol A**, Engvall M, Naess K, Körver-Keularts I, Ferdinandusse S, Wanders RJA, Waterham HR. Allelic Expression Imbalance Promoting a Mutant PEX6 Allele Causes Zellweger Spectrum Disorder. *Am J Hum Genet.* 2017 Dec 7;101(6):965-976.
- Mattioli F, Schaefer E, Magee A, Mark P, Mancini GM, Dieterich K, Von Allmen G, Alders M, Coutton C, Vieville G, Engelen M, Cobben JM, Juusola J, **Pujol A**, Mandel JL, Piton A 2017, 'Mutations in Histone Acetylase Modifier BRPF1 Cause an Autosomal-Dominant Form of Intellectual Disability with Associated Ptosis', *Am J Hum Genet.*, 100(1):105-116.
- Kury S, van Woerden GM, Besnard T, Onori MP, Latypova X, Towne MC, Cho MT, Prescott TE, Ploeg MA, Sanders S, Stessman HAF, **Pujol, A** et al; , 'De Novo Mutations in Protein Kinase Genes CAMK2A and CAMK2B Cause Intellectual Disability', *Am J Human Genet.* 2017, 101, 5, 768 - 788.

### Selected research activities

Diagnosis of over 200 cases of rare neurogenetic disorders using genomics.



## Víctor F. Puntos

Institut Català de Nanociència i Nanotecnologia (ICN2) & Vall d'Hebron Institut de Recerca (VHIR)  
Experimental Sciences & Mathematics

Born in Barcelona, 1970, Prof. Víctor Franco Puntos studied chemical engineering at the Louis Pasteur University (Strasbourg, France) and chemistry at the Autonomous University of Barcelona (Barcelona, Spain), graduating in 1994. He obtained his PhD in Physics at the University of Barcelona (1998), working on Giant Magnetoresistance in granular alloys. Then he spent more than 3 years in Berkeley (California, USA) as a postdoc, first in the group of Prof. Krishnan Kannan (National Center for Electron Microscopy, Lawrence Berkeley Laboratory) and then in the group of Prof. Paul Alivisatos (College of Chemistry, UC Berkeley). In 2003 he obtained a Ramón y Cajal Fellowship and worked in the Physics Dep. at the University of Barcelona. In 2005, he moves to the Catalan Institute of Nanotechnology (ICN - now ICN2) as ICREA Research Professor and creates the Inorganic Nanoparticles Group. Since December 2014 he holds a double affiliation ICN2 and VHIR.

### Research interests

Prof. Víctor Puntos works on the synthesis, characterisation and applications of engineered inorganic nanoparticles (NPs). By controlling the size, structure and shape of the inorganic core, and manipulating the linking of organic molecules to the nanoparticle surface, the group aims to design nanoparticles that interact with a variety of systems (biological, medical, materials, etc.). This allows for the deliberate modification of these systems, or the use of NPs for witnessing and reporting things.

### Selected publications

- E Casals, MF Gusta, M Cobaleda-Siles, A Garcia-Sanz & **VF Puntos** 2017, '**Cancer resistance to treatment and antiresistance tools offered by multimodal multifunctional nanoparticles**', *Cancer Nanotechnology* vol.8 no.1, 7-12.
- Garcia-Fernandez L, Garcia-Pardo J, Tort O, Prior I, Brust M, Casals E, Lorenzo J & **Puntos VF** 2017, 'Conserved effects and altered trafficking of Cetuximab antibodies conjugated to gold nanoparticles with precise control of their number and orientation', *Nanoscale*, 9, 18, 6111 - 6121.
- B Pelaz et al. 2017. '**Diverse applications of nanomedicine**' *ACS nano*, vol. 11, no.3, pp. 2313-2381.
- A Genç, J Patarroyo, J Sancho-Parramon, NG Bastús, **V Puntos** & **J Arbiol** 2017, '**Hollow metal nanostructures for enhanced plasmonics: synthesis, local plasmonic properties and applications**', *Nanophotonics*, vol.6, no. 1, pp.193-213
- Fantechi E, Roca AG, Sepulveda B, Torruella P, Estrade S, Peiro F, Coy E, Jurga S, Bastus NG, **Nogues J** & **Puntos V** 2017, 'Seeded Growth Synthesis of Au-Fe<sub>3</sub>O<sub>4</sub> Heterostructured Nanocrystals: Rational Design and Mechanistic Insights', *Chemistry Of Materials*, vol.29, no.9, pp.4022 - 4035.
- Barbero F, Russo L, Vitali M, Piella J, Salvo I, Borrajo ML, Busquets-Fite M, Grandori R, Bastus NG, Casals E & **Puntos V** 2017, 'Formation of the Protein Corona: The Interface between Nanoparticles and the Immune System', *Seminars In Immunology*, 34, C, 52 - 60.

### Selected research activities

- Chairman International Conference on Nanomedicine and Nanobiotechnology ICONAN 2017 Barcelona
- Chariman Spinning of under RRI Principles, 300 hours lectures for PhD fellows of ITN-PANDORA- H2020
- Award for BiogasPLUS, Boosting biogas production with iron oxide Nanoparticles, 2017 WORLD BIOGAS ASSOCIATION
- Thermoshot, Multimodal strategies based on nanoparticles to fight antibiotic multiresistant bacteria. CAIXA IMPULSE



Quer Villanueva, Josep  
 Universitat Pompeu Fabra (UPF)  
 Humanities

As ICREA Research Professor, I am member of the "Grup de Lingüística Formal" (GLiF) at the Department of Translation and Language Sciences (UPF) since January 2009 and head of the LSC Lab (Laboratori de llengua de signes catalana). In 2007-2008 I was professor and chair of Romance Linguistics at the University of Amsterdam and previously I was ICREA Research Professor at the Department of General Linguistics of the University of Barcelona (2002-2006). In that period I set up a new research project on the formal study of sign languages, both with a focus on the morphosyntax and semantics of Catalan Sign Language (LSC) and on crosslinguistic and crossmodal research. I led the research group that published the first comprehensive grammatical description of LSC. I obtained my PhD in Linguistics at Utrecht University in 1998 with a dissertation on the semantics of mood. I am co-editor of the journal *Sign Language & Linguistics*.

### Research interests

Research into natural language can no longer ignore sign languages as manifestations of the same innate human faculty realized in a different perceptual-articulatory modality. As a formal linguist, my research has focused on the analysis of a range of phenomena (negation, agreement, quantification, etc.) that hinge on the interaction between different grammar components (morphosyntax, semantics, prosody) both in spoken and sign languages. The goal is to better understand the division of labour across different grammar modules.

### Selected publications

- Quer J, Cecchetto C, Pfau R, Donati C, Steinbach M, Geraci C & Kelepir M (scientific directors) 2017, '*SignGram Blueprint. A Guide to Sign Language Grammar Writing*', Berlin: De Gruyter Mouton.
- Quer J 2016, 'One or two derivations in (bimodal) bilinguals, That's the question', *Linguistic Approaches to Bilingualism* 6.6: 817-821. \*Published in 2017.
- Donati C, Barberà G, Branchini C, Cecchetto C, Geraci C & Quer J 2017, 'Searching for imperatives in European sign languages'. In *Imperatives and Directive Strategies*, eds. S. Heinold and D. Van Olmen, 111-155. Amsterdam/Philadelphia: John Benjamins.
- Quer J 2017, '*SignGram Blueprint: una herramienta innovadora para la descripción gramatical de las lenguas de signos*', In *Actas del Congreso CNLSE de la Lengua de Signos Española: Madrid, 24 y 25 de septiembre de 2015*. Madrid: Real Patronato sobre Discapacidad, 16-28.
- Gelpí C, Aliaga D, Frigola S & Quer J 2017, 'Aprendizaje de las lenguas de signos en entornos MOOC', In *Actas del Congreso CNLSE de la Lengua de Signos Española: Madrid, 24 y 25 de septiembre de 2015*. Madrid: Real Patronato sobre Discapacidad, 156-162.

### Selected research activities

#### Invited talks

- Quer, J. The right place for locative agreement in sign languages. 53<sup>rd</sup> Meeting of the Chicago Linguistics Society. University of Chicago. May 25-27, 2017. Invited speaker.
- Quer, J. Pluralidad verbal en lengua de signos catalana (LSC). II Coloquio Internacional sobre la lengua de señas peruana, Pontificia Universidad Católica del Perú, Lima. 9-11 November 2017. Keynote speaker.



## Romain Quidant

Institut de Ciències Fotòniques (ICFO)  
Engineering Sciences

I received a PhD in Physics (2002) from the University of Dijon, in France. Right after defending my thesis, I joined ICFO as a postdoctoral researcher. This was the year of its creation and I was lucky enough to get actively involved into the early developments of the Institute. In 2006, I was appointed junior Professor (tenure-track) and group leader of the *Plasmon NanoOptics* group at ICFO. In 2009, I became tenure Professor both at ICFO and ICREA. While my core expertise is in fundamental nano-optics, I am very much interested in multidisciplinary research, interfacing physics with other disciplines of science, as well as in technology transfer. I am recipient of 4 ERC grants (StG2010, PoC2011, PoC2015 and CoG2015) and several international and national prizes (Fresnel2009, City of BCN2010, ICO2012, CAT2014, BS2017). Since 2014, I serve as an associate editor for ACSPhotonics (American Chemical Society).

### Research interests

Our research focuses on nano-optics, at the interface between Photonics (the science of light) and Nanotechnology. We use the unique optical properties of nanostructures as an enabling toolbox to design solutions to scientific and technological challenges, in a wide set of disciplines, from fundamental physics to biotechnology and medicine. This makes our group highly multidisciplinary and involved in both basic and applied research. The most fundamental part of our work is mainly directed towards enhanced light/matter interaction and quantum physics. From a more applied viewpoint, our team investigates new strategies to control light and heat at the nanometer scale for biomedical applications, including lab-on-a-chip technology and targeted hyperthermia. We are also extensively involved in tech-transfer, with three technologies being incubated in the ICFO KTT Launch pad.

### Selected publications

- Bermúdez-Ureña E, Tutuncuoglu G, Cuerda J, Smith CLC, Bravo-Abad J, Bozhevolnyi S, Fontcuberta i Morral A, García-Vidal FJ & **Quidant R** 2017, 'Plasmonic waveguide-integrated nanowire laser', *NanoLetters*, 17, 2, 747 - 754.
- Yavas O, Svedendahl M, Dobosz P, Sanz V & **Quidant R** 2017, 'On-a-chip Biosensing Based on All-Dielectric Nanoresonators', *Nano Letters*, 17, 4421 - 4426.
- Rondin L, Gieseler J, Ricci F, **Quidant R**, Dellago C & Novotny L 2017, 'Direct measurement of Kramers turnover with a levitated nanoparticle', *Nature Nanotechnol.*, 1130-1133.
- Ricci F, Rica R A, Spasenovic M, Gieseler J, Rondin L, Novotny L & **Quidant R** 2017, 'Optically levitated nanoparticle as a model system for stochastic bistable dynamics', *Nature Commun.*, 8, 15141.

### Selected research activities

- Chair of the NANOP2017 international conference, Barcelona, Sep 13-15 2017 which gathered more than 250 international experts in the field of nano-optics.
- Co-chair of the ICFO Master School on Optical Trapping and Manipulation and the Symposium on New Frontiers in Optical Trapping (in honour of Pr. Dmitri Petrov), Barcelona, Jul 3-7 2017.
- Involved in several scientific communication and outreach actions directed to University students, school pupils and general public.



## Mariano Quirós Carcelén

Institut de Física d'Altes Energies (IFAE)

Experimental Sciences & Mathematics

I defended my PhD thesis at the University of Geneva on 20 March 1975. My supervisors were Prof. H. Ruegg (University of Geneva) and Prof. C. Itzykson (Centre de Physique Theorique de Saclay, Paris). Since then I held different positions at the university and at the Spanish Council for Scientific Research (CSIC). In particular before my ICREA position I tenured a Research Professorship at the "Instituto de Estructura de la Materia", Madrid (CSIC). During my scientific career I have got in contact with many researchers and Research Centers worldwide. I have been Invited Professor and/or Guest Scientist at: CERN (Geneva), Fermilab (USA), Université de Pierre et Marie Curie, École Normale Supérieure, Université d'Orsay and Ecole Polytechnique (Paris, France), University of Padua (Italy), International Centre for Theoretical Physics in Trieste (Italy and Sao Paulo), University of Ann Arbor (USA), University of California at Santa Cruz (USA), University of Notre Dame (USA), etc.

### Research interests

I am a particle theorist. This means that my research concerns the smallest particles that exist (e.g. quarks, leptons, photons, gluons and other gauge bosons) or might exist (e.g. Kaluza-Klein and string modes, etc.) as well as the Early Universe and its behavior (e.g. inflationary epoch, baryon generation, nucleosynthesis, large scale structure, etc.). The relevant theories must be contrasted with experimental data in particle accelerators and astrophysical observations. As for particle accelerators the Large Hadron Collider (LHC), now operating at CERN, is the world's most powerful machine ever built and will provide an ultimate answer to many of the present open questions of particle physics. In 2012-2013 LHC found a Higgs-like boson weighing around 125 times the proton mass (with a statistical evidence of five standard deviations), which is an essential ingredient in the Standard Model and many beyond the Standard Model theories of electroweak interactions.

### Selected publications

- Megias E, Panico C, Pujolas O & **Quirós M** 2017, 'Light dilatons in warped space: Higgs boson and LHCb anomalies', *Nuclear And Particle Physics Proceedings*, 282, 194 - 198.
- Chala M, Delgado A, Nardini G & **Quiros M** 2017, 'A light sneutrino rescues the light stop', *Journal Of High Energy Physics*, 4, 097.
- Megias E, **Quiros M** & Salas L 2017, ' $g(\mu)-2$  from Vector-like leptons in warped space', *Journal Of High Energy Physics*, 5, 016.





## Ángel Raya

Centre de Medicina Regenerativa de Barcelona (CMRB)  
Life & Medical Sciences

Ángel Raya is an ICREA Research Professor at the Center of Regenerative Medicine in Barcelona (CMRB). He obtained his MD in 1990 from the University of Valencia, Spain and a PhD degree from the same university in 1995 for studies carried out at the Department of Physiology and at the Department of Neurology, Mayo Clinic, Rochester, MN. He pursued postdoctoral training at the Instituto de Investigaciones Citológicas (currently, Centro de Investigación Príncipe Felipe) in Valencia, from 1995-2000. He then was a Research Associate (2000-2004) and a Senior Research Associate (2004-2006) in the Gene Expression Laboratory of the Salk Institute for Biological Studies, La Jolla, CA. He returned to Spain in 2006 and was the Scientific Coordinator at the CMRB until 2009, when he joined the Institute for Bioengineering of Catalonia (IBEC) as Group Leader of the Control of Stem Cell Potency group. In 2014 he was appointed Director at CMRB.

### Research interests

Our research work aims to understand the tissue, cellular and molecular mechanisms that determine the regenerative response in certain species of vertebrates, as well as the genetic and epigenetic mechanisms that control cellular reprogramming. This phenomenon provides a link between the traditional study of epimorphic regeneration and the induced pluripotency strategies of regenerative medicine.

### Selected publications

- Galvez-Monton C et al. 2017, 'Preclinical Safety Evaluation of Allogeneic Induced Pluripotent Stem Cell-Based Therapy in a Swine Model of Myocardial Infarction', *Tissue Eng Part C Methods*, 23, 11, 1, 736 - 744.
- Miquel-Serra X et al. 2017, 'Generation of six multiple sclerosis patient-derived induced pluripotent stem cell lines', *Stem Cell Res*, 24, 155 - 159.
- Ojosnegros S et al. 2017, 'Eph-ephrin signaling modulated by polymerization and condensation of receptors', *P Natl Acad Sci USA*, 114: 13188-13193.
- Kuebler B et al. 2017, 'Generation of integration-free induced pluripotent stem cell lines derived from two patients with X-linked Alport syndrome (XLAS)', *Stem Cell Res*, 25: 291-295.
- Kuebler B et al. 2017, 'Integration-free induced pluripotent stem cells derived from a patient with autosomal recessive Alport syndrome (ARAS)', *Stem Cell Res*, 25: 1-5.
- Tekeli I et al. 2017, 'Fate predetermination of cardiac myocytes during zebrafish heart regeneration', *Open Biol*, 7: 170116.
- Pulecio J et al. 2017, 'CRISPR/Cas9-Based Engineering of the Epigenome', *Cell Stem Cell*, 21, 4, 431 - 447.
- Calatayud C et al. 2017, 'Modeling the genetic complexity of Parkinson's disease by targeted genome edition in iPS cells', *Curr Opin Genet Dev*, 46, 123 - 131.
- Martorell L et al. 2017, 'Advanced cell-based modeling of the royal disease: characterization of the mutated F9 mRNA', *J Thromb Haemost*, 15, 11, 2188 - 2197.

### Selected research activities

#### Keynote speaker

Symposium Romanian Society Biochem Mol Biol, Timisoara 06/17

IBMB Xmas Meeting, 12/17

#### Invited speaker

CABIMER Seminar Series, Sevilla 03/17

BIONAND 2017 Conference Series, Málaga 03/17

Escola de Fonseca, Santiago 05/17

sciBAC 2017, León 07/17

ETPN 2017, Málaga 10/17



## Victoria Reyes-García

Universitat Autònoma de Barcelona (UAB)  
Social & Behavioural Sciences

Victoria Reyes-García (PhD Anthropology, 2001, U. of Florida) is ICREA Research Professor at the Institut de Ciència i Tecnologia Ambientals (ICTA), Universitat Autònoma de Barcelona. Her research focuses on local ecological knowledge systems, including their benefits, drivers of change, and potential contributions to conservation and development. From 1999 to 2004 she lived among Tsimane' hunter-gatherers in the Amazon, where she has long-term research. Since 2006 she coordinates the Laboratory for the Analysis of Socio-Ecological Systems in a Global World (LASEG), which catalyses research on the dynamic relations people-environments. She has about 200 peer-reviewed articles and three edited books. In 2010 she received an ERC Starting Grant to study the adaptive nature of local knowledge using a cross-cultural approach and in 2017 she received an ERC Consolidator Grant to study the potential contribution of local knowledge to climate change research.

### Research interests

My research encompasses the interdisciplinary study of dynamic relations among peoples, biota, and environments. I use a multidisciplinary perspective (working with ecologists, economists, psychologists, agronomists, archaeologists, and computer scientists) and empirical data to analyse 1) the effects of global change on rural societies, and 2) social responses to environmental issues. My research draws on the insights from the natural and behavioural sciences at multiple levels- from the views of villagers in developing nations to those of policy-makers in industrial nations. My current areas of research include 1) the adaptive nature of local environmental knowledge, 2) indigenous peoples and cultural change, (3) local participation in biodiversity conservation, 4) people and plants, and 5) ethnoclimatology.

### Selected publications

- **Reyes-García V** & Pyhälä A 2017, (Editors) *Hunter Gatherers in a Changing World*. Springer.
- Luz AC, Paneque-Gálvez J, Gueze M, Pino J, Macia M, Orta-Martínez M & **Reyes-García V** 2017, 'Continuity and change in hunting behaviour among contemporary indigenous peoples', *Biol Conserv* 209: 17-26.
- Minkin D & **Reyes-García V** 2017, 'Income and wellbeing in a society on the verge to market integration: The case of the Tsimane' in the Bolivian Amazon'. *J Happiness Stud* 18, 4, 993 - 1011.
- Menendez-Baceta G, Pardo-de-Santayana M, Aceituno-Mata L, Tardio J & **Reyes-García V** 2017, 'Trends in wild food plants uses in Gorbeialdea (Basque Country)', *Appetite*, 112, 9 - 16.
- Ruiz-Mallen I, Fernandez-Llamazares A & **Reyes-García V** 2017, 'Unravelling local adaptive capacity to climate change in the Bolivian Amazon: the interlinkages between assets, conservation and markets', *Climatic Change*, 140, 2, 227 - 242.
- Diaz-Reviriego I, Fernandez-Llamazares A, Howard PL, Molina JL & **Reyes-García V** 2017, 'Fishing in the Amazonian Forest: A Gendered Social Network Puzzle', *Soc Natur Resour*, 30, 6, 690 - 706.
- Salpeteur M, Calvet-Mir L, Diaz-Reviriego I & **Reyes-García V** 2017, 'Networking the environment: social network analysis in environmental management and local ecological knowledge studies', *Ecol Soc*, 22, 1, 41.
- **Reyes-García V**, Zurro D, Caro J & **Madella M** 2017, 'Small-scale societies and environmental transformations: coevolutionary dynamics', *Ecol Soc*, 22, 1, 15.
- Fernandez-Llamazares A, Garcia RA, Diaz-Reviriego I, Cabeza M, Pyhala A & **Reyes-García V** 2017, 'An empirically tested overlap between indigenous and scientific knowledge of a changing climate in Bolivian Amazonia', *Reg Environ Change*, 17, 6, 1673 - 1685.

### Selected research activities

**Lead Author**, Global Assessment of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)

**Academic coordinator**, Postgrau en Dinamització Local Agroecològica, UAB

**Guarantor**, ICTA's Maria de Maeztu Unit of Excellence



**Marta Reynal-Querol**  
 Universitat Pompeu Fabra (UPF)  
 Social & Behavioural Sciences

Marta Reynal-Querol is an ICREA Research Professor at the Department of Economics and Business at Universitat Pompeu Fabra (UPF) and Research Professor of the Barcelona GSE. She is also an Affiliated Professor at the BGSE, and Director of the Master in Economics at UPF. She is the Director of IPEG since December 2016. She is a Research Fellow at the CEPR, a Research Fellow at the CESifo and a Full Member at the EUDN. She is Fellow of the EEA. She was member of the Council of the European Economic Association (EEA) between 2011 and 2015. She is member of the Editorial Board of the Journal of Conflict Resolution. She won an ERC-Consolidator grant in 2014 and also an ERC-Starting grant obtained in the first call of the ERC. She won the Banco Herrero prize 2011 awarded annually to a Spanish Social Scientist under 40 years old. She worked at the World Bank between 2001 and 2005. She holds a Ph. D. in Economics from the LSE (2001) and a Master with Honors from UPF.

### Research interests

My main research interest is the study of the causes and consequences of conflict. I analyzed the relationship between religious and ethnic fractionalization, polarization, and conflict and development. I have also worked on the effectiveness of foreign aid and on the relationship between poverty and civil war and on the study of the institutional designs that may prevent or mitigate, such social conflicts. In particular I construct a database on the characteristics of leaders over the 20th century and I investigated whether there are systematic differences in the type of leaders that can explain the economic development of countries. More recently I am using administrative data on the first colonizers of Latin America to reexamine the issue of institutions versus human capital in the explanation of economic development and conflict. Moreover I am starting a line of research on the analysis of Development and Conflict using Big Data. In particular I am working on the construction of new measures of inequality.

### Selected publications

- Besley T & **Reynal-Querol M** 2017, 'The logic of hereditary rule: theory and evidence', *Journal Of Economic Growth*, 22, 2, 123 - 144.

### Selected research activities

Member of the IEA Executive Committee, since June 2017

Research Professor, Barcelona GSE, since December 2016;

Fellow of the EEA since 2015.

Research Fellow CEPR since 2012; Full Member EUDN (European Development Network) since 2012; Research Fellow CESifo, since 2013;

Editorial Board, *Journal of Conflict Resolution*, March 2007-present.

ERC-Consolidator Grant (2015-2020)

PI of the Grant (Grant BFU2011-12345), Spanish Ministry of Economy and Competitiveness.

Co-organizer of the workshop "Political Economy of Development and Conflict V"

Key note speaker "SE-BSE Workshop on the Economics of Immigration and Diversity", PSE, Paris;

Invited talk: International Economic Association, Mexico;

Seminar invitation at King's College, UZH Zurich among others

Director of IPEG, since December 2016

Director of the Master in Economics (BarcelonaGSE-UPF), since September 2012



## Paul Reynolds

Universitat de Barcelona (UB)  
Humanities

At UCL studied for BA (1980) and PhD (1991) (Settlement and Pottery of the Vinalopo Valley (Alicante), AD 400-700), which included a detailed review of ceramics and trade in W Mediterranean ports (published as BAR 588 & 604 in 1993, 1995). Studied and published ceramics from excavations in Spain (Cartagena, Valencia), Roman Syria (Beirut, Homs, Basit, Zeugma), Albania (Butrint, Durres), Greece (Athens, Corinth, Thesproteia, Nicopolis-Actium) and North Africa (Carthage, Utica, Leptis Magna). The book *Hispania and the Roman Mediterranean, AD 100-700: ceramics and trade* was published in 2010. Co-editor of the Archaeopress (Oxford) series *Roman and Late Antique Mediterranean Pottery*.

### Research interests

The principal aim of my research is the study of the economy of the Classical and Late Antique Mediterranean, the lower Danube-Black Sea and Atlantic through the definition of regional ceramic typologies (forms and archaeometry) and the analysis of the regional distribution of ceramics in major ports. This focuses on the long-distance movement of local, regional and imported fine table-wares, amphorae & cooking wares. I am interested in all factors that contributed to the supply of goods: private, state, city, ecclesiastical & administrative structures.

### Selected publications

- **Reynolds P** 2017, 'Supply networks of the Roman East and West: interaction, fragmentation and the origins of the Byzantine economy.', in Andrew Wilson (eds), *Trade, commerce and the State in the Roman World (The Oxford Roman Economy Project)*. (October 2009), Oxford.
- **Reynolds P** & Pavlidis E 2017, 'An early 5th century pottery deposit from the *cloaca* by Basilica A, Nicopolis (Epirus, Greece)', *σπείρα*. Επιστημονική συνάντηση προς τιμήν της Αγγέλικας Ντούζουγλη και του Κωνσταντίνου Ζάχου. Πρακτικά [Conference in honour of Angelika Douzougli and Konstantinos Zachos] (Ioannina, 1st-3rd November 2012). Athens: 651-666.
- **Reynolds P** 2017, 'Butrint in the late 6th to 7th centuries: contexts, sequences and ceramics', in J. Mitchell, J. Mooreland and B. Leal (eds). *Encounters, Excavations and Argosies. Essays for Richard Hodges*. Archaeopress, Oxford: 262-274.

### Selected research activities

I classified Islamic pottery at Utica (Tunisia), began a new project on the Roman pottery of the American excavations at Lechaion (Corinth), studied Roman pottery from the Sanctuary of Artemis (Peloponnese), worked on the pottery of the 7th c. Yassi Ada and 11th c. Serce Limani shipwrecks (INA, Bodrum) & studied 5th-7th century E Mediterranean finds in Vigo and Braga. Key note speaker on 8th c. pottery in the Levant, N Africa & Spain (Berlin) and speaker on the Medieval amphorae of Beirut (Rome). Submitted for publication the Roman pottery reports for the Vrina Plain excavations (Butrint) and Actium Victory Monument (Nicopolis). I was awarded a Spanish I+D grant for amphora contents analysis (Cadiz, Rome, Pompei) (HAR2017-84242-P).



## Lluís Ribas de Pouplana

Institut de Recerca Biomèdica de Barcelona (IRB Barcelona)  
Life & Medical Sciences

Born in Girona. He studied Biology at the University of Barcelona, and Biochemistry at Edinburgh University, where he obtained a PhD in 1992 with the help of a fellowship from La Caixa/British Council. He then joined the Biology department of the Massachusetts Institute of Technology as a postdoc. In 1997 he moved to The Scripps Research Institute where he became assistant professor of Molecular Biology in 2001. In 2003 he joined ICREA, and became Principal Investigator at the Institute for Research in Biomedicine, where he heads the Laboratory of Gene Translation. He is the founder of two biotechnology companies and has acted as Chief Scientific Officer of Omnia Molecular SL. (2010-2015). In addition, Dr. Ribas serves as a scientific advisor to aTyr Ltd.

### Research interests

Our laboratory investigates the process of protein synthesis, its evolution, and its connections to human health. More specifically, we are preoccupied by two fundamental questions: what are the functional limits of the protein synthesis apparatus, and how is protein synthesis regulated and integrated within the context of the cell. We want to understand what defines the boundaries of the proteomes of species, what specific adaptations allow certain organisms to fabricate proteins that are inaccessible to other species, and, in the case of the human proteome, what aspects of our health and our diseases depend upon our ability to produce specific proteins. We are investigating the importance of chemical modifications of the transfer RNAs for the production of highly repetitive proteins that are essential constituents of our tissues. In addition, we are studying protein synthesis in the mitochondria, with a particular emphasis on the mechanisms that coordinate mitochondrial protein synthesis to mitochondrial dynamics and cell cycle. Mitochondria are cellular organelles of endosymbiotic origin that maintain a limited genome and their own translation apparatus. The vast majority of mitochondrial proteins are produced in the cytosol, and are imported into the mitochondria, where they are functionally integrated with the proteins that are synthesized within the organelle. How this two biosynthetic routes are coordinated, and how are they synchronized with the cell cycle is unknown. We want to contribute to the resolution of this problem through the study of an essential mitochondrial protein that we discovered in the lab.

### Selected publications

- Wulff TF, Arguello RJ, Molina Jordan M, Roura Frigole H, Hauquier G, Filonava L, Camacho N, Gatti E, Pierre P, **Ribas de Pouplana L** & Torres AG 2017, 'Detection of a Subset of Posttranscriptional Transfer RNA Modifications in Vivo with a Restriction Fragment Length Polymorphism-Based Method', *Biochemistry*, 56, 31, 4029 - 4038.
- **Ribas de Pouplana L**, Torres AG & Rafels-Ybern À 2017, 'What froze the genetic code?', *Life (Basel)*. 7(2). pii: E14.
- Saint-Léger A & **Ribas de Pouplana L** 2017, 'A new set of assays for the discovery of Aminoacyl-tRNA synthetase inhibitors', *Methods*, Vol 113, pp 34-45.

### Selected research activities

- Two BioMedTec projects (Funded by La Caixa) ongoing for translational research:
  - Characterization of the impact of ADAT activity on ECM glycosilation.
  - Site-Selective Protein Labeling via Genetic Code Expansion as a novel Therapeutic Strategy



## Jose Luis Riechmann

Centre de Recerca en Agrigenòmica (CRAG)  
Life & Medical Sciences

Born in Madrid in 1964. Studied Biological Sciences at the Universidad Autónoma de Madrid (UAM, 1987), where he also obtained his PhD (1991; Molecular Biology and Biochemistry), in the field of plant molecular virology. Postdoctoral training in the laboratory of Dr. Elliot Meyerowitz, at the California Institute of Technology (Caltech), studying Arabidopsis flower development. Joined a start-up company in the field of plant functional genomics (Mendel Biotechnology, Hayward, CA), in 1998, studying Arabidopsis transcription factors. In 2002, joined Caltech as Director of the Millard and Muriel Jacobs Genetics and Genomics Laboratory, continuing studies on genome-wide analyses of gene expression, gene expression in Arabidopsis flower development, microRNAs, and microarray technology. Since 2007, ICREA Research Professor at the Center for Research in Agricultural Genomics (CRAG), Barcelona. Director of CRAG since 2013.

### Research interests

Developmental processes in multicellular organisms are dependent on the cellular capacity for differential gene expression. That capacity (i.e., the developmental program of an organism) is hardwired and encoded in the genome, in the form of cis-regulatory sequences that determine when, where, and how genes are expressed, of transcription factors and transcriptional co-regulators that act on those sequences, and of other types of regulatory proteins or RNAs. My research interest has focused on transcriptional regulation and development, using the plant *Arabidopsis thaliana* as a model system. This has included studies on the floral transition and flower development, genomic analyses of transcription factors, and global gene expression analyses, as well as an interest in genomic technologies. The current focus of the laboratory is the study at a global level of gene regulatory networks that control development in *Arabidopsis*, including proteomic approaches, and the characterization of the *Arabidopsis* peptidome.

### Selected research activities

- The 'Severo Ochoa Center of Excellence' distinction, an award from the 'Ministerio de Economía y Competitividad', was granted to CRAG (1/2016-12/2019). PI and Scientific Director in the award.
- PhD Thesis. Mariana Bustamante: "Genomic Analyses of the CUP-SHAPED COTYLEDON1 Network". December 2017.



## Florent Rivals

Institut Català de Paleoecologia Humana i Evolució Social (IPHES)  
Humanities

Graduated in Biology at the University Paul Sabatier in Toulouse, Florent Rivals received his PhD in Prehistory from the University of Perpignan (France) in 2002. In 2004, with the support of a grant from the French ministry of Foreign Affairs, he completed a postdoctoral research at the American Museum of Natural History. In 2005, he was awarded a postdoctoral fellowship from the Humboldt Foundation at the University of Hamburg (Germany). He was appointed ICREA Junior Researcher (2007 to 2012) at the Institut Català de Paleoecologia Humana i Evolució Social (IPHES) in Tarragona and since October 2013, he is ICREA Research Professor at the same institution. He participates in several national and international projects, among them the "NEANDERLIFE 2" project funded by the *Ministerio de Economía y Competitividad*. F. Rivals is co-author of about 80 peer-reviewed articles in international journals.

### Research interests

Florent Rivals has a primary research interest in evolutionary paleoecology and the ecological context of evolution. The analysis of mammalian fauna from Plio-Pleistocene sites provides the framework for studying the evolution of hominins. His research focuses on the impact of climate-driven environmental changes on hominins, and Neanderthals in particular. Examining mammal teeth, such as bison, deer, horse and mammoth, under a microscope and looking at the marks left by the food they ate (known as the last supper phenomenon), provides insight into the habitats they roamed just before they died. The changes in diet over thousands of years are used to reconstruct ancient environments, to track shifts related to climatic changes, and to understand hominin behavioral strategies in different ecological settings. Beyond Europe, his research is also recently focussing on the Near East (Levant) and Africa (Tanzania, Ethiopia, and Morocco).

### Selected publications

- **Rivals F**, Uzunidis A, Sanz M & Daura J 2017, 'Faunal dietary response to the Heinrich Event 4 in southwestern Europe', *Palaeogeography, Palaeoclimatology, Palaeoecology*, vol. 473, pp 123-130.
- **Rivals F** & Semprebon GM 2017, 'Latitude matters: an examination of behavioural plasticity in dietary traits amongst extant and Pleistocene *Rangifer tarandus*', *Boreas*, vol. 46, pp 254-263.
- Uzunidis A, **Rivals F** & Brugal JP 2017, 'Relation between morphology and dietary traits in horse jugal upper teeth during the middle pleistocene in Southern France', *Quaternaire*, vol. 28, no. 3, pp 303-312.
- Álvarez-Lao DJ, **Rivals F**, Sánchez-Hernández C, Blasco R & Rosell J 2017, 'Ungulates from Teixoneres cave (Moià, Barcelona, Spain): presence of cold-adapted elements in NE Iberia during the MIS 3', *Palaeogeography, Palaeoclimatology, Palaeoecology*, vol. 466, pp 287-302.
- Rosell J, Blasco R, **Rivals F**, Chacón MG, Arilla M, Camarós E, Rufà A, Sánchez-Hernández C, Picin A, Andrés M, Blain HA, López-García JM, Iriarte E & Cebrià A 2017, 'A resilient landscape at Teixoneres Cave (MIS 3, Moià, Barcelona, Spain): the Neanderthals as disrupting agent', *Quaternary International*, vol. 435A, pp 195-210.
- Camarós E, Cueto M, Rosell J, Díez JC, Blasco R, Duhig C, Darlas A, Harvati K, Jordá J, Montes L, Villaverde V & **Rivals F** 2017, 'Hunted or scavenged Neanderthals? Taphonomic approach to hominin fossils with carnivore damage', *International Journal of Osteoarchaeology*, vol. 27, no. 4, pp 606-620.

### Selected research activities

- Principal investigator of the research grant "Snapshots of Neanderthal lifestyles 2" funded by the *Ministerio de Economía y Competitividad*.
- Co-direction of the excavations at Teixoneres and Toll caves, Moià (Barcelona), Spain.
- Associate Editor of *Quaternary International* and *Frontiers in Ecology and Evolution*.
- Research stay at the Hebrew University of Jerusalem (2 months).
- Associate Professor at the Universitat Rovira i Virgili (Tarragona) in the "Erasmus Mundus Master in Quaternary and Prehistory".



## Stephan Roche

Institut Català de Nanociència i Nanotecnologia (ICN2)  
Engineering Sciences

Stephan Roche is ICREA Prof. working at the Catalan Institute of Nanosciences and Nanotechnology-ICN2 and the Barcelona Institute of Science and Technology. He leads the "Theoretical and Computational Nanoscience" group which focuses on quantum transport in Dirac materials (graphene and topological insulators). He pioneered the development of linear scaling computational approaches for wavepacket dynamics, Kubo conductivities, and Landauer-Büttiker conductance in disordered materials. He studied Theoretical Physics at ENS and UJF (France), received a PhD in Physics in 1996 (CNRS), and worked in Japan, Spain and Germany. He was appointed Prof. assistant at UJF (2000) and CEA Researcher (2004), and received the Friedrich Wilhelm Bessel prize from the Alexander von Humboldt Foundation (Germany). He is the PI of ICN2 in the GRAPHENE FLAGSHIP, and deputy leader of the Graphene Spintronics WP.

### Research interests

At ICN2, S. Roche and his group theoretically explore exotic quantum transport in Dirac Matter including graphene and topological insulators. Main current interests include (i) the study of quantum interferences and decoherence mechanisms in presence of electron-phonon coupling and spin-orbit interaction, (ii) spin dynamics and spin-torques phenomena in van der Waals heterostructures, (iii) spin Hall and quantum spin Hall effects, valley Hall effects in graphene and (iv) thermoelectricity in two-dimensional materials (v) quantum devices simulation.

### Selected publications

- Cummings AW, Garcia JH, Fabian F & **Roche S** 2017, 'Giant Spin Lifetime Anisotropy in Graphene Induced by Proximity Effects', *Phys. Rev. Lett.*, 119, 206601.
- Ribeiro M, Power SR, **Roche S**, Hueso L & Casanova F 2017, 'Scale-invariant large nonlocality in polycrystalline graphene', *Nature Communications*, 8, 2198.
- Barrios-Vargas JE, Mortazavi B, Cummings A, Martinez-Gordillo R, Pruneda M, Colombo L, Rabczuk T & **Roche S** 2017, 'Electrical and thermal transport in coplanar polycrystalline graphene-hBN heterostructures', *Nano Letters*, 17 (3), pp 1660-1664.
- Garcia JH, Cummings AW & **Roche S** 2017, 'Spin Hall Effect and Weak Antilocalization in Graphene/Transition Metal Dichalcogenide Heterostructures', *Nano Letters*, 17 (8), pp 5078-5083.
- Isacsson A, Cummings AW, Colombo L, Kinaret JM & **Roche S** 2017, 'Scaling properties of polycrystalline graphene: a review', *2D Materials*, 4, 012002.
- Settnes M, Garcia JH & **Roche S** 2017, 'Valley-polarized quantum transport generated by gauge fields in graphene', *2D Materials*, 4, 3, 031006.
- Hallal A, Ibrahim F, Yang H, **Roche S** & Chshiev M 2017, 'Tailoring magnetic insulator proximity effects in graphene : First-principles calculations', *2D Materials*, 4, 025074.

### Selected research activities

#### Invited talks:

- SOLVAY conference "From physics of graphene to graphene for physics" (Belgium- 09/2017)
- Recent Progress in Graphene Research 2017 (Singapore-09/2017)
- GRAPHCHINA 2017 (China, 09/07)
- ECME2017 (Germany, 08/2017)





## Xavier Rodó

Institut de Salut Global Barcelona (ISGlobal)  
Experimental Sciences & Mathematics

Head of the CLIMA (Climate & Health Program at ISGlobal, ORCID ID: 0000-0003-4843-6180). Founding director of the IC3 climate institute and formerly head of the LRC-PCB. MSc in engineering, completed his PhD in 1997 (UB) on the simulation of extreme ecosystems under climate forcing. Visiting fellow at Princeton and UCSD, and COLA-IGES associated scientist. His background is in numerical ecology, climate dynamics and the modeling of climate impacts. Taught ecology, advanced statistics, climate dynamics and sustainability and led or participated in 46 research projects. He advised over 20 postdoctoral fellows. Co-chair of CLIVAR-Spain (-2007) and SSC of the MEDCLIVAR-ESF, CA and ER of the AR4-WGII (IPCC2007). SCM of the Drought Integration Group (DIG) of the World Climate Research Program (WCRP). Board Member of Nature Scientific Reports 'Earth & Environmental Sciences' and of the OPCC to monitor climate change in the Pyrenees.

### Research interests

The interplay between climate and health, where I attempt to uncover how climate impacts a wide range of diseases. I also work on climate dynamics, particularly the origin and predictability of El Niño and towards improving translational climate services for health, in particular for extremes. I am interested in the development of new statistical techniques and on improving computational models with different levels of complexity. The former to disentangle the interplay between intrinsic (e.g. immunity, demography, malnutrition) and extrinsic factors (e.g. climate, environment). For instance, the modeling of climate-driven infectious diseases (from waterborne, to foodborne, vectorborne and airborne diseases), both in endemic regions and in epidemic conditions (e.g. fringe areas of deserts and highlands in Africa and Asia). An emerging area of my research entails understanding the interaction between climate, pollution and the aerial microbiome for their effects on human health.

### Selected publications

- Ballester J, Petrova D, Bordoni S, Cash B & **Rodó X** 2017, 'Timing of subsurface heat magnitude for the growth of El Niño events', *Geophysical Research Letters*, Volume 44, Issue 16, Pages 8501–8509.
- Lowe R, Stewart Ibarra AM, Petrova D, García-Díez M, Borbor-Cordova MJ, Mejía R, Regato M & **Rodó X** 2017, 'Climate services for health: predicting the evolution of the 2016 dengue season in Machala, Ecuador'. *The Lancet Planetary Health*, 1 (4): e142–e151. And Commentary in: *Elvina Viennet, David Harley, 2017. Climate services for health: cooperation for climate informed dengue surveillance www.thelancet.com/planetary-health Vol 1 July 2017, e126.*
- Baracchini T, King AA, Bouma MJ, **Rodó X**, Bertuzzo E & Pascual M 2017, 'Seasonality in cholera dynamics: A rainfall-driven model explains the wide range of patterns in endemic areas', *Advances in Water Resources*, 108, 357–366.
- Martinez PP, Reiner Jr.RC, Cash BA, **Rodó X**, Modal MS, Roy M, Yunus M, Faruque ASG, Huq S, King AA & Pascual M 2017, 'Cholera forecast for Dhaka, Bangladesh, with the 2015-2016 El Niño: Lessons learned'. *PLoS ONE*, 12(3): e0172355.
- Petrova D, Koopman SJ, Ballester J & **Rodó X** 2017, 'Improving the long-lead predictability of El Niño using a novel forecasting scheme based on a dynamic components model'. *Climate Dynamics*, Volume 48, Issue 3-4, pp 1249–1276.
- Àgueda A, Grossi C, Pastor E, Rioja E, Sánchez-García L, Batet O, Curcoll R, Ealo M, Nofuentes M, Occhipinti P, **Rodó X** & Morguí J-A 2017, 'Temporal and spatial variability of ground level atmospheric methane concentrations in the Ebro River Delta', *Atmospheric Pollution Research*. 8, 4, 741 - 753.

### Selected research activities

Over 30 keynote lectures, oral communications to international meetings and participations as invited discussion panel member. 3 PhD+MSc theses in 2017. 4 active EU projects in 2017 and a Fund. DBravo grant.



## Antoni Rodríguez-Fornells

Universitat de Barcelona (UB) & Institut d'Investigació Biomèdica de Bellvitge (IDIBELL)  
Social & Behavioural Sciences

I got my PhD at the University of Barcelona (UB, 1996) about individual differences in impulsiveness. Afterwards, I worked at the University of Magdeburg (Germany, 1999-2002) as a post-doctoral researcher. My main topics of research were bilingual language processing, executive functions and the brain correlates of error monitoring. In 2002, I got a "Ramón y Cajal" research position from the Spanish Government and afterwards I joined ICREA as a Research Professor. Since then, I have created a interdisciplinary research group (Cognition and Brain Plasticity Unit, CDBU), at ICREA-IDIBELL-UB devoted to the study of learning process and brain plasticity effects in healthy and brain damaged patients. The group is located at the Hospital of Bellvitge - IDIBELL biomedical institute. Our research is inherently interdisciplinary and requires expertise in interfacing research fields as brain plasticity, brain development and learning and memory mechanisms.

### Research interests

My recent interests have been on the cognitive neuroscience of language learning and error monitoring. I have tried to combine the use of different neuroimaging techniques (electrophysiological and magnetic resonance imaging), crucial to better understand human cognitive functions. During the last years, my research has been focused on the investigation of the neural mechanisms involved when adults and infants learn a new language (an specially its interface with executive functions and the reward system). This approach has been recently applied to understand the preserved learning mechanisms in aphasic people. We recently explored the inherent relationship between brain structure and brain function (to which extent individual differences in white-matter connectivity constraint cognitive processing). Finally, we have focused on the possible neurorehabilitation effects of learning specific skills (music training) in stroke patients.

### Selected publications

- Peñalosa C, Mirman D, Cardona P, Juncadella M, Martin N, Laine M & **Rodríguez-Fornells A** 2017, 'Cross-situational word learning in aphasia'. *Cortex*. 93:12-27
- Vaquero L, **Rodríguez-Fornells A** & Reiterer S 2017, 'The left, the better: white matter brain integrity predicts foreign language imitation ability', *Cerebral Cortex*. 27(8):3906-3917
- Sierpowska J, Gabarrós A, Fernández-Coello A, Camins A, Castañer S, Juncadella M, Morís J & **Rodríguez-Fornells A** 2017, 'Words are not enough. Non-word repetition as an indicator of arcuate fasciculus integrity during brain tumor resection', *Journal of Neurosurgery*. 126(2):435-445
- Gurtubay-Antolin A & **Rodríguez-Fornells A** 2017, 'Neurophysiological evidence for enhanced tactile acuity in early blindness in some but not all haptic tasks', *NeuroImage*. 162:23-31
- Ripollés P, Biel D, Peñalosa C, Kaufmann J, Marco-Pallarés J, Noesselt T, **Rodríguez-Fornells A** 2017, 'Strength of ventral white matter pathways predicts semantic learning success'. *Journal of Neuroscience*. 37(46),11101-11113
- Vilà-Balló A, Mas-Herrero E, Ripollés ., Simo M, Miro J, López-Barroso D, Cucurell D, Juncadella M, Marco-Pallarés J, Falip M, **Rodríguez-Fornells A** 2017, 'Unravelling the role of the hippocampus in reversal learning', *Journal of Neuroscience*. 37(28):6686-6697
- François C, Teixidó M, Takerkart S, Agut T, Bosch L, **Rodríguez-Fornells A** 2017, 'Enhanced Neonatal Brain Responses To Sung Streams Predict Vocabulary Outcomes By Age 18 Months', *Scientific Reports*. 7(1):12451

### Selected research activities

Director of the doctoral program Brain, Cognition and Behavior, UB

Symposium organized at the "The Neuroscience and Music VI" conference (with T. Särkämö): Towards evidence-based practice of music interventions in stroke rehabilitation. Boston, 2017.



## Angel R. Nebreda

Institut de Recerca Biomèdica de Barcelona (IRB Barcelona)  
Life & Medical Sciences

Angel R. Nebreda obtained his PhD in Biochemistry and Molecular Biology at the University of Salamanca (Spain) and then worked as a postdoc at the National Institutes of Health in Bethesda (USA), and the Cancer Research-UK Clare Hall Laboratories in South Mimms (UK). In 1995, he started his own group at the European Molecular Biology Laboratory in Heidelberg (Germany) where he worked for 9 years and then moved to the newly created Centro Nacional de Investigaciones Oncológicas in Madrid (Spain). He is currently an ICREA Research Professor at the Institute for Research in Biomedicine, in Barcelona (Spain). His research interests focus on mechanisms regulated by protein kinases in cell proliferation, differentiation and survival, particularly in relation to cancer. He was elected EMBO member in 2003 and is an Editor of FEBS Letters and the Biochemical Journal.

### Research interests

We are investigating molecular mechanisms of tumorigenesis, specially regarding how the p38 MAPK signaling pathway regulates cell viability, proliferation and invasion, using a combination of biochemical approaches and studies in human cancer cell lines. An important question is how this signalling pathway contributes to the ability of tumor cells to bypass normal controls. We also use genetically modified mice, which allow the inactivation of this pathway in a regulated and tissue-specific manner, and chemical inhibitors to investigate physiological functions of p38 MAPKs and their role in lung, colon and breast cancer, as well as the connection between inflammation and tumorigenesis. We are very interested in the identification of therapeutic opportunities based on the modulation of p38 MAPK signaling. Moreover, we are studying the regulation and functions of a new family of proteins named RINGO that can activate the cell cycle kinases Cdk1 and Cdk2.

### Selected publications

- Jaeger S, Igea A, Arroyo R, Alcalde V, Canovas B, Orozco M, **Nebreda AR** & **Aloy P** 2017, 'Quantification of pathway crosstalk reveals novel synergistic drug combinations for breast cancer', *Cancer Research* 77(2):459-469.
- Colie S, Sarroca S, Palenzuela R, Garcia I, Matheu A, Corpas R, Dotti CG, Esteban JA, Sanfeliu C & **Nebreda AR** 2017, 'Neuronal p38 alpha mediates synaptic and cognitive dysfunction in an Alzheimer's mouse model by controlling beta-amyloid production', *Scientific Reports*, 7, 45306.
- Kuzmanic A, Sutto L, Saladino G, **Nebreda AR**, Gervasio FL & Orozco M 2017, 'Changes in the free-energy landscape of p38 alpha MAP kinase through its canonical activation and binding events as studied by enhanced molecular dynamics simulations', *Elife*, 6, e22175.
- Salvador-Bernaldez S, Mateus SB, del Barco Barrantes I, Arthur SC, Martinez-A C, **Nebreda AR** & Salvador JM 2017, 'p38 alpha regulates cytokine-induced IFN gamma secretion via the Mnk1/eIF4E pathway in Th1 cells', *Immunology and Cell Biology*, 95, 9, 814 - 823.
- Trempolec N, Muñoz JP, Slobodnyuk K, Marin S, Cascante M, Zorzano A & **Nebreda AR** 2017, 'Induction of oxidative metabolism by the p38a/MK2 pathway', *Scientific Reports* 7:11367.
- Terriente-Félix A, Perez L, Bray SJ, **Nebreda AR\*** & **Milan M\*** 2017, 'Drosophila model of myeloproliferative neoplasm reveals a feed-forward loop in the JAK pathway mediated by p38 MAPK signaling', *Disease Models & Mechanisms* 10, 399-407

### Selected research activities

Keynote speaker at LIII SAIB 2017 - Joint meeting of the Argentinean Societies for Research on Biosciences. November 2017. Buenos Aires, Argentina.



## César R. Ranero

Institut de Ciències del Mar (CSIC - ICM)  
Experimental Sciences & Mathematics

My Dr. degree was awarded (1993) by Barcelona University for work at the Earth Sciences Institute (CSIC). After a postdoc (93-99) and tenure (2000) at GEOMAR, I joined ICREA in 2005 to work at the Marine Sciences Institute (CSIC). I have published >100 articles with >3400 citations and h-index = 37. I have written several book chapters and ~20 non SCI papers. I have >400 contributions to international congresses and delivered >40 invited talks and seminars at European/American universities, research centers, and congresses/workshops. I have been organizer, convener, or program committee member of >30 international scientific meetings. I have been PI or CO-PI of over a dozen projects that included ship cruises. I have supervised the work of more than 20 graduated and postdoctoral researchers. Since 2007 I coordinate the Barcelona Center for Subsurface Imaging (<http://www.barcelona-csi.cmima.csic.es>) with 20-25 scientists.

### Research interests

My research interest is focused on the study of the structure of the lithosphere to understand geological processes at subduction zones, rifted continental margins and oceanic spreading centers. I primarily work on the analysis, processing, and imaging of seismic data using modern techniques like pre-stack depth migration, and both travel-time and full-waveform inversions. I integrate seismic images and other geophysical observations with geological data to study the tectonic and magmatic processes that lead to the formation of oceanic lithosphere at spreading centers and the rift architecture of continental margins. I also study tectonic processes at convergent plate boundaries, where my interest has been centered on the relations between long-term tectonics and fluids in the incoming oceanic and overriding plates. I am particularly interested on the processes that govern the generation of earthquakes at subduction zones.

### Selected publications

- Gutscher M-A, Kopp H, Krastel S, Bohrmann G, Garlan T, Zaragosi S, Klauke I, Wintersteller P, Loubrieug B, Le Faou Y, San Pedro L, Dominguez S, Rovere M, Mercier de Lepinay B, **Ranero C** & Sallares V 2017, 'Active tectonics of the Calabrian subduction revealed by new multi-beam bathymetric data and high-resolution seismic profiles in the Ionian Sea (Central Mediterranean)', *Earth And Planetary Science Letters*, 461, 61 - 72.
- Silva S, Terrinha P, Matias L, Duarte JC, Roque C, **Ranero CR**, Geissler WH & Zitellini N 2017, 'Micro-seismicity in the Gulf of Cadiz: Is there a link between micro-seismicity, high magnitude earthquakes and active faults?', *Tectonophysics*, 717, 226 - 241.
- Buffett GG, Krahnemann G, Klaeschen D, Schroeder K, Sallares V, Papenberg C, **Ranero CR** & Zitellini N 2017, 'Seismic Oceanography in the Tyrrhenian Sea: Thermohaline Staircases, Eddies, and Internal Waves', *Journal Of Geophysical Research-oceans*, 122, 11, 8503 - 8523.
- Dagnino D, Sallarès V & **Ranero CR** 2017, 'Waveform-Preserving Processing Flow of Multichannel Seismic Reflection Data for Adjoint-State Full-Waveform Inversion of Ocean Thermohaline Structure', *IEEE Transactions on Geoscience and Remote Sensing*, Volume: PP, Issue: 99 Pages: 1 - 11.
- Cameselle AL et al. 2017, 'The continent-ocean transition on the northwestern South China Sea', *Basin Res.*, 29, FEB, 73 - 95.



## Antoni Rosell-Melé

Universitat Autònoma de Barcelona (UAB)  
Experimental Sciences & Mathematics

I trained as an analytical chemist at the Chemical Institute of Sarrià (IQS), in Barcelona, and subsequently as an environmental chemist at CSIC under the supervision of J. Grimalt and J. Albaigés. I moved to England in 1990 to earn a PhD in the School of Chemistry at the University of Bristol (completed in 1994), in the group of G. Eglinton, on the application of biomarkers to decipher natural causes of climate change. This has become the central topic of my research career. In 1994 I joined the group of J. Maxwell as a post-doctoral researcher also in the School of Chemistry of Bristol to develop the use of fossil chlorophylls as climatic proxies. In 1996 I was awarded a NERC fellowship at the Department of Fossil Fuels and Environmental Geochemistry at the University of Newcastle, England. In 1999 I became a lecturer in the department of Geography at Durham University, England. In 2001, I joined the UAB and ICTA as an ICREA Research Professor.

### Research interests

The main focus of my work is the study of the natural variability of the Earth's climate. My research tools are organic geochemical techniques, which allow the quantitative reconstruction of past climates. My work develops in three main areas i) the development of novel biomarker methods of climate reconstruction; ii) their application to reconstruct the dynamics and role of the ocean on climate over the last 5 million years; and iii) the use of such information to validate and constrain the sensitivity of climate models. I am also involved in the study of the impacts of anthropogenic activities in natural environments. I apply an environmental forensics approach to study the origin and fate of organic pollutants in remote environments, like the deep sea or the Amazonian rainforests. A third area of research is the study of organic matter in an archaeological context, mainly to reconstruct palaeodiets of ancient cultures and the use or function of archaeological artifacts.

### Selected publications

- Huguet C, Fietz S, **Rosell-Melé A**, Daura X & Costenaro L 2017, 'Molecular dynamics simulation study of the effect of glycerol dialkyl glycerol tetraether hydroxylation on membrane thermostability', *BBA - Biomembranes*, 1859, 966-974.
- Compte-Port S, Subirats J, Fillol M, Sánchez-Melsió A, Marcé R, Rivas-Ruiz P, **Rosell-Melé A** & Borrego CM 2017, 'Abundance and co-distribution of widespread marine archaeal lineages in surface sediments of freshwater water bodies across the Iberian Peninsula', *Microbial Ecology*, 74, 776-787.
- Yusta-García R, Orta-Martínez M, Mayor P, González-Crespo C & **Rosell-Melé A** 2017, 'Water contamination from oil extraction activities in Northern Peruvian Amazonian rivers', *Environmental Pollution*, 25, 370-380.
- Ache M, Delgado-Raack S, Molina E, Risch R & **Rosell-Melé A** 2017, 'Evidence of bee products processing: a functional definition of a specialized type of macro-lithic tool', *Journal of Archaeological Science: Reports*, 14, 638-650.
- Navarrete V, Colonese AC, Tornero C, Antolín F, Von Tersch M, Subirà ME, Comes P, **Rosell-Melé A** & Saña M 2017, 'Feeding management strategies among the early Neolithic pigs in the NE of the Iberian Peninsula', *International Journal of Osteoarchaeology*, 27, 839-852.

### Selected research activities

Director of the Mass Spectrometry Stable Isotope and Environmental Forensics services at the UAB

Garante and member of the Steering Committee of the Maria de Maeztu award-project at ICTA

Paleoclimate Theme coordinator at the Goldschmidt 2017 conference

PAGES Steering group member of the Pliocene climate variability over glacial-interglacial timescales (PlioVAR) working group

Oral communications at American Geophysical Union conference in New Orleans, Goldschmidt Conference in Paris, XIV Jornada d'Avenços en Ecologia-Societat Catalana de Biologia, Iberian Zooarchaeology Meeting

PhD Evaluator at Curtin Univ. and the Univ. of Girona

PhD supervisor of P. Rivas at the UAB: "Validation and application of pyrogenic and vegetation biomarkers as proxies"



**Joan Rosell-Llompart**  
 Universitat Rovira i Virgili (URV)  
 Engineering Sciences

He graduated in physics in 1987 from Universitat Autònoma de Barcelona. Until his PhD (Yale University, 1994), he worked with Prof. J. Fernández de la Mora on aerodynamic focusing, inertial impaction, electrospray atomization, and differential mobility analysis. As postdoc associate with Prof. John B. Fenn at Virginia Commonwealth University, he did research on electrospray ionization mass spectrometry. In 1996 he joined Aradigm Corporation (California, USA) to develop liquid micro-jet technology for inhalation drug delivery. There, he co-discovered, with Prof. A. Gañán-Calvo (Universidad de Sevilla, Spain), the "flow blurring" fine liquid atomization regime. Since joining ICREA and Universitat Rovira i Virgili (URV) in 2004, his research has focused on electrospray and electrospinning for the manufacturing of nanomaterials. He leads the *Droplets, intErfaces, and floWs* (DEW) research lab at URV.

### Research interests

Under the action of electrostatic fields, liquid interfaces form liquid jets which are thinner than one hundredth of a human hair. We use such fine "electro-hydrodynamic jets" as templates for manufacturing of nanofibers, nanodroplets, and nanoparticles. Such elements (fibers, droplets, and particles) find use in many fields, like heterogeneous catalysis, non-linear optics, pharmaceuticals, chemical sensing, solar energy harvesting, and others. We devise strategies for engineering the internal structure of such elements, as well as for their assembly as micro/nano- "building blocks" into suprastructures. We also focus on the function-structure relationships of the synthesized materials, and the modelling of the physical and physicochemical processes underlying their production. We are also investigating the scaling up into arrays of electro-hydrodynamic emitters for materials production.

### Selected research activities

Organization of congress – European Aerosol Conference, Zürich (Switzerland), August 27 - September 1, 2017. – Organizing co-chair of special session #5: ELECTROHYDRODYNAMIC ATOMIZATION (EHDA) TECHNOLOGIES: FROM FUNDAMENTALS TO APPLICATION – with co-chair Prof. Luewton Lemos F. Agostinho, NHL University of Applied Sciences, Leeuwarden, The Netherlands.

Organization of congress – Member of Scientific Committee of RICTA-2017, the 5th Iberian Meeting on Aerosol Science and Technology, Barcelona (Spain), July 4-6, 2017.

Organizing co-chair of the Workshop on Fluid Mechanics 2017, July 20-21, 2017, Tarragona (Spain), under the auspices of the "Red Nacional para el Desarrollo de la Microfluídica" Spanish Network – with co-chair Prof. Francisco Huera, URV, Tarragona.

Oral presentation at congress: N. Sochorakis, J. Grifoll, J. Rosell-Llompart. Extractor-free one-dimensional arrays of electrosprays [SP55N3ea] European Aerosol Conference 2017, Zürich (Switzerland), August 27 - September 1, 2017.

Poster contributions at various congresses:

- \* "On the operation of linear arrays of electrosprays" [A30] RICTA-2017 (5th Iberian Meeting on Aerosol Science and Technology), Barcelona (Spain), July 4-6, 2017. With N. Sochorakis and J. Grifoll.
- \* "Electrospray plume control for uniform particle production" [A28] RICTA-2017. With Jordi Grifoll.
- \* "Ultra-fast submicron resolution electrohydrodynamic additive manufacturing" Workshop on Fluid Mechanics 2017. Red Nacional para el Desarrollo de la Microfluídica, DPI2015-71901-REDT, Tarragona (Spain), July 20-21, 2017. With I. Liashenko and A. Cabot.
- \* "Ultra-high resolution electrohydrodynamic AM technique with superior printing speed" [C4-P-THU-P2-6] EUROMAT-2017 (European Congress and Exhibition on Advanced Materials and Processes), Thessaloniki (Greece), September 17-22, 2017. With I. Liashenko and A. Cabot.



**Sven Rosenkranz**  
 Universitat de Barcelona (UB)  
 Humanities

Sven received his PhD from the University of St Andrews in 1999. After a postdoc research fellowship at UNAM, he worked at the philosophy department at FU Berlin until 2005 and was awarded his senior doctorate (habilitation) in 2004. From 2005 until 2008 he received a DFG Heisenberg Research Fellowship. Sven joined ICREA in 2008. He is Associate Fellow at Arché, St Andrews, and was until its closure in 2015 Honorary Research Fellow at the Northern Institute of Philosophy, Aberdeen. From 2010 until 2013 he coordinated the FP7 ITN PETAF (EC-GA 238128, €1465432) and from 2010 until 2015 served on the executive committee of the Consolidator-Ingenio PERSP (CSD2009-00056, €2000000). Since 2014 he is coordinator of the research group LOGOS (2014-SGR-81) and PI of the project Fallibility, Rational Belief, and Knowledge (FFI2013-45968-P, €66550). From 2016 until 2019, Sven coordinates the ETN Diaphora (H2020-MSCA-ITN-2015-675415, €3670854).

### Research interests

Sven's main research interests lie in metaphysics and epistemology. He is particularly interested in realism, objectivity, fallibility, the logic of justification, the limits of thought and knowledge (if any), and the philosophy of time. Sven has just completed a co-authored monograph on tensed theories of time under contract with Springer. He is currently working on a project on the logic of justification, based on his 2017 *Mind* paper 'The Structure of Justification'.

### Selected publications

- **Rosenkranz S** 2017, 'The Structure of Justification', *Mind*, fzw057.

### Selected research activities

Coordinator of LOGOS, the Consolidated Research Group in Analytic Philosophy (2014-SGR-81)

Coordinator of DIAPHORA, the H2020 MSCA European Training Network on *Philosophical Problems, Resilience and Persistent Disagreement* (H2020-MSCA-ITN-2015-675415)

Conception and organisation of two project workshops (for FFI2013-45968-P) and two major conferences (for FFI2013-45968-P and H2020-MSCA-ITN-2015-675415, respectively)

Sponsor of a successful Beatriu de Pinós postdoctoral fellowship application (2017-19)

'The Grounding of Tensed Truths', invited talk, *Diaphora Midterm Conference*, 14 December 2017, University of Barcelona

'The Structure of Justification', invited talk, 2nd workshop on *The Metaphysics of Knowledge*, 2 December 2017, University of St Andrews

'The Logic of Justification', invited talk, *Metaphysics Sans Phrase. 10 Years of EIDOS - The Centre for Metaphysics*, 23 November 2017, Université de Genève

'The Structure of Justification', invited talk, workshop on *Loving, Wondering and Knowing*, 28 June 2017, University of Southampton

'Dynamic Theories of Time - A Fresh Start', keynote speaker, *Fourth Meeting of the International Association for Philosophy of Time*, 13 June 2017, Gargnano del Garda, Italy



**Barbara Rossi**  
 Universitat Pompeu Fabra (UPF)  
 Social & Behavioural Sciences

Before joining UPF, Prof. Rossi was Associate Professor (with tenure) at Duke University. She held visiting positions at the Philadelphia Fed, Berkeley, ENSAE-CREST, U. of Montreal, Atlanta Fed, UCSD, U. of Sydney and Concordia U.. Prof. Rossi is the Editor of the Journal of Applied Econometrics and a coeditor of the International Journal of Central Banking, and served as associate editor of the Journal of Business and Economic Statistics, Quantitative Economics and Journal of Economic Dynamics and Control. She is a CEPR Fellow and member of the CEPR Business Cycle Dating Committee, a member of the Council of the European Economic Association, the Vice Chair of the Scientific Committee of the EABCN and a director of the International Association for Applied Econometrics. Currently she is also a research associate at CREI and a Barcelona GSE Research Professor. Her past or present grants include NSF, ERC, MICINN, BBVA and Marie Curie CIG.

### Research interests

Specializing in time series econometrics and empirical applications in international finance and macroeconomics, her current research has both a theoretical and an empirical focus. It encompasses theoretical analyses of the forecasting ability of economic models as well as model selection in the presence of instabilities. Her empirical works range from model comparisons of DSGE models, forecasting exchange rates, purchasing power parity analysis, to impulse response functions. She teaches applied time series econometrics as well as graduate econometrics and macroeconometrics courses.

### Selected publications

- Inoue A, Jin L & **Rossi B** 2017, 'Rolling window selection for out-of-sample forecasting with time-varying parameters', *Journal Of Econometrics*, 196, 1, 55 - 67.
- **Rossi B** & Sekhposyan T 2017, 'Macroeconomic uncertainty indices for the Euro Area and its individual member countries', *Empirical Economics*, 53, 1, 41 - 62.

### Selected research activities

- Coeditor, International Journal of Central Banking since January 2017.
- Fellow, International Association of Applied Econometrics since December 2017.
- Vice Chair of the Scientific Committee of the Euro Area Business Cycle Network, 2017-2019.
- Invited Speaker, *5<sup>th</sup> Macroeconometrics Workshop*, University of Sydney (Australia), November 2017.
- Invited Speaker, *2017 Heidelberg Summer School Lectures* (Germany).
- Invited Speaker, *Midwest Econometrics Group Conference*, Texas A&M (USA), October 2017.
- Invited Speaker, *German Statistical Society Annual Meeting*, Rostock (Germany), September 2017.
- Outstanding Paper Award, *International Journal of Forecasting* 2017.
- Keynote Speaker, *22<sup>nd</sup> Spring Meeting of Young Economists*, Halle (Germany), March 2017.
- Selected seminar presentations: ASSA, Columbia, NY Stern, University of Pennsylvania, NC State, Toulouse, Bundesbank, DIW, NBER-NSF conference, University of Sydney, Reserve Bank of New Zealand.
- Program Committee Member and Organizer, *Fourth Time Series in Macroeconomics and Finance Conference*, BGSE Summer Forum.
- Program Committee Member, *ICEEE* January 2017 (Italy).
- Program Committee Member, *2017 SNDE Symposium* (Paris).
- Program Committee Member, *2017 Infer Annual Conference* (France).
- Organizer, *Annual International Journal of Central Banking Research Conference* on: "The Interplay between Monetary Policy and Fiscal Policy", Czech National Bank, June 2017 (Prague).
- ERC Regular grant, Full amount 500,000 for 5 years, Amount per year 100,000. Student is Florens Odendahl.
- BBVA Full amount 100,000 for 2 years for 4 people, Amount per year per person 12500. Student is Lukas Hoetsch.





## Carme Rovira

Universitat de Barcelona (UB)  
Experimental Sciences & Mathematics

Dr. Rovira is an ICREA Research Professor at the University of Barcelona (UB). She did part of her PhD research in USA (North Carolina State University and Southern Illinois University) and obtained her PhD degree in Chemistry from the UB in 1995, working with JJ Novoa. Afterwards, she spent almost three years (1996-1998) as postdoctoral fellow at the Max-Planck-Institut für Festkörperforschung (Stuttgart, Germany), working with M. Parrinello. In 2002 she obtained a Ramón y Cajal position and moved to the Parc Científic de Barcelona. She was appointed ICREA Research Professor in 2007 and moved to the UB (Department of Chemistry) in 2012. Dr. Rovira has received research awards from the Government of Catalunya ("Distinció de la Generalitat", 2003) and the Barcelona City Council (City Prize on experimental sciences and technology, 2017). She is the author of about 140 publications in peer-reviewed journals and books, mainly in the fields of Theoretical Chemistry and Computational Biology.

### Research interests

The research at Dr. Rovira's group is focused on the computer simulation of biological processes at atomic-electronic detail, i.e. using computers to understand how biomolecules work. Her goal is to simulate the molecular mechanisms underlying ligand-protein interactions and enzymatic reactions to help in the design of more efficient enzymes and inhibitors. In the last few years, her research has been focused on heme proteins (peroxidases and catalases) and carbohydrate-active enzymes.

### Selected publications

- Petricevic M, Sobala LF, Fernandes PZ, Raich L, Thompson AJ, Bernardo-Seisdedos G, Millet O, Zhu S, Sollogoub M, Jimenez-Barbero J, **Rovira C**, Davies GJ & Williams SJ 2017, 'Contribution of Shape and Charge to the Inhibition of a Family GH99 endo-alpha-1-2-Mannanase', *Journal of the American Chemical Society*, 139 (3): 1089 - 1097.
- Beenakker TJM, Wander DPA, Offen WA, Artola M, Raich L, Ferraz MJ, Li K-Y, Houben JHPM, van Rijssel ER, Hansen T, van der Marel GA, Codee JDC, Aerts JMFG, **Rovira C**, Davies GJ & Overkleeft HS 2017, 'Carba-cyclophellitols Are Neutral Retaining-Glycosidase Inhibitors', *Journal of the American Chemical Society*, 139 (19): 6534 - 6537.
- Artola M, Wu L, Ferraz MJ, Kuo C-L, Raich L, Breen IZ, Offen WA, Codee JDC, van der Marel GA, **Rovira C**, Aerts CJMF, Davies GJ & Overkleeft HS 2017, '1,6-Cyclophellitol Cyclosulfates: A New Class of Irreversible Glycosidase Inhibitor', *ACS Central Science*, 3, 784-793.
- Iglesias-Fernández J, Hancock SM, Lee SS, Khan M, Kirkpatrick J, Oldham NJ, McAuley K, Fordham-Skelton A, **Rovira\* C** & Davis\* BG 2017, 'A front-face S<sub>N</sub>i synthase engineered from a retaining 'double-S<sub>N</sub>2' hydrolase', *Nature Chemical Biology*, 13, 874-880.
- Rojas-Cervellera V, Raich L, Akola J & **Rovira C** 2017, 'The molecular mechanism of the ligand exchange reaction of an antibody against a glutathione-coated gold cluster', *Nanoscale*, 9 (9): 3121 - 3127.
- Alonso-Gil S, Males A, Fernandes PZ, Williams SJ, Davies GJ & **Rovira C** 2017, 'Computational Design of Experiment Unveils the Conformational Reaction Coordinate of GH125 alpha-Mannosidases', *Journal of the American Chemical Society*, 139 (3): 1085 - 1088.

### Selected research activities

Invited speaker at: European Carbohydrate Symposium (Barcelona, *Keynote*), National ACS Meeting (Washington DC), QM/MM Methods and Applications (Manchester), Computational Advances in Drug Discovery (Lausanne).

One PhD thesis and two master theses defended.



**Joan-Pau Rubiés**  
 Universitat Pompeu Fabra (UPF)  
 Humanities

Joan-Pau Rubiés graduated in Early Modern History at the University of Barcelona (1987), where he received the extraordinary degree prize. He went on to do a PhD at the University of Cambridge, funded with an external studentship from King's College (1987-1991). He was subsequently Research Fellow at Queen's College, Cambridge, and Jean Monnet Fellow at the European University Institute in Florence. In 1994 he became Lecturer in Modern History at the University of Reading, and in 1999 he joined the Department of International History at the London School of Economics and Political Science. He was Reader in International History at the LSE until 2012, when he accepted the offer of a Research Professorship at ICREA, which he holds at Universitat Pompeu Fabra. He has been twice visiting professor at the École des Hautes Études (Paris and Marseille). He is currently leading a Research Project on Ethnographies, Religious Missions and Cultural Encounters in the Early Modern World.

### Research interests

I am a historian and have specialized in the study of cross-cultural encounters in the early modern world, from a perspective combining the contextual analysis of ethnographic sources with the intellectual history of early modern Europe. I am currently developing various lines of research: 1. Travel writing and ethnography, literary and visual 2. Religious missions, religious dialogue and cultural mediation 3. The intellectual impact of travel writing and the origins of the Enlightenment 4. Diplomacy and cultural encounters 5. The comparative history of early modern empires and globalization. I am the coordinator of the Research Group on Ethnographies, Cultural Encounters and Religious Missions (ECERM) at Universitat Pompeu Fabra, which has received funding from the ERC (Marie Curie Program), AGAUR (SGR) and MINECO: <http://www.upf.edu/ecerm/>

### Selected publications

- **Rubiés JP** 2017, 'The Discovery of New Worlds and Sixteenth-Century Philosophy', *The Routledge Companion to Sixteenth-Century Philosophy* (New York and Oxford, 2017), pp. 54-82.
- **Rubiés JP** 2017, 'Ethnography and Cultural Translation in the Early Modern Missions', *Studies in Church History* 53: 272-310
- **Rubiés JP** 2017, 'Were Early Modern Europeans Racist?', in *Ideas of Race in the History of the Humanities*, eds. Amos Morris-Reich and Dirk Rupnow, Palgrave MacMillan, pp. 33-87.

### Selected research activities

Last September I was invited to deliver two talks in the USA:

'Comparing cultures in the early modern world: hierarchies, genealogies and the idea of modernity', *Early Modern Workshop*, University of Harvard.

'Artistic skills and the hierarchy of civilizations in medieval and early modern travel writing: A Chinese theme through Muslim and European eyes', Bard Graduate Centre Seminar, New York.

I also spoke twice at the UK in connection to my work on early modern diplomatic encounters:

'Traveller, observer, spy: assessing the status of English accounts of the Ottoman and Mughal states in the seventeenth century', TIDE Project Seminar on *English travellers, spies, & diplomats in foreign courts* (The University of Liverpool in London).

'Conceptualizing Cross-Cultural Diplomacy in the Early Modern World: Problems and Contexts', Workshop on *Cross-Cultural Diplomacy Compared: Afro-Eurasian Perspectives (16th-18th centuries)*, Institute for Advanced Studies of the University of Warwick.

Other invited talks overseas included:

'The construction of the Indian and the Savage in a comparative perspective: peoples, places, and discourses', *Depictions of Indigenous Identities in the North and the South* (Arctic University of Norway, Tromsø).

'Ingenuity, Genius and Reason in the New World: Natives and Spaniards'. *America in the Making of Early Modern Ingenuity* (CRASSH, University of Cambridge).



## Nava Rubin

Universitat Pompeu Fabra (UPF)  
Engineering Sciences

Nava Rubin joined the Department of Information and Communication Technology at Universitat Pompeu Fabra (UPF) in 2012, as an ICREA Research Professor. She is currently on leave from her position as Professor of Neural Science and Psychology at New York University, where she has been a faculty member since 1996. Prior to that, she was a Postdoctoral Fellow at the Harvard University Vision Lab (1993-1996). In 1993 she received a PhD in Neuroscience from the Hebrew University in Jerusalem, for her thesis "The use of 1D and 2D motion information for the computation of global motion". Prior to that she received a MSc degree in Physics from the same university for her thesis "Equilibrium and oscillations in stochastic neural networks". Dr. Rubin is the recipient of several research awards, including a McDonnell-Pew award in Cognitive Neuroscience and an Alfred P. Sloan Fellowship.

### Research interests

Nava Rubin works on the computational and neural basis of human visual perception: how the brain transforms the fragmented, localized information present on the retina into the unitary, global representations of external shapes we experience. Much of her research has focused on mid-level processes such as figure/ground segregation, global motion and perceptual bi-stability, where network activity must provide flexible and efficient scene organizations that cannot rely on stored representations of familiar objects. She combines psychophysical experiments, theoretical analysis, modeling and brain imaging (fMRI) to tackle these phenomena from different angles and levels of analysis. More recently, she has also done research on interactions between visual perception and social cognition, as well as neuroaesthetics.



## Iñaki Ruiz-Trillo

Institut de Biologia Evolutiva (CSIC - IBE)  
Life & Medical Sciences

Iñaki Ruiz-Trillo is an ICREA Research Professor at the Institut de Biologia Evolutiva (CSIC-UPF) in Barcelona. His educational background includes a B.S. and a PhD in Biology from the University of Barcelona. Funded by grants from EMBO and the Canadian Institutes of Health Research, he completed a post-doctoral fellowship at Dalhousie University (Canada). He has also performed short term research projects at the Joint Genome Institute, the University of Arkansas and the Kavli Institute for Theoretical Physics. Iñaki has published more than 60 peer-reviewed articles, most of them in high impact journals, such as *Cell*, *Science*, *eLife*, and *PNAS*. He has lead several research projects, including 2 ERC grants. He is an EMBO member, F1000 Faculty member and serves in the editorial board of several journals. His current research interests include the origin of multicellular animals and the evolution of complex life forms.

### Research interests

The lab is interested in understanding how multicellular animals emerged from their unicellular ancestors. To this aim we perform comparative genomic analyses between multicellular animals and their closest unicellular relatives to unravel the nature of the unicellular ancestor that gave rise to animals. We are also currently developing molecular techniques and transgenesis tools in the closest unicellular relatives to Metazoa. Finally, we are also interested in unravelling the hidden diversity among opisthokonts lineages using metabarcoding data.

### Selected publications

- Sebé-Pedrós A & **Ruiz-Trillo I** 2017, 'Evolution and Classification of the T-Box Transcription Factor Family', *Current Topics in Developmental Biology*, 122:1-26
- Sebe-Pedros A, Degnan BM & **Ruiz-Trillo I** 2017, 'The origin of Metazoa: a unicellular perspective', *Nature Reviews Genetics*, 18, 8, 498 - 512.
- Grau-Bové X, Torruella G, Donachie S, Suga H, Leonard G, Richards TA & **Ruiz-Trillo I** 2017, 'Dynamics of genomic innovation in the unicellular ancestry of animals', *Elife*, 6, e26036.
- Ferrer-Bonet M & **Ruiz-Trillo I** 2017, '*Capsaspora owczarzaki*', *Current Biology*, Vol 27, Issue 17.
- López-Escardó D, Grau-Bové X, Gillaumet-Adkins A, Gut M, Sieracki ME & **Ruiz-Trillo I** 2017, '*Evaluation of single-cell genomics to address evolutionary questions using three SAGs of the choanoflagellate *Monosiga brevicollis**', *Scientific Reports* 7.11025.

### Selected research activities

Appointed vice-director of the Institut de Biologia Evolutiva (CSIC-Universitat Pompeu Fabra).

Elected EMBO member.



**Jorge G. Russo**  
Universitat de Barcelona (UB)  
Experimental Sciences & Mathematics

In 1983 JG Russo obtained a fellowship to study physics at the Instituto Balseiro, Bariloche, Argentina, where he obtained the degree (Licenciatura) in Physics (12/1986). He was awarded a SISSA fellowship to follow the PhD programme at SISSA, Trieste, Italy, where he finished his PhD (10/1990) under the supervision of Daniele Amati on Quantum gravity and String theory. As a postdoc at Stanford University, USA, he collaborated with L. Susskind on black hole physics. He continued his research on black holes and string theory first at the University of Texas at Austin, USA, and then at CERN, Geneva. In 1998 JG Russo moved to the University of Buenos Aires as a Professor and in 04/2003 joined ICREA as a Research Professor.

### Research interests

A major challenge of theoretical physics is unveiling the fundamental laws that govern the universe. The microscopic world, governed by quantum mechanics, is fuzzy, uncertain and involves three forces among elementary particles: electromagnetic, weak nuclear and strong nuclear. The gravitational force, described by Einstein general relativity, is instead observed at large scales. But this theory is incompatible with quantum mechanics. Superstring theory is presently the best candidate to reconcile gravity with quantum mechanics and thus to provide a unifying framework for the four forces of nature.

### Selected publications

- **Russo JG** & Tierz M 2017, 'Quantum phase transition in many-flavor supersymmetric QED(3)', *Physical Review D*, 95, 3, 031901.
- Pini A, Rodriguez-Gomez D & **Russo JG** 2017, 'Large N correlation functions N=2 superconformal quivers', *Journal Of High Energy Physics*, , 8, 066.
- **Russo JG** & Schaposnik FA 2017, 'N=2 Chern-Simons-matter theories without vortices', *Journal Of High Energy Physics*, , 7, 062.
- Rodriguez-Gomez D & **Russo JG** 2017, 'Free energy and boundary anomalies on  $S^a \times H^b$  spaces', *Journal of High Energy Physics*, 1710, pp 84.
- Rodriguez-Gomez D & **Russo JG** 2017, 'Boundary Conformal Anomalies on Hyperbolic Spaces and Euclidean Balls', *Journal of High Energy Physics*, Vol. 1712, p. 066.



## Neus Sabaté

Institute of Microelectronics of Barcelona - Centre Nacional de Microelectrònica (CSIC - IMB-CNM)  
Engineering Sciences

I obtained my Degree in Physics in 1998 at the University of Barcelona (UB). After that, I joined UB Electronics Dep. to develop ionizing radiation detectors. After that I stayed at the LAAS-CNRS in Toulouse, where I discovered my passion for silicon-based microsystems (MEMS) technologies. In 1999, I started my PhD at the Microelectronics Institute of Barcelona (CSIC) where I developed silicon-based flow and gas sensors for industrial applications. After the obtaining of my PhD, in 2004 I joined the IZM Fraunhofer in Berlin where I played a key role in the development of a new technique for stress measurements in thin films for the microelectronics industry. In 2006 I started a research line in silicon microfabricated fuel cells at IMB-CSIC that has evolved until the biodegradable electrochemical power sources I develop today. In 2015 I founded the spin-off Fuelium, aimed to commercialize disposable paper batteries for single use applications.

### Research interests

Since 2006, I have focused on the development of microfuel cells, with the final goal of integrating them within microdevices requiring power autonomy. After many years of development using silicon-related technologies I decided to approach printed electronics technology that allows to build devices entirely made of polymer-based and paper materials at a very competitive cost. The main goal of my research line is to obtain single-use electrochemical power sources that can provide with power autonomy the new generation of paper-based lab-on-a-chip devices while being environmentally friendly. I am highly motivated in transferring the devices I create to the "real world" in order to contribute to the enhancement of the industrial local ecosystem.

### Selected publications

- Ibrahim OA, Alday P, **Sabate N**, Esquivel JP & Kjeang E 2017, 'Evaluation of Redox Chemistries for Single-Use Biodegradable Capillary Flow Batteries', *Journal Of The Electrochemical Society*, 64, 12, A2448 - A2456.
- Esquivel JP, Alday P, Ibrahim OA, Fernández B, Kjeang E & **Sabaté N** 2017, 'A Metal-Free and Biotically Degradable Battery for Portable Single-Use Applications', *Advanced Energy Materials*, Vol. 7, 1700275.
- Esquivel JP, Buser JR, Lim CW, Domínguez C, Rojas S, Yager P & **Sabaté N** 2017, 'Single-use paper-based hydrogen fuel cells for point-of-care diagnostic applications', *Journal of Power Sources*, Vol. 342, pp. 442-451.
- González-Guerrero MJ, del Campo FJ, Esquivel JP, Leech D & **Sabaté N** 2017, 'Paper-based microfluidic biofuel cell operating under glucose concentrations within physiological range', *Biosensors and Bioelectronics*, Vol. 90, pp. 475-480.

### Selected research activities

#### Invited Talks

Single-use paper fuel cells and batteries for disposable Point-of-Care devices, Smart Systems Integration Conference, March 2017, Cork (Ireland)

Paper-based fuel cells for autonomous screening tests, VIII International Congress on Analytical Nanoscience and Nanotechnology, July 2017, Barcelona

Barcelona on the Frontiers of Science, Barcelona Global General Assembly, July 2017, Barcelona

#### Dissemination Activities

Challenges to enhance Barcelona start-up ecosystem - Round table at the 2<sup>nd</sup> Edition of the ACCIO Barcelona & Catalonia Start-up Hub, October 2017, Auditori Camp Nou, Barcelona

#### Technology Transfer Activities

In November 2017, my spin-off FUELIUM - that develops paper batteries for in-vitro diagnostic devices - was granted with Phase I of SME Instrument.



## Xavier Salvatella

Institut de Recerca Biomèdica de Barcelona (IRB Barcelona)  
Experimental Sciences & Mathematics

I was born in Barcelona, Spain. I obtained my first degree in Chemistry at the University of Barcelona followed by a MSc in Chemical Research at the University of London and a PhD in Organic Chemistry at the University of Barcelona. In 2003, I moved to the University of Cambridge to work as a Research Fellow with Christopher Dobson on the structural and dynamical characterization of proteins. In July 2008, I joined ICREA as a Researcher and the IRB as a Group Leader and in 2013 I became ICREA Research Professor.

### Research interests

A high resolution description of the structure and dynamics of proteins is a very useful tool to study the properties and the function of these important biomacromolecules and, most importantly, to understand how changes in sequence or environment can lead to disease. My research work aims, on the one hand, at developing methods to probe the fluctuations of the structure of proteins by combining experimental data and molecular simulations and, on the other hand, at understanding how changes in such motions relate to the molecular recognition of proteins, to their function and to disease.

### Selected publications

- Cato L, Neeb A, Sharp A, Buzon V, Ficarro SB, Yang L, Muhle-Goll C, Kuznik NC, Riisnaes R, Rodrigues DN, Armant O, Gourain V, Adelmant G, Ntim EA, Westerling T, Dolling D, Rescigno P, Figueiredo I, Fauser F, Wu J, Rottenberg JT, Shatkina L, Ester C, Luy B, Puchta H, Troppmair J, Jung N, Braese S, Straehle U, Marto JA, Nienhaus GU, Al-Lazikani B, **Salvatella X**, de Bono JS, Cato ACB & Brown M 2017, 'Development of Bag-1L as a therapeutic target in androgen receptor-dependent prostate cancer', *Elife*, 6, e27159.
- Ahn M, Waudby CA, Bernardo-Gancedo A, De Genst E, Dhulesia A, **Salvatella X**, Christodoulou J, Dobson CM & Kumita JR 2017, 'Application of Lysine-specific Labeling to Detect Transient Interactions Present During Human Lysozyme Amyloid Fibril Formation', *Scientific Reports*, 7, 15018.



## Samuel Sánchez

Institut de Bioenginyeria de Catalunya (IBEC)  
Engineering Sciences

Samuel (PhD Chemistry, UAB, 2008) is a Group Leader at the Max Planck Institute for Intelligent Systems, Stuttgart, Germany, and since January 2015 concurrently ICREA Professor at the Institute for Bioengineering of Catalonia (IBEC) in Barcelona. In 2009, he worked at NIMS, Japan and from 2010 until 2013, he was Group Leader at the Institute for Integrative Nanosciences, IFW Dresden, Germany. He received several awards: Guinness World Record® 2010 and 2017 for smallest jet engine; IFW-IIN Research Prize 2011 for outstanding scientist; ERC Starting Grant 2012 "Lab-in-a-tube and Nanorobotic Biosensors", ERC Proof-of Concept 2016; MIT TR35 as "Innovator of the year under 35" Spain 2014; Princess of Girona Scientific Research Award 2015; "Joven Relevante" Award by the Círculo Ecuéstre de Barcelona and National Research Award for Young Talent from the Catalan Foundation of Research and Innovation (FCRi).

### Research interests

Samuel Sánchez is leader of the "Smart Nano-Bio-Devices" group, working in the multidisciplinary field of Nanosciences with interest in self-powered micro- and nano-systems, small-scaled robots, integrated and flexible nano-(bio)-sensors, active drug delivery systems and 3D (Bio) Printed Soft Robotics. Sánchez's group has been consolidated as one of the leading groups in catalytic nano-motors from fundamental aspects to various proof-of-concept applications. Currently, the main research lines in the group are: 1. Nanofabrication of self-powered micro- and nanorobots using nanotechnology and new fabrication tools for biomedicine and environmental applications. 2. 3D Printing and 3D BioPrinting for soft robotics and biomedical engineering. 3. Fabrication of ultracompact and flexible devices for biosensing. 4. Physics of active colloids near surfaces.

### Selected publications

- Katuri J, Ma X, Stanton M & **Sánchez S** 2017, 'Designing Micro- and Nanoswimmers for Specific Applications', *Acc. Chem. Res.*, vol. 50, no. 1, pp 2-11.
- Stanton MM, Park BW, Miguel-Lopez A, Ma X, Sitti M & **Sánchez S** 2017, 'Biohybrid Microtube Swimmers Driven by Single Captured Bacteria', *Small*, 13, 19, UNSP 1603679.
- Ma X & **Sánchez S** 2017, 'Self-propelling micro-nanorobots: challenges and future perspectives in nanomedicine', *Nanomedicine*, 12, 12, 1363 - 1367.
- Xing M & **Sanchez S** 2017, 'Bio-catalytic mesoporous Janus nano-motors powered by catalase enzyme', *Tetrahedron*, vol. 73, no. 33, pp 4883 - 4886.
- Vilela D, Hortelao AC, Balderas-Xicohtencatl R, Hirscher M, Hahn K, Ma X & **Sanchez S** 2017, 'Facile fabrication of mesoporous silica micro-jets with multi-functionalities', *Nanoscale*, 9, 37, 13990 - 13997.
- Vilela D, Stanton M, Parmar J & **Sánchez S** 2017, 'Microbots Decorated with Silver Nanoparticles Kill Bacteria in Aqueous Media', *ACS Applied Materials & Interfaces*, vol. 9, no. 27, pp 22093 - 22100.
- Stanton MM & **Sanchez S** 2017, 'Pushing Bacterial Biohybrids to In Vivo Applications', *Trends In Biotechnology*, 35, 10, 910 - 913.
- Stanton MM, Park B, Vilela D, Bente K, Faivre D, Sitti M & **Sánchez S** 2017, 'Magnetotactic Bacteria Powered Biohybrids Target E. coli Biofilms', *ACS Nano*, vol. 11, num. 10, pp 9968-9978.

### Selected research activities

15 keynote/plenary/invited talks in international conferences and institutions  
 40+ appearances in the media: TV, radio, newspapers, and magazines  
 Outreach activities (Nanodivulga, CosmoCaixa, First Lego League, etc)  
 Organizing committee: Intern. Conference on MicroMachines, China  
 Attracting talent and funding: 3 Marie-Curie Postdocs, 3 JdC postdocs, 1FPI, and 1PhD Severo Ochoa. EXPLORA, MINECO projects  
 Scientific Advisory Board of LabChip Journal  
 2 front cover pages in: ChemNanoMat and Acc. Chem. Res. journals  
 Best Poster Awards: NanoBioMed conf. and MNM2017  
 Development of ERC Proof-of-Concept grant MICROCLEANERS  
 Guinness World Record: smallest jet engine





## María Victoria Sánchez-Vives

Institut d'Investigacions Biomèdiques August Pi i Sunyer  
(IDIBAPS)

Life & Medical Sciences

María V. Sanchez-Vives, MD, PhD in Neurosciences, has been ICREA Research Professor at the IDIBAPS (Institut d'Investigacions Biomèdiques August Pi i Sunyer) since 2008, where she is Head of the Systems Neuroscience group. She is also co-Director of the Event Lab (Experimental Virtual Environments in Neuroscience and Technology) and Adjunct Professor at the Dept. of Basic Physiology, University of Barcelona. She previously held a position as Associate Professor of Physiology and Group Leader at the Instituto de Neurociencias de Alicante (UMH-CSIC). She was Postdoctoral Fellow at Rockefeller University and Postdoctoral and Research Associate scientist at Yale University. Her independent research has been supported by national and international agencies. Since 2013 she is Chief Editor of *Frontiers in Systems Neuroscience*.

### Research interests

Cellular and synaptic properties as well as connectivity determine the emergent activity generated by neuronal networks. I am interested in different aspects of spontaneous rhythmic neural activity: its regulating mechanisms, the information it encodes, and the consequences of this activity upon the network. In my group we study these aspects from an experimental and computational approach. The integration of the cortical information giving rise to bodily representation and the combination of brain-computer interfaces and virtual reality for understanding these processes is another research line that we are pursuing.

### Selected publications

- **Sanchez-Vives MV\***, Massimini M & Mattia M 2017, 'Shaping the Default Activity Pattern of the Cortical Network', *Neuron*, 94, 5, 993 - 1001.
- D'Andola M, Rebollo B, Casali AG, Weinert JF, Pigorini A, Villa R, Massimini M & **Sanchez-Vives MV\* 2017**, 'Bistability, Causality, and Complexity in Cortical Networks: An in Vitro Perturbational Study', *Cereb Cortex*, 112:105-113.
- Nogueira R, Abolafia JM, Drugowitsch J, Balaguer-Ballester E, **Sanchez-Vives MV** & Moreno-Bote R 2017. 'Lateral orbitofrontal cortex anticipates choices and integrates prior with current information', *Nat Commun*, 8, 14823.
- Capone C, Rebollo B, Muñoz A, Illa X, Del Giudice O, **Sanchez-Vives MV\*** & Mattia M\* 2017, 'Slow-waves in cortical slices: how spontaneous activity is shaped by laminar structure'. *Cereb Cortex* 1-17.
- Nierula B, Martini M, Matamala-Gomez M, **Slater M** & **Sanchez-Vives MV** 2017, 'Seeing an Embodied Virtual Hand is Analgesic Contingent on Colocation', *Journal of Pain*, 18, 6, 645 - 655.
- Blaschke B, Tort-Colet N, Guimera A, Weinert J, Rousseau L, Heimann A, Drieschner A, Kempfski O, Villa R, **Sanchez-Vives MV** & **Garrido JA** 2017, 'Mapping brain activity with flexible graphene micro-transistors'. *2D Materials*, 4, 2, 025040.
- Castano-Prat P, Perez-Zabalza M, Perez-Mendez L, Escorihuela RM & **Sanchez-Vives MV** 2017, 'Slow and Fast Neocortical Oscillations in the Senescence-Accelerated Mouse Model SAMP8', *Front In Aging Neurosci*, 9, 141.
- Brotons-Mas JR, Schaffelhofer S, Guger C, O'Mara SM & **Sanchez-Vives MV** 2017, 'Heterogeneous spatial representation by different subpopulations of neurons in the subiculum', *Neuroscience* 343: 174-189

### Selected research activities

- *Invited talks/Chair*: World VR Forum (Switzerland), IEEE VR (Los Angeles), Rovereto, EITN-Paris, ICPS-Viena, Samara (Russia).
- *Seminars* in Universities of Albacete, Bilbao, Jerusalem, Mainz, Marseille.
- *Director* of 6 PhD Theses.
- *Meetings*: 28 presentations to meetings (posters, talks)
- *Dissemination*: 2 documentaries, radio interviews and written press.



## Anna Sanpera

Universitat Autònoma de Barcelona (UAB)  
Experimental Sciences & Mathematics

I graduated at Universitat Autònoma de Barcelona in 1986. From 1988-1992 Ph.D fellow (FPI) from the Ministerio de Educación y Ciencia at the Universitat Autònoma de Barcelona. In 1993, I moved to the University of Oxford, first as a research fellow and then as Fleming fellowship. In 1996, I moved to Saclay (Paris) as an European Post-Doctoral Research Fellow. In 1998 I was appointed research fellow at the Leibniz University, in Hannover (Germany) where I did my habilitation and became Professor Assistant. Since 2005 I am an ICREA Research Professor. My research interests are quite interdisciplinary and range from quantum information theory, to quantum gases and more recently condensed matter. Presently, I am working in the interface between quantum information and condensed matter. I have stable collaborations with different research groups both at national and international level. Otherwise I am fond of literature, sports and children.

### Research interests

My research interest are Quantum Information, Atomic Physics and more recently Condensed Matter Physics. I study the properties that atoms frozen to very low temperatures display. Ultracold atomic gases permit to study, in a very clean way, a rich variety of systems which appear in Nature but whose exotic properties are difficult to understand. I am also involved in the mathematical description of entanglement, arguably the most distinct feature of quantum physics. Taking advantage of the quantum properties of matter, we engineer more powerful ways to process and distribute information and build, in a near future, a quantum computers and simulators able to perform tasks that classical computers cannot. I am also working in Quantum Thermometry, Quantum Learning and Quantum Metrology to exploit the advantages quantum physics offers us to improve machine learning tasks as well as the determination of unknown parameters with a precision that classical physics cannot achieve.

### Selected publications

- Lewenstein M & Sanpera A & Ahufinger V 2017, 'Ultracold atoms in optical lattices: simulating quantum many-body systems', *Oxford University Press*, Oxford. Corrected paperback reprint. ISBN 978-019-878580-4.
- Yuste A, Moreno-Cardoner M & Sanpera A 2017, 'Using random boundary conditions to simulate disordered quantum spin models in two-dimensional systems', *Physical Review B*, 95, 19, 195167.
- Correa L, Perarnau-Llobet M, Hovhannisyán KV, Hernández-Santana S, Mehboudi M & Sanpera A 2017, 'Enhancement of low-temperature thermometry by strong coupling', *Phys. Rev. A*, 96, 062103.
- Quesada R, Rana S & Sanpera A 2017, 'Entanglement and nonlocality in diagonal symmetric states of N qubits', *Physical Review A*, 95, 4, 042128.
- McAlpine KD, Paganelli S, Ciuchi S, Sanpera A & De Chiara G 2017, 'Magnetic phases of spin-1 lattice gases with random interactions', *Physical Review B*, 95, 23, 235128.

### Selected research activities

- Apointed by the Austrian Academy of Science Scientific Advisory Board of the Institute for Quantum Optics and Quantum Information - Innsbruck
- Invited Researcher at the Joint Quantum Institute, Univ. of Maryland, USA April 2017
- Scientific Program Committee of AQIS-2017 (17th Asian Quantum Information Science Conference)
- Organizer of the International Max Planck workshop "Quantum sensing with quantum correlated system". Germany, September 2017
- Invited Colloquia/Seminars at: Univ. of Turkey (Finland), at Univ. Maryland (USA), Max Planck Institute fur Complex Systems (Germany), Univ. Lyon (France)
- Invited talks at International Conferences: Quantum Thermodynamics (Oxford), Small and Medium Atomic Systems (Okinawa, Japan), Out of Equilibrium Systems (Italy)
- Outreach: Invited talks "QUANTA QUANTICA" Associació Catalana d'Estudiants de Física (ACEF-UAB). December 2017; "THE COMPUTERS of the XXI st century" INS Menéndez y Pelayo. March 2017.
- Ph.D Committee Thesis (3) in: Spain, India, France
- 1 Ph.D Thesis supervised: Mohammad Mehboudi (Summa Cum Laude)



## Joan Seoane

Vall d'Hebron Institut d'Oncologia (VHIO)  
Life & Medical Sciences

Director of the Translational Research program at the Vall d'Hebron Institute of Oncology (VHIO) within the Vall d'Hebron Hospital since 2011. In 1998, he obtained his PhD from the University of Barcelona. Previously, in 1993, he obtained his BSc degree in Chemistry. Joan joined the Memorial Sloan-Kettering Cancer Center (MSKCC) in New York as a post-doctoral fellow in 1998 (first as a Research Fellow and then Research Associate since 2001). He was appointed ICREA Research Professor in 2004 and joined VHIO. In 2008, he was the recipient of a European Research Council (ERC) grant. He obtained two ERC Proof of Concept grants (2011, 2013). In 2008, he became Board member of the European Association of Cancer Research (EACR) and Associate Professor of the Autonomous University of Barcelona. In 2012, founded Mosaic Biomedicals as a spin-off company from his lab and, in 2013, he was the recipient of the Dr. Josef Steiner Award. In 2016, he became Secretary General of the EACR.

### Research interests

Our main objective is to understand the molecular mechanisms involved in the initiation and progression of cancer. Specifically, our research is focused on the study of brain tumours, including glioma and brain metastasis. Both glioblastoma (the most aggressive form of glioma) and brain metastasis are dismal diseases with limited therapeutic options. The understanding of the molecular mechanisms that govern these types of cancer is required in order to design rational, specific and successful therapeutic approaches.

### Selected publications

- Byrne A, Alferez D, Amant F, Annibaldi D, **Arribas J**, Biankin A, Bruna A, Budinská E, Caldas C, Chang D, Clarke R, Clevers H, Coukos G, Dangles-Marie V, Eckhardt SG, Gonzalez-Suarez E, Hermans E, Hidalgo M, Jarzabek M, de Jong S, Jonkers J, Kemper K, Lanfrancone L, Mælandsmo GM, Marangoni E, Marine JC, Medico E, Norum JH, Palmer H, Peeper D, Pelicci PG, Piris A, Roman-Roman S, Rueda O, **Seoane J**, Serra V, **Soucek L**, Vanhecke D, Villanueva A, Vinolo E, Bertotti A & Trusolino L 2017, 'Interrogating open issues in oncology and cancer precision medicine using Patient-Derived Xenograft models', *Nature Review Cancer*, 17, 254–268.
- **Gomis R & Seoane J** 2017, 'TGF $\beta$  Family Signaling in Tumor Suppression and Cancer Progression', *Cold Spring Harbor Perspectives*, 9 (12).
- Huber-Ruano I, Raventos C, Cuartas I, Sánchez-Jaro C, Wosikowski K, Janicot M & **Seoane J** 2017, 'An antisense oligonucleotide targeting TGF- $\beta$ 2 inhibits lung metastasis and induces CD86 expression in tumor-associated macrophages', *Ann Oncol.*, 28(9):2278-2285.
- **Seoane J** 2017, 'Cancer: Division hierarchy leads to cell heterogeneity', *Nature*, 549 (7671):164-166.

### Selected research activities

Organizer of the EACR Conference: Defence is the Best Attack: Immuno-Oncology Breakthrough (2017)



**M. Ángeles Serrano**  
 Universitat de Barcelona (UB)  
 Experimental Sciences & Mathematics

M. Ángeles Serrano obtained her Ph.D. in Physics at the Universitat de Barcelona in 1999. One year later, she also received her Masters in Mathematics for Finance from the CRM-Universitat Autònoma de Barcelona. After four years in the private sector as IT consultant and mutual fund manager, she returned to academia in 2004. She completed her postdoctoral research at Indiana University (USA), the École Polytechnique Fédérale de Lausanne (Switzerland) and IFISC Institute (Spain). She came back to Barcelona in 2009, when she was awarded a Ramón y Cajal Fellowship at UB. In February 2009, she obtained the Outstanding Referee award of the American Physical Society. She is a Founder Member of Complexitat, the Catalan Network for the study of Complex Systems, and a Promoter Member of UBICS, the Universitat de Barcelona Institute of Complex Systems. M. Ángeles Serrano is ICREA Research Professor at the Universitat de Barcelona from October 2015.

### Research interests

Complex networks -e.g. the Internet, molecular networks in the cell, or the international trade system- are ubiquitous and around us. All of them, regardless of their origin, talk a common language that we are starting to understand. A major challenge for a better comprehension of the relation between their structure and function, and so for the prediction of their adaptation capabilities and evolution, is the characterization of the multilevel nature of complex networks in space and time. We are investigating the role of space, producing maps of networks embedded in a hidden geometry where distance stands as a measure of the tendency of elements to interact. Our focus is also on multiplexes and on networks of networks, in which different types of interactions coexist, and on the impacts of time variability in the presence of connections. Our applications cover a wide variety of real systems, from biological systems to economic and sociotechnological networks.

### Selected publications

- Kleineberg K-K, Buzna L, Papadopoulos F, Boguna M & **Serrano MA** 2017, 'Geometric Correlations Mitigate the Extreme Vulnerability of Multiplex Networks against Targeted Attacks', *PHYS REV LETT* 118, 21, 218301
- Ortiz E, Starnini M & **Serrano MA** 2017, 'Navigability of temporal networks in hyperbolic space', *Scientific Reports* 7, 15054
- Guell O, Sagues F & **Serrano MA** 2017, 'Detecting the Significant Flux Backbone of Escherichia coli metabolism', *FEBS Letters* 591, 10, 1437 - 1451
- Allard A, **Serrano MA**, Garcia-Perez G & Boguna M 2017, 'The geometric nature of weights in real complex networks', *Nature Communications* 8, 14103
- Haerter JO, Diaz-Guilera A & **Serrano MA** 2017, 'Noise-induced polarization switching in complex networks', *Physical Review E* 95, 4, 042305

### Selected research activities

Chair, International Workshop *Mapping Complexity Macfang 2017*, Barcelona, Catalonia, Spain, November 6-8

Co-Chair, *International School on Network Science NetSci 2017*, Indianapolis, Indiana, USA, June 19-20

Chair, *Minisymposium on Chemical Networks, Engineering of Chemical Complexity International Conference 2017*, Vilanova i la Geltrú, Catalonia, Spain, June 19-22

Invited Speaker, "*Multiscale unfolding of complex networks by geometric renormalization*", International Conference on Network Science NetSci 17, Indianapolis, Indiana, USA, June 19-23

Public Lecture, "*Networks: a change of paradigm*", and Keynote Speaker, "*The hidden geometry of complex networks: foundations and applications*", Networks Scientific Conference 2017, Amsterdam, The Netherlands, June 7-9

Keynote Speaker, "*Multiscale unfolding of complex networks by geometric renormalization*", Critical and collective effects in graphs and networks CCEGN-17, Moscow, Russia, May 15-19

Board member: UBICS, Universitat de Barcelona Institute of Complex Systems; Complexitat.cat, Catalan Network for the study of Complex Systems

Paper media coverage: *The World Trade Atlas 1870-2013* (Sci Rep 6, 33441, 2016) in El Periódico online 02/18/2017, and in press 02/19/2017



## Manuel Serrano

Institut de Recerca Biomèdica de Barcelona (IRB Barcelona)  
Life & Medical Sciences

Manuel Serrano obtained his PhD in 1991 for his research at the Centre for Molecular Biology (CSIC/UAM, Madrid) of M. Salas. From 1992 to 1996 he worked as a Postdoctoral Fellow in the laboratory of D. Beach at the Cold Spring Harbor Laboratory, New York, USA. In 1997, he returned to Spain to start his own research group at the Spanish National Biotechnology Centre (CSIC, Madrid). He moved to the Spanish National Cancer Research Centre (Madrid) in 2003 to lead the Tumour Suppression Group, where he also served as Director of the Molecular Oncology Programme (2012-2017). In May 2017, he relocated to the Institute for Biomedical Research-IRB Barcelona to establish the Cellular Plasticity and Disease Group within the Molecular Medicine Research Programme. He has accomplished important scientific contributions to the understanding of ageing from different perspectives: Cancer & Ageing, Metabolism & Ageing, Regeneration & Ageing.

### Research interests

The unifying concept that has guided our research is that tumour suppressors protect the organism from many types of damage and regardless of the pathology that damage may cause. Protection from cancer is just one of the outcomes of tumour suppressors, others being protection from chronic diseases, nutritional overload, tissue injuries, or aging. Tumour suppressors often trigger a cellular state known as cellular senescence, and we have pioneered the concept that cellular senescence is critical to signal tissue damage and to elicit tissue regeneration. The key emerging paradigm is that tumour suppressors, by triggering cellular senescence, recruit inflammatory cells and create a tissue microenvironment that favours tissue repair and regeneration. Damage → Tumour Suppressors → Cellular Senescence → (secreted factors) → Cellular Plasticity → Tissue Repair

### Selected research activities

PRIOR TO MY ICREA APPOINTMENT - SELECTED PUBLICATIONS of 2017

- Marion RM, Lopez de Silanes I, Mosteiro L, Gamache B, Abad M, Guerra C, Megias D, **Serrano M** & Blasco MA 2017, 'Common telomere changes during in vivo reprogramming and early stages of tumorigenesis', *Stem Cell Rep.*, **8**, 460-475.
- Evangelou K, Lougiakis N, Rizou SV, Kotsinas A, Kletsas D, Muñoz-Espín D, Kastrinakis NG, Pouli N, Marakos P, Townsend P, **Serrano M**, Bartek J & Gorgoulis VG 2017, 'Robust, universal biomarker assay to detect senescent cells in biological specimens', *Aging Cell*, **16**, 192-197.
- Kannappan K, Matsuda A, Ferreira-Martins J, Zhang E, Palano G, Czarna A, Castro Cabral-Da-Silva M, Bastos-Carvalho A, Sanada F, Ide N, Rota M, Blasco MA, **Serrano M**, Anversa P & Leri A 2017, 'P53 modulates the fate of cardiac progenitor cells ex vivo and in the diabetic heart in vivo', *EBioMedicine*, **16**, 224-237.



## Luis Serrano

Centre de Regulació Genòmica (CRG)  
Life & Medical Sciences

I did my PhD at the CBM in Madrid on the role of the carboxy-terminal region of tubulin on polymerization and MAP binding. Then I moved to the UK to work on protein folding. In 1993 I moved to the EMBL as a GL and started a new activity related to Protein design. After 6 years I was promoted to Senior Scientist. 2 years later I was appointed head of the Structural & Computational Biology programme. At that time we moved into the field of protein misfolding and amyloidoses diseases. We also started a new area of research on Systems Biology, designing small gene networks, doing computer simulations on them and performing experiments to test the predictions. After 14 years at the EMBL I moved to Spain to lead a programme working on Systems Biology. I was appointed vice-director before finally becoming the CRG director in July 2011. My group is focused on Synthetic Biology, engineering and designing of biological systems using our knowledge on protein design and gene networks.

### Research interests

The group of Luis Serrano is interested in the quantitative understanding and in the rational design of Biological Systems. To achieve this goal they combine theoretical and experimental approaches and develop appropriate software. Of particular interest for the group is the combination of protein design and network analysis to understand signal transduction and gene regulation. As a more ambitious project the group is part of a consortium with the EMBL in Heidelberg aiming at obtaining for the first time a global quantitative understanding of a living system, *Mycoplasma pneumoniae*.

### Selected publications

- Trussart M, Yus E, Martinez S, Bau D, Tahara YO, Pengo T, Widjaja M, Kretschmer S, Swoger J, Djordjevic S, Turnbull L, Whitchurch C, Miyata M, **Marti-Renom MA**, Lluch-Senar M & **Serrano L** 2017, 'Defined chromosome structure in the genome-reduced bacterium *Mycoplasma pneumoniae*', *Nature Communications*, 8, 14665.
- Stojanovski K, Ferrar T, Benisty H, Uschner F, Delgado J, Jimenez J, Sole C, de Nadal E, Klipp E, Posas F, **Serrano L** & Kiel C 2017, 'Interaction Dynamics Determine Signaling and Output Pathway Responses', *Cell Reports*, 19, 1, 136 - 149.
- Kiel C, Lastrucci C, Luthert PJ & **Serrano L** 2017, 'Simple and complex retinal dystrophies are associated with profoundly different disease networks', *Scientific Reports*, 7, 41835.
- Yus E, Yang J-S, Sogues A & **Serrano L** 2017, 'A reporter system coupled with high-throughput sequencing unveils key bacterial transcription and translation determinants', *Nature Communications*, 8, 368.

### Selected research activities

- Organizer:

Courses@CRG: Whole Cell Modeling, focused on multi-algorithm whole-cell modeling.

- Participation in international Congresses:

SBHD, Heidelberg: [Is gene-/network- and pathway-centric \(interactome\) approach the best way to look at complex diseases?](#), Germany

International Symposium on Personalized Medicine, German Cancer Research Center (DKFZ): [A network/system biology approach to reveal new insights in Age-related Macular Degeneration pathogenesis.](#), Heidelberg, Germany

IRI Life Sciences seminar series: [Is it possible to computer model a cell?](#), Germany

EPFL Seminar series, ["Is it possible to understand a simple biological system in a quantitative manner?"](#), France



## James Sharpe

Centre de Regulació Genòmica (CRG)  
Life & Medical Sciences

1997: PhD MRC National Institute for Medical Research at Mill Hill, London (UK). "Cis-regulatory mechanisms of the Hox genes in mouse development". Lab of Dr. Robb Krumlauf. 1997-1998: Postdoc on *Xenopus* development, University of Chile. 1998: MRC Human Genetics Unit, Edinburgh. Postdoc on computational approaches to study mouse limb development. 2001: Development of a 3D optical imaging technique and introduction of the term "Optical Projection Tomography", commercialised under the name Bioptonics. 2003: Group Leader in Edinburgh. 2006: Senior Group Leader at the Centre de Regulació Genòmica, Barcelona (Spain). 2011: Acting Coordinator of the EMBL-CRG Systems Biology Program. 2014: Coordinator of the EMBL-CRG Systems Biology Program.

### Research interests

The physical complexity of a human being, or even a single organ, is truly astounding. The goal of my lab is to understand how the activities of gene networks controls the millions of cells which make up our organs - allowing them to communicate with each other, to decide what to do at each moment during embryo development: whether to divide, which way to move, and which cells types to become (cartilage, bone, connective tissue, etc.) We believe this will only be achieved by integrating information into a computer model, and to this end we are developing new imaging and computational methods to understand one example of organogenesis - vertebrate limb development. We combine various systems biology approaches to integrate data on cell activities and gene networks into a realistic 4D computer simulation of the process. This is a truly interdisciplinary endeavour, and the lab is therefore composed of physicists, engineers and computer scientists as well as biologists.

### Selected publications

- **Sharpe J** 2017, 'Computer modeling in developmental biology: growing today, essential tomorrow', *Development*, 144, 23, 4214 - 4225.
- Abe J, Germann P, Ripoll J, **Sharpe J** & Stein JV 2017, 'Non-linear scaling of CD8(+) T cell responses by bystander DCs', *Cytokine*, 100, 48 - 48.
- Jimenez A, Cotterell J, Munteanu A & **Sharpe J** 2017, 'A spectrum of modularity in multi-functional gene circuits', *Molecular Systems Biology*, 13, 4, 925.

### Selected research activities

In addition to speaking at many invited events (in London, EPFL, Edinburgh, Cambridge, Utecht, Dresden, Kansas City) including a Keynote Lecture at the 2017 European Conference on Computational Biology (ECCB), the year was dominated by two major events for my scientific career. Firstly, I spent 3 months on sabbatical at MIT, Boston, as a Distinguished Visiting Scholar, hosted by the lab of Prof. Roger Kamm in the Department of Biological Engineering. This was a very productive period, interacting with many groups from the EBICS program (Emergent Behaviour in Integrated Cellular Systems), writing scientific papers, and learning about how various engineering perspectives can be brought into tissue biology. Secondly, I was appointed as Head of EMBL's new research unit in Barcelona. This is a great honor, and has dominated the latter part of the year's activities.



## Vassil Skumryev

Universitat Autònoma de Barcelona (UAB)  
Engineering Sciences

Vassil Skumryev is ICREA Research Professor at Universitat Autònoma de Barcelona. He received a PhD from the University of Sofia (Bulgaria) in 1983, where he was habilitated in 1991. Prior to joining ICREA in 2003, he had long term appointments, including Visiting Scientist / Professor Positions at Trinity College (Dublin, Ireland); University of Delaware (USA); Max-Planck Institute für Metalforschung (Stuttgart, Germany); The Royal Institute of Technology (Stockholm, Sweden). He has worked in a broad range of magnetic materials and phenomena publishing over 130 scientific papers (incl. Nature, Physical Review Letters, Physics Reports, Physical Review, Advanced Materials, Applied Physics Letters...).

### Research interests

Magnetic Structures and Magnetic Phase Transitions (incl. neutron diffraction studies and such at very high magnetic fields); Magnetoelectric Materials and how the interface phenomena in nanostructures of such materials could allow an additional degree of freedom in device design (e.g. new type memory, where the magnetic state is controlled by an electric field or vice versa); Magnetic Nanostructures with Enhanced Thermal Stability (e.g. for a possible application as high-density recording media); Intrinsic Magnetic Phase Separation; Metal-Based Pharmaceuticals (studying the magnetic properties can provide important information for the structure and other properties of such pharmaceuticals); Magnetometry

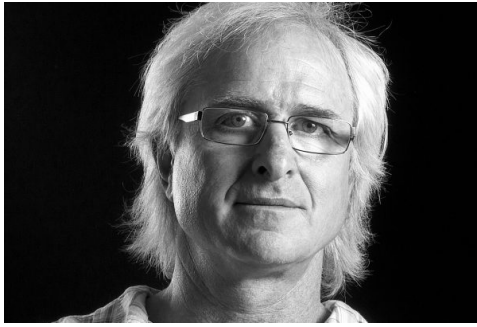
### Selected publications

- Petkov V, Prasai B, Shastri S, Park H-U, Kwon Y-U & **Skumryev V** 2017, 'Ensemble averaged structure-function relationship for nanocrystals: effective superparamagnetic Fe clusters with catalytically active Pt skin', *Nanoscale* 9, 15505.
- Urcelay-Olabarria I, Ressouche E, Wang Z, Skourski y, Ivanov VY, Popov YF, Vorobev GP, Balbashov AM, Qureshi N, Garcia-Munoz JL & **Skumryev V** 2017, 'Magnetic field induced phase transitions and phase diagrams of multiferroic  $Mn_{0.95}Co_{0.05}WO_4$  with cycloidal spin structure', *Physical Review B*, 96, 10, 104435.

### Selected research activities

- Research stay at Universidade Federal do Rio Grande do Sul, Brazil ("Special Visiting Researcher Fellowship"), Jan-Febr 2017.
- Editorial board member: The European Physical Journal Plus (Springer).
- User Committee Member of the European Magnetic Field Laboratory.





**Gustavo A. Slafer**  
Universitat de Lleida (UdL)  
Life & Medical Sciences

Gustavo Slafer (PhD, University of Melbourne) is ICREA Research Professor at the University of Lleida (Catalonia, Spain), where he is also Associate Professor -Department of Crop & Forest Sciences. He is also currently (i) Honorary Professor of the School of Biosciences, University of Nottingham, UK; (ii) Editor of particular sections of Crop Science and Spanish Journal of Agricultural Research, (iii) Handling Editor of Food and Energy Security, (iv) Associate Editor of Euphytica; and (v) member of the Editorial or Advisory Boards of Field Crops Research, European Journal of Agronomy and Agricultural and Food Science. Until Dec. 2017 he has co-edited 6 scientific books, by publishers in USA and UK, and published 40 chapters in international books and more than 170 papers in JCR-journals. His h-index at Dec. 2017 was 49 (WebOfScience-CoreCollection). He has been invited several times to deliver talks on crop physiology in international conferences.

### Research interests

I study the mechanisms underlying the responses of grain crops to environmental and genetic factors. My research approach has been always focused at the crop level of organization. The environmental factors include management practices such as irrigation or fertilization (among other less manageable environmental factors including radiation, photoperiod and temperature). Genetic factors include from general breeding strategies to the action of particular genes or groups of genes. The general aim is identifying alternatives to traditional farming and breeding practices to enhance the efficiency of resource use, as an avenue to increase simultaneously both crop productivity and agricultural sustainability.

### Selected publications

- Ferrante A, Cartelle J, Savin R & **Slafer GA** 2017, 'Yield determination, interplay between major components and yield stability in a traditional and a contemporary wheat across a wide range of environments', *Field Crops Research*, 203, 114 - 127.
- Ochagavia H, Prieto P, Savin R, Griffiths S & **Slafer GA** 2017, 'Duration of developmental phases, and dynamics of leaf appearance and tillering, as affected by source and doses of photoperiod insensitivity alleles in wheat under field conditions', *Field Crops Research*, 214, 45 - 55.
- Zhu C, Farré G, Zanga D, Lloveras J, Michelena A, Ferrio JP, Voltas J, **Slafer G**, Savin R, Albajes R, Eizaguirre M, Lopez C, Cantero-Martínez C, Díaz-Gómez J, Nogareda C, Moreno JA, Angulo E, Estany J, Pena RN, Tor M, Portero-Otin M, Eritja N, Arjó G, Serrano JCE, Matias-Guiu X, Twyman RM, Sandmann G, Capell T & **Christou P** 2017, 'High-carotenoid maize: development of plant biotechnology prototypes for human and animal health and nutrition', *Phytochemistry Reviews*, 2017:1-15.

### Selected research activities

- Honorary Professor at the School of Biosciences, University of Nottingham.
- President Committee Evaluation of Research Groups in Agricultural Sciences of CSIC.



**Mel Slater**  
 Universitat de Barcelona (UB)  
 Engineering Sciences

Mel Slater joined ICREA in January 2006 and is at the University of Barcelona. He became Professor of Virtual Environments at University College London in 1997. He was a UK EPSRC Senior Research Fellow from 1999 to 2004, and was founder of the Virtual Environments and Computer Graphics group at UCL. Thirty seven of his PhD students have obtained their PhDs since 1989. In 2005 he was awarded the Virtual Reality Career Award by IEEE Virtual Reality 'In Recognition of Seminal Achievements in Engineering Virtual Reality.' He is Co-Director of the Event Lab ([www.event-lab.org](http://www.event-lab.org)) at UB. He held a European Research Council Advanced Grant TRAVERSE ([www.traverserc.org](http://www.traverserc.org)), and has been awarded two ERC Proofs of Concept. He started a new European Research Council Advanced Grant 1st January 2018.

### Research interests

Mel Slater's main goal is to radically extend the boundaries of virtual reality. His research aims to provide a framework for the scientific understanding of how people act and respond in immersive virtual reality. He works on applications that involve simulations of social situations that are difficult or impossible to realise in physical reality, even to the extent of transforming the very body of the participant. This research also contributes to the neuroscience of body representation. His research is concerned with presence, that is, understanding the conditions under which people tend to respond realistically to virtual situations and events. The Event Lab at UB carries out research on both the technical side of real-time computer graphics and virtual reality systems, as well as on the scientific side. The application areas of interest include various forms of rehabilitation, including psychological therapy.

### Selected publications

- Banakou D & **Slater M** 2017, 'Embodiment in a virtual body that speaks produces agency over the speaking but does not necessarily influence subsequent real speaking', *Scientific Reports* 7, 14227.
- Rovira A & **Slater M** 2017, 'Reinforcement Learning as a tool to make people move to a specific location in Immersive Virtual Reality', *Int J of Human-Computer Studies*, 98, 89-94
- Bourdin P, Barberia I, Oliva R & **Slater M** 2017, 'A Virtual Out-of-Body Experience Reduces Fear of Death'. *PLoS ONE* 12(1): e0169343.
- Skarbez R, Neyret S, Brooks Jr. FP, **Slater M** & Whitton MC 2017, 'A psychophysical experiment regarding the components of plausibility illusion', *IEEE Transactions on Visualization and Computer Graphics*, 23(4), 1369-1378.
- Bergstrom I, Azevedo AS, Panos P, Saldanha N & **Slater M** 2017, 'The Plausibility of a String Quartet Performance in Virtual Reality', *IEEE Transactions on Visualization and Computer Graphics*, 23(4), 1352-1359.
- Freeman D, Reeve S, Robinson A, Ehlers A, Clark D, Spanlang B & **Slater M** 2017, 'Virtual reality in the assessment, understanding, and treatment of mental health disorders', *Psychological Medicine*, 47, 14, 2393 - 2400.
- Hasler BS, Spanlang B & **Slater M** 2017, 'Virtual race transformation reverses racial ingroup bias', *Plos One*, 12, 4, e0174965.
- Tajadura-Jiménez A, Banakou D, Bianchi-Berthouze N & **Mel Slater M** 2017, 'Embodiment in a Child-Like Talking Virtual Body Influences Object Size Perception, Self-Identification, and Subsequent Real Speaking', *Scientific Reports*, 7, 9637.

### Selected research activities

Mel Slater is Field Editor of *Frontiers in Robotics and AI*, and Editor of the Virtual Environments Section.

He was an invited or keynote speaker at 12 international conferences in 2017, including the Microsoft Faculty Summit in Redmond, USA.

His research on VR in psychological therapy has been reported several times in the media including [The Guardian](#) the [BBC](#), [New Scientist](#) and [PNAS](#).



**Ricard Solé**  
Universitat Pompeu Fabra (UPF)  
Life & Medical Sciences

I am ICREA Research Professor at the Universitat Pompeu Fabra, where I'm the head of the Complex Systems Lab. I am also External Professor of the Santa Fe Institute (New Mexico, USA) and external faculty of the Center for Evolution and Cancer at UCSF. I am also member of the editorial board of several international journals. I obtained my degrees in Physics and Biology at the University of Barcelona and received my PhD in Physics at the Universitat Politècnica de Catalunya. I have been awarded with grants of the James McDonnell Foundation, the Botín Foundation and an ERC Advanced Grant.

### Research interests

One of my main research interests is understanding the origins of complexity and its decay in biological systems and their engineered counterparts. How cells, genetic codes, symbiosis, multicellularity, computation, cooperation, neural systems, language, intelligence or consciousness emerge are some of the key problems that I would like to understand. To this goal, my Lab develops both theoretical and experimental research, including an ambitious program on synthetic biology. The later area includes an exploration of synthetic multicellular systems, synthetic swarm intelligence and strategies to redesign existing ecosystems to fight against climate change and its impacts.

### Selected publications

- Sardanyés J, Martínez R, Simó C et al. 2017, 'Abrupt transitions to tumor extinction: a phenotypic quasispecies model', *J. Math. Biol.*, 74, 7, 1589 - 1609.
- Maestre FT, **Sole R** & Singh BK 2017, 'Microbial biotechnology as a tool to restore degraded drylands', *Microbial Biotechnology*, 10, 5, 1250 - 1253.
- Macia J, Vidiella B & **Solé RV** 2017, 'Synthetic associative learning in engineered multicellular consortia', *Journal of The Royal Society Interface*, 14(129), 20170158.
- Amor DR, Montanez R, Duran-Nebreda S & **Sole R** 2017, 'Spatial dynamics of synthetic microbial mutualists and their parasites', *Plos Computational Biology*, 13, 8, e1005689.



## Martín Sombra

Universitat de Barcelona (UB)  
Experimental Sciences & Mathematics

Born in 1970 in Ezpeleta (Argentina), Martín Sombra studied Mathematics as an undergraduate at the University of La Plata. He did his PhD thesis on Computer Algebra at the University of Buenos Aires. He then did postdoctoral stays at the MSRI at Berkeley, the IAS at Princeton, and the IMJ at Paris. He became Maître de Conférences at the University of Lyon 1, then spent four years as a "Ramón y Cajal" Researcher at the University of Barcelona, and became afterwards Full Professor at the University of Bordeaux 1. He finally moved back to Barcelona, joining ICREA in 2009. He works on problems at the interface of Algebraic Geometry, Number Theory and Complexity Theory. He currently collaborates with research groups in Barcelona, Paris, Caen, Bordeaux and Buenos Aires.

### Research interests

Polynomials appear in a wide variety of contexts in Mathematics, Engineering and Computer Science. Polynomials in those situations are not random but come up with a certain structure which is important to exploit. I am interested in systems of structured polynomial equations and particularly in questions like: how many solutions does a given system have? How complicated those solutions can be? Can we predict where they will accumulate? Can we efficiently solve systems of polynomial equations? These problems have conduced me to study combinatorial objects like polytopes and fans, geometrical objects like curves and surfaces, and arithmetic objects like height of points and Diophantine equations. This gives a rich interplay between Complexity Theory, Combinatorics, Algebraic Geometry and Number Theory, leading to interesting results and stimulating research directions.

### Selected publications

- D'Andrea C, Narváez-Clauss M & **Sombra M** 2017, 'Quantitative equidistribution of Galois orbits of small points in the  $N$ -dimensional torus', *Algebra & Number Theory*, vol. 11, pp 1627-1655.
- Amoroso A, **Sombra M** & Zannier U 2017, 'Unlikely intersections and multiple roots of sparse polynomials', *Mathematische Zeitschrift* 287, 1065-1081.

### Selected research activities

#### Invited talks (selected)

- Plenary talk at the conference "Effective methos in algebraic geometry" (MEGA 2017) at Nice, France, 12 - 16 June
- Mini-course at the CIMPA research school "Géométrie complexe et applications" at Ziguinchor, Senegal, 27 November - 1 December
- Plenary talk at the RSME-UMA joint meeting at Buenos Aires, Argentina, 11 - 15 December

#### Organization

- Conference "Foundations of computational mathematics" (FoCM 2017) at UB, 10 - 19 July (main organizer)
- IMUB colloquium
- CIMPA research school "Géométrie complexe et applications" at Ziguinchor, Senegal, 27 November - 1 December

#### Managerial

- Member of the board of directors of the FoCM Society
- Member of the advisory board of the series of conferences MEGA
- Member of the IMUB steering committee

#### Supervision of PhD thesis

- César Martínez, "Two problems in arithmetic geometry. Explicit Manin-Mumford, and arithmetic Bernštein-Kušnirenko", UB & Université de Caen, France, 29 September (joint with F. Amoroso)



## Jordi Sort

Universitat Autònoma de Barcelona (UAB)  
Engineering Sciences

Jordi Sort leads the 'Group of Smart Nanoengineered Materials, Nanomechanics and Nanomagnetism' (comprising around 20 researchers) as an ICREA Research Professor at UAB. After finishing his PhD in 2002 in the field of "magnetic interfacial effects" (Extraordinary Award), Prof. Sort performed two postdoctoral stays, at SPINTEC (Grenoble) and at Argonne National Laboratory. His research is focused on a wide variety of materials (thin films, lithographed structures, porous materials and nanocomposites) with emphasis on their magnetic and mechanical performance. He received awards from the Catalan and Spanish Physical Societies as well as the Federation of European Materials Societies. At present, Prof. Sort has supervised 10 PhD Theses, has published 263 articles (6000 citations in ISI,  $h = 37$ ), has issued 5 patents and has managed 25 national/international research projects, being Coordinator of an European Training Network (ITN) and a Consolidator Grant from the ERC.

### Research interests

Jordi Sort is currently investigating the nanomechanical and nanomagnetic properties of innovative and advanced materials, including lithographed structures, thin films and bulk specimens. Among his most relevant recent achievements one can mention: the use of nanoindentation and selective ion irradiation to create magnetic structures embedded in non-magnetic matrices; observation of magneto-electric effects in nanoporous alloys; the ductilization of metallic glasses by development of nanostructured morphologies; the growth of new types of coatings with enhanced mechanical, magnetic, corrosion-resistance and catalytic properties; the characterization of mesoporous materials and onion-type nanoparticles with interlayer magnetic interactions; the development of advanced biodegradable materials for orthopedic implants; the characterization of remotely-actuated magnetic nanowires for biomedical applications. Further information at: <http://jsort-icrea.uab.cat/index.htm>.

### Selected publications

- Quintana A, Zhang J, Isaraín-Chávez E, Menéndez E, Cuadrado R, Robles R, Baró MD, Guerrero M, Pané S, Nelson BJ, Müller CM, Ordejón P, **Nogués J**, Pellicer E & **Sort J** 2017, 'Voltage-induced coercivity reduction in nanoporous alloy films: a boost towards energy-efficient magnetic actuation', *Adv Funct Mater*, 27, 1701904.
- Cordero-Edwards K, Domingo N, Abdollahi A, **Sort J** & **Catalan G** 2017, 'Ferroelectric as smart mechanical materials', *Adv Mater*, 29, 1702210.
- Jang B, Hong A, Kang H, Alcantara C, Charreyron S, Mushtaq F, Pellicer E, Buchel R, **Sort J**, Lee S, Nelson BJ & Pané S 2017, 'Multiwavelength Light-Responsive Au/B-TiO<sub>2</sub> Janus Micromotors', *ACS Nano*, 11, 6146-6154.
- Isaraín-Chávez E, Baró MD, Pellicer E & **Sort J** 2017, 'Micelle-assisted electrodeposition of highly mesoporous Fe-Pt nodular films with soft magnetic and electrocatalytic properties', *Nanoscale*, 9, 18081-18093.
- Fina I, Quintana A, Padilla-Pantoja J, Martí X, Macia F, Sanchez F, Foerster M, Aballe L, Fontcuberta J & **Sort J** 2017, 'Electric-Field-Adjustable Time-Dependent Magnetoelectric Response in Martensitic FeRh Alloy', *ACS Appl Mater & Interfaces*, 9, 15577-15582.
- Farhadi-Khouzani M, Schütz C, Durak GM, Fornell J, **Sort J**, Salazar-Alvarez G, Bergström L & Gebauer D 2017, 'A CaCO<sub>3</sub>/nanocellulose-based bioinspired nacre-like material', *J Mater Chem A*, 5, 16128-16133.
- Fan J, Guerrero M, Carretero-Genevrié A, Baró MD, Suriñach S, Pellicer E & **Sort J** 2017, 'Evaporation-induced self-assembly synthesis of Ni-doped mesoporous SnO<sub>2</sub> thin films with tunable room temperature magnetic properties', *J Mater Chem C*, 5, 5517-5527.

### Selected research activities

- 35 publications (31 in WoS journals, 3 book chapters).
- Editorial Board of 5 ISI journals.
- 11 invited talks at International Conferences.
- 1 new patent.
- Organizer/Scientific Committee of 3 conferences.
- Supervisor of 3 Theses defended in 2017.
- Research highlighted/Interviews in RTVE, La Cope.
- 3 Covers in journals issues.
- Coordinator: H2020-ITN (SELECTA), ERC-CoG (SPIN-PORICS), MINECO (Retos), SGR.



Salvador Soto-Faraco  
Universitat Pompeu Fabra (UPF)  
Social & Behavioural Sciences

I graduated in Psychology at the Universitat de Barcelona (1994), and I got a PhD in Cognitive Science and Language (1999) in the same university. I worked as a postdoctoral researcher at the University of Oxford (UK) and at the University of British Columbia (Canada). In 2002 I was awarded a "Ramón y Cajal" research fellowship, which allowed me to start my own research group at Universitat de Barcelona and in 2005 I became ICREA Research Professor and established the Multisensory Research Group at the Parc Científic de Barcelona thanks to public and private funding. Since 2009, I am based at the Universitat Pompeu Fabra, where I combine research and teaching as one of the group leaders at the Center for Brain and Cognition. In 2010 I received an individual Starting Grant from the ERC. Currently, the MRG group works on basic and applied research projects supported by local (MINECO, AGAUR) and EU (ERC) funding agencies.

### Research interests

Humans, like other animals, are endowed with a wide range of sensory capacities such as hearing, feeling, seeing, smelling,... This rich variety of senses allows our brains to represent the surrounding environment with fidelity and precision, so that we can select, store and react successfully to events. However, to achieve coherent mental representations of the environment our brains must coordinate the distinct sources of sensory information effectively across their different temporal properties, spatial frames of reference, and encoding formats. I am interested in the neural and behavioural principles underlying the selection and integration of such multi-sensory information. To achieve this, I use an experimental approach based on psychophysics, a variety of neuroimaging methods to measure neural activity (EEG, fMRI), and brain stimulation techniques (TMS).

### Selected publications

- Fromont LA, **Soto-Faraco S** & Biau E 2017, 'Searching high and low: prosodic breaks disambiguate relative clauses', *Frontiers in Psychology*, 8, 96.
- Moris Fernandez L, Macaluso E & **Soto-Faraco S** 2017, 'Audiovisual Integration as Conflict Resolution: The Conflict of the McGurk Illusion', *Human Brain Mapping*, 38, 11, 5691 - 5705.
- Ruzzoli M & **Soto-Faraco S**, 2017, 'Modality-Switching in the Simon Task: The Clash of Reference Frames', *Journal Of Experimental Psychology-general*, 146, 10, 1478 - 1497.
- Hartcher O'Brien J, **Soto-Faraco S** & Adam R 2017, 'Editorial: A matter of bottom-up or top-down processes: the role of attention in multisensory integration'. *Journal: Frontiers in Integrative Neuroscience*, 11(5).
- Papeo L, Stein T & **Soto-Faraco S** 2017, 'The Two-Body Inversion Effect'. *Psychological Science*, Vol 28, Issue 3.
- Pápai MS & **Soto-Faraco S** 2017, 'Sounds can boost the awareness of visual events through attention without cross-modal integration', *Scientific Reports*, 7, 41684
- Ikumi N & **Soto-Faraco S** 2017, 'Grouping and segregation of sensory events by actions in temporal audio-visual recalibration', *Frontiers in Integrative Neuroscience*, 10:44.

### Selected research activities

Journal associate editor: Multisensory Research



## Clivia M. Sotomayor Torres

Institut Català de Nanociència i Nanotecnologia (ICN2)  
Engineering Sciences

Clivia obtained her PhD in Physics in 1984 (Manchester Univ., UK). She held tenured appointments at St. Andrews and Glasgow Universities and became a C4 professor at Wuppertal Univ. (Germany) in 1996. During 2004-8 she was a research professor at Univ. College Cork, Tyndall National Institute (Ireland). Since May 2007 she is with ICREA based at the Catalan Institute of Nanoscience & Nanotechnology where she heads a 17-strong team working on phonon engineering and nanofabrication. Clivia received awards from the Royal Society of Edinburgh, the Nuffield Foundation and an Amelia Earhart Fellowship from ZONTA International (USA). She is author of 497 scientific papers, of which 377 are indexed (WoS, Researcher ID: E-8418-2010), has an h-index of 42 and 7518 citations. She edited six books on low dimensional structures and nanofabrication. She is a guest professor at the KTH Royal Institute of Technology in Sweden.

### Research interests

Her group investigates new concepts for multi-state variables based on the engineered interactions of phonons with photons, electrons and magnons, in device-like structures. One particular interest is thermal transport at the nanoscale to address heat dissipation in nanoelectronics, the role of phonons in noise and dissipation in nano-scale systems. Another strand is Si-based opto-mechanics for phonon-based information processing. Our experimental research is anchored in novel nanofabrication methods including dimensional and defectivity metrology. The latter is essential to set up standards in manufacturing to ease the uptake of nanotechnology products. In our research we use state of the art linear optical spectroscopy methods, pump-and-probe down to 10's of femtoseconds and develop new techniques to reach the nanoscale in thermal transport, most notably Laser Raman thermometry and the 3-omega method for fluids.

### Selected publications

- Navarro-Urrios D, Capuj NE, Colombano MF, Garcia PD, Sledzinska M, Alzina F, Griol A, Martínez A, **Sotomayor-Torres CM** 2017, 'Nonlinear dynamics and chaos in an optomechanical beam', *Nat Commun*, vol. 8, pp 14965.
- Graczykowski B, El Sachat A, Reparaz JS, Sledzinska M, Wagner MR, Chavez-Angel E, Wu Y, Volz S, Wu Y, Alzina F & **Sotomayor Torres CM** 2017, 'Thermal conductivity and air-mediated losses in periodic porous silicon membranes at high temperatures', *Nat Commun*, 8, 415.
- Graczykowski B, Sledzinska M, Placidi M, Saleta Reig D, Kasprzak M, Alzina F & **Sotomayor Torres CM** 2017, 'Elastic Properties of Few Nanometres Thick Polycrystalline MoS<sub>2</sub> Membranes: A Nondestructive Study', *Nano Letter*, vol. 17, no.12, pp 7647-7651.
- Garcia PD, Bericat-Vadell R, Arregui G, Navarro-Urrios D, Colombano M, Alzina F & **Sotomayor-Torres CM** 2017, 'Optomechanical coupling in the Anderson-localization regime', *Phys Rev B*, 95, 11, 115129.
- Sledzinska M, Quey R, Mortazavi B, Graczykowski B, Placidi M, Saleta Reig D, Navarro-Urrios D, Alzina F, Colombo L, **Roche S** & **Sotomayor Torres CM** 2017, 'Record low thermal conductivity of polycrystalline MoS<sub>2</sub> films: Tuning the thermal conductivity by grain orientation', *ACS Appl Mater Inter*, vol. 9, no. 43, pp 37905-37911.
- Jaramillo-Fernandez J, Chavez-Angel E, Sanatinia R, Kataria H, Anand S, Lourduoss S & **Sotomayor Torres CM** 2017, 'Thermal conductivity of epitaxially grown InP: experiment and simulation', *Crystengcomm*, vol. 19, no. 14, 1879 - 1887.
- Fernandez A, Francone A, Thamdrup L, Johansson A, Bilenberg B, Nielse T, Guttmann M, **Sotomayor Torres CM** & Kehagias N 2017, 'Hierarchical surfaces for enhanced self-cleaning applications', *J MICROMECH MICROENG*, vol. 27, no. 4, pp 045020.

### Selected research activities

EU H2020 Member of the Advisory Group of FET and ERC Panel member.

EU FET Open project coordinator "All-phononic circuits enabled by opto-mechanics" (PHENOMEN).

Member of the Expert Committee for the Excellence Strategy of German Universities.



## Laura Soucek

Vall d'Hebron Institut d'Oncologia (VHIO)  
Life & Medical Sciences

Laura Soucek graduated in 1996 in Biological Sciences at University La Sapienza in Rome, Italy. She obtained her PhD in Genetics and Molecular Biology at the National Research Center, in Rome. In 2001 she joined University of California San Francisco, initially as postdoctoral fellow and later, in 2006 as Assistant Researcher. There she published in some of the most prestigious international journals. Since early 2011, Dr. Soucek heads the Mouse Models of Cancer Therapies Group at the Vall d'Hebron Institute of Oncology (VHIO), in Barcelona. She received prestigious awards and grants from AACR, the Miguel Servet Program, the FERO Foundation, the Association for International Cancer Research, the European Research Council, FIS and BBVA. In October 2014 she was appointed ICREA Research Professor. In December 2014 she founded a spin-off company, Peptomyc S.L.. In April 2015, she became Associate Professor at the Universitat Autònoma de Barcelona.

### Research interests

Our focus is the Myc oncoprotein, whose deregulation is implicated in almost all human cancer types. We have designed a Myc dominant negative, Omomyc, to investigate the therapeutic benefit of inhibiting Myc in cancer. We demonstrated that Myc inhibition has a remarkable therapeutic index in many mouse models of cancer, while only causing mild and reversible side effects in normal tissues. We also showed that Myc is a safe pharmacological target for many, perhaps all, cancers. Our goal is now to push such a therapeutic approach further towards the clinic. To do so we are making use of a new generation of Myc inhibitory Cell-Penetrating Peptides (CPPs) and nanoparticle technologies. These innovative treatments could boost our therapeutic arsenal against the majority of human cancers.

### Selected publications

- Beaulieu ME\*, Jauset T, Massó-Vallés D, **Soucek L\***, & Whitfield JR 2017, 'Mouse models in personalized cancer medicine' in *Cancer Genetics and Genomics for Personalized Medicine*; Published by Pan Stanford Publishing Ltd.
- Annette T. Byrne, Denis G. Alférez,..., & Livio Trusolino 2017, 'Interrogating open issues in cancer precision medicine using Patient-Derived Xenograft Models', *Nature Reviews Cancer* (4):254-268.
- Whitfield JR, Beaulieu ME & **Soucek L** 2017, 'Strategies to Inhibit Myc and Their Clinical Applicability', *Front Cell Dev Biol.* 5:10.
- Maltais L, Montagne M, Bédard M, Tremblay C, **Soucek L** & Lavigne P 2017, 'Biophysical Characterization of the b-HLH-LZ of  $\Delta$ Max, an Alternatively Spliced Isoform of Max Found in Tumor Cells: Towards the Validation of a Tumor Suppressor Role for the Max Homodimer', *PLoS One.* 12, 3, E0174413.
- Pedersen K, Bilal F, Bernadó Morales C, Salcedo MT, Macarulla T, Massó-Vallés D, Mohan V, Vivancos A, Carreras MJ, Serres X, Abu-Suboh M, Balsells J, Allende E, Sagi I, **Soucek L**, Tabernero J, **Arribas J** 2017, **Pancreatic cancer heterogeneity and response to Mek inhibition**, *Oncogene.* 36, 40, 5639 - 5647.
- Dang CV, Reddy EP, Shokat KM & **Soucek L** 2017, 'Drugging the 'undruggable' cancer targets', *Nature Review Cancer*, 17, 8, 502 - 508.

### Selected research activities

- Member of the Scientific Advisory Board Meeting of Breast Cancer Now, UK's largest breast cancer research charity.
- Member of the 2017-2018 AACR Clinical and Translational Cancer Research Fellowships Scientific Review Committee.
- Member of the 2017-2018 of the Scientific Review Committee for the "Anna Tramontano" research projects of Sapienza Università di Roma.





## Kestutis Staliunas

Universitat Politècnica de Catalunya (UPC)  
Engineering Sciences

Graduated Theoretical Physics, Vilnius University, Lithuania, 1985. PhD in Physics, Vilnius University, 1989. Habilitation in Physics, Vilnius University, 2001. A.v. Humboldt fellow in Physikalisch-Technische Bundesanstalt (PTB) Braunschweig, Germany, 1991-1992. Between 1993-2003 senior research fellow in Braunschweig PTB and University of Hanover researching on nonlinear pattern formation in lasers (optical vortices, spatial solitons) and Bose condensates. Since 2004 ICREA research professor in Universitat Politècnica de Catalunya (UPC), Barcelona, head of research group on lasers, photonics and meta-photonics, nonlinear laser dynamics. Professional experience: around 250 articles in scientific journals with appr. 5000 citations (h-factor 40); appr. 500 presentations in conferences (appr. 100 invited ones); 2 patents, 1 monograph. Up to now directed (or currently directing) 15 PhD projects.

### Research interests

Spatial quality of laser beams is of high importance in technologies: good quality beams propagate better, can be more tight focused. Not all lasers, however, produce good beams: the radiation of especially very important semiconductor microlasers, microchips, are too noisy. We develop new physical concepts and new techniques to manipulate the spatial structure of radiation, by using micro-modulated smart photonic materials: photonic crystals, metamaterials, nonhermitian optical materials. We develop these novel light-manipulation techniques in fundamental level and implement them in photonic industry. Also the good quality beams of microwaves, sound waves, or matter waves are required. We apply our experience in "smart manipulation of light patterns" to the other types of waves, to produce "clean" and well directed sound beams by so called "sonic crystals" in acoustics, as well as "clean" matter wave ensembles in modulated Bose condensates.

### Selected publications

- Kumar S, Perego AM & **Staliunas K** 2017, 'Linear and nonlinear bullets of the Bogoliubov-De Gennes excitations', *Phys. Rev. Letters*, 118(4):044103.
- Hayran Z, Kurt H & **Staliunas K** 2017, 'Rainbow trapping in a chirped three-dimensional photonic crystal', *Scientific Reports*, 7, 3046.
- Ahmed WW, Herrero R, Botey M & **Staliunas K** 2017, 'Self-collimation in PT -symmetric crystals', *Physical Review A*, 95, 5, 053830.
- **Staliunas K** 2017, 'Multi-longitudinal-mode micro-laser model', *European Physical Journal D*, 71, 10, 257.
- **Staliunas K**, Markos P & Kuzmiak V 2017, 'Scattering properties of a PT dipole', *Physical Review A*, 96, 4, 043852.
- Gailevičius D, Purlys V, Peckus M, Gadonas R & **Staliunas K** 2017, 'Spatial Filters on Demand Based on Aperiodic Photonic Crystals', *Annalen der Physik*, 529, 8, 1700165, 2017
- Turdnev M, Giden IH, Babayigit C, Hayran Z, Bor E, Boztug C, Kurt H & **Staliunas K** 2017, 'Mid-infrared T-shaped photonic crystal waveguide for optical refractive index sensing', *Sensors And Actuators B-chemical*, 245, 765 - 773.

### Selected research activities

Invited and plenary talks: ICTON'17 Girona, Meta'17 Seoul, SPIE'17 Prague, DNDO'17 Dresden, Nat.Conf.'17 Vilnius;

Master course "Optical Materials and Metamaterials" in Europhotonics programme.

Defended PhD thesis: Nikhil Kumar (UPC), Shubham Kumar (UPC);

Committees of PhD Thesis: R.Kazakevicius (Vilnius University), V.Juknevičius (Vilnius University), M.Elsawy (Marseille Universite);



## Luc Steels

Universitat Pompeu Fabra (UPF)  
Engineering Sciences

Luc Steels studied linguistics at the University of Antwerp (Belgium) and computer science at the Massachusetts Institute of Technology (USA). His main research field is Artificial Intelligence covering a wide range of intelligent abilities, including vision, robotic behavior, conceptual representations and language. In 1983 he became a professor of computer science at the University of Brussels (VUB) and in 1996 he founded the Sony Computer Science Laboratory in Paris and became its first director. Currently he is ICREA Research Professor at the Institute for Evolutionary Biology (CSIC,UPF). Steels has been PI in a dozen large-scale European projects and more than 30 PhD theses have been granted under his direction. He has produced over 200 articles and edited 15 books directly related to his research.

### Research interests

The origins and evolution of human language remains one of the most exciting unresolved puzzles of science today. The problem is even more difficult than biological evolution because there are no fossil records. Clearly social, biological and cultural evolution all have played a role but the details still allude scientific explanation. My research over the past decade has focused on developing theoretical models of language evolution. I set up experiments in which a population of robots autonomously develops their own communication systems with properties similar to human languages. We have focused on explaining the origins of color terms, spatial expressions, determiners, case grammar and agreement systems. So far these experiments use exclusively a process of cultural evolution, but through my recent affiliation with the Institute for Evolutionary Biology I now try to complete this picture by looking at the biological evolution of the cognitive foundations needed for language.

### Selected publications

- **Steels L** 2017, 'Do languages evolve or merely change?', *Journal of Neurolinguistics*, Volume 43, Part B, Pages 199-203.
- **Steels L** 2017, 'Human language is a culturally evolving system', *Psychonomic Bulletin & Review*, vol. 24, 1, pp 190-193.



## Massimiliano Stengel

Institut de Ciència de Materials de Barcelona (CSIC - ICMAB)  
Experimental Sciences & Mathematics

Massimiliano Stengel graduated in Physics at the University of Trieste (1999) and received his PhD in Science from the Swiss Polytechnic School of Lausanne (EPFL) in 2004. From February 2005 to April 2009 he was a postdoctoral researcher in the group of Prof. Nicola Spaldin at the Materials Department (UC Santa Barbara), and from May to September 2009 at CECAM (EPFL) under the supervision of Prof. Wanda Andreoni. From February 2010 to September 2011 he worked at ICMAB in Barcelona as a "Ramón y Cajal" fellow, before joining ICREA as a Research Professor in October 2011.

### Research interests

My research develops and uses frontier electronic-structure methods to tackle key fundamental and technological questions in ferroelectricity, magnetism, surface science and metal/oxide interfaces. In the past few years I have focused on perovskite thin films, and in particular on understanding how the reduced size affects their functional properties. I am currently interested in the study of novel functionalities in oxide-based systems (e.g. flexoelectricity, magnetoelectric effects, confined electron gases, improper ferroelectricity) and in development of accurate modeling strategies to bridge the gap between the microscopic and macroscopic worlds.

### Selected publications

- Mundy JA, Schaab J, Kumagai Y, Cano A, **Stengel M**, Krug IP, Gottlob DM, Doganay H, Holtz ME, Held R, Yan Z, Bourret E, Schneider CM, Schlom DG, Muller DA, Ramesh R, Spaldin NA & Meier D 2017, 'Functional electronic inversion layers at ferroelectric domain walls', *Nature Materials*, 16, 6, 622.
- Gazquez J, **Stengel M**, Mishra R, Scigaj M, Varela M, Roldan MA, Fontcuberta J, Sanchez F & Herranz G 2017, 'Competition between Polar and Nonpolar Lattice Distortions in Oxide Quantum Wells: New Critical Thickness at Polar Interfaces', *Physical Review Letters*, 119, 10, 106102.
- Schiaffino A & **Stengel M** 2017, 'Macroscopic Polarization from Antiferrodistortive Cycloids in Ferroelastic SrTiO<sub>3</sub>', *Physical Review Letters*, 119, 13, 137601.

### Selected research activities

- Invited Talk at the CECAM Workshop on Ferroelectric Domain Walls (Tel Aviv, November 2017), "Macroscopic Polarization from Antiferrodistortive Cycloids in Ferroelastic SrTiO<sub>3</sub>".



## Thomas Sturm

Universitat Autònoma de Barcelona (UAB)  
Humanities

After studies in philosophy, history, and political science at the University of Göttingen and the University of California at San Diego (UCSD), I obtained my PhD in 2007 from Marburg University. Before joining ICREA in 2014, I held positions at Marburg (Scientific Assistant, 1995-2000); UCSD (Visiting Lecturer, 2000), at the Berlin-Brandenburg Academy of Sciences & Humanities (Scientific Coordinator, research group "Psychological Thought and Practice", 2001-2005), the Max Planck Institute for the History of Science (Lorenz Krüger Fellow, 2005-2007, Research Fellow 2007-2009), and the Dept. of Philosophy, UAB (Ramón y Cajal Scholar, 2009-2014). I am member of the UAB's Center for History of Science (CEHIC), the Kant-edition at the Berlin-Brandenburg Academy of Sciences & Humanities, and an Associate Research Fellow at the Wilhelm Wundt Center for Philosophy & History of Psychology, Universidade Federal Juiz de Fora (Brazil).

### Research interests

How is rationality understood in philosophy and the human sciences? How should it be understood? These are the guiding questions for much of my research, which comprises topics reaching from early modern philosophy - esp. starting from Immanuel Kant - up to ongoing discussions at the interface of philosophy, psychology, and economics. I study aspects of reason in Kant's philosophy, such as his notions of truth and science; I analyze potentials and limits of current scientific theories of rationality; and I also study the role of such theories in politics, political science, and ethics. I'm moreover interested in the philosophy of knowledge, mind, and science. In all of this, I combine methods of analytic philosophy with the history of science: I am unconvinced by widespread opinions according to which they cannot, or should not, be integrated.

### Selected publications

- **Sturm T** 2017, 'What did Kant mean by and why did he adopt a cosmopolitan point of view in history?', in: Shaffner J & Wardle H (eds.), *Cosmopolitics: The Collected Papers of the Open Anthropology Cooperative*. St Andrews: OAC Press, vol. I, 72-88.
- **Sturm T** 2017, 'Reines und empirisches Selbstbewusstsein in Kants Anthropologie: Das "Ich" und die rationale Charakterentwicklung', *Kant-Studien-Ergänzungshefte*, 197, vol. 197, pp. 195-220.
- **Sturm T** & Kraus K 2017, 'An attractive alternative to empirical psychologies both in his day and our own? A critique of Patrick Frierson's *Kant's Empirical Psychology*', *Studi Kantiani*, vol. 30, pp. 203-223.
- **Sturm T** 2017, 'Reasoning one's way through the Cold War (and beyond)', *History of the Human Sci.*, vol. 30, 1-8.

### Selected research activities

#### Projects:

PI, *Barcelona HPS (History & Philosophy of Science) Group* (UAB Grup de Recerca)

PI, *Naturalism and the sciences of rationality: An integrated philosophy and history* (2016-2020) – MINECO project FFI2016-79923-P

Member, *Project New edition of Part I, "Works", of the Academy edition of Kant's Collected Writings* (2017-2024; PI: V. Gerhardt, Berlin-Brandenburg Academy of Sciences and Humanities) – DFG project GE 657/16-1

**Invited speaker** at the Universities of Düsseldorf, Milan, Bonn, Utrecht, and Bremen

**Dissemination of research:** "The Science of Rationality and the Rationality of Science." Interview, *Imperfect Cognition*, 27/04/2017.

#### Organization of conferences:

*Democracy, Secessionism, and the State of Law* - with D. Gamper, Dec 2017

*Epistemic Rationality* - with C. Hofer & S. Rosenkranz, Sept 2017

**External Phd thesis Examiner:** Peter Sperber, *Kantian Psychologism*, Utrecht, June 2017

**Director of 6 ongoing PhD theses** (2 of them in co-direction)

**Editorial board member:** *ConTextos Kantianos - Enrahonar - Psicologia em Pesquisa (Psychology in Research) - Rivista Internazionale di Filosofia e Psicologia*

**Review activities (selected):** *German Research Council (DFG)*; *MINECO*; *Journal for the History of Philosophy; Theory & Psychology*



**Hans Supèr**  
 Universitat de Barcelona (UB)  
 Life & Medical Sciences

- 2017-present: Director of ACAP;
- 2013-present: CTO Braingaze SL;
- 2009-2014: Director of the VISCA lab;
- 2005-present: Research Professor, ICREA;
- 2005-present: Assistant professor University of Barcelona;
- 2002-2005: Head of the Vision and Cognition-II group, NIN, KNAW, The Netherlands;
- 1999-2001: Senior postdoc, NIN, NWO, The Netherlands;
- 1997-1999: Postdoc in the lab of Prof. Dr. V. Lamme, NORI, The Netherlands;
- 1992-1996: PhD student in the lab of Prof. Dr. E. Soriano, University of Barcelona.

### Research interests

The understanding of the functional organization of the cerebral cortex that underlies cognitive behavior. I started my scientific journey by studying the ontogenetic and evolutionary development of the cerebral cortex to get a grasp of the immense complexity of the cortex. To learn about the functional organization of the neocortex, I continued my research studying system neurophysiology in awake, behaving monkeys and neural circuit dynamics using computer simulations.

In 2011 we discovered a novel role of eye vergence movements in cognitive processing. We termed it Cognitive Vergence. The use of Cognitive Vergence to measure cognition has been patented world-wide, and I founded the start-up company (Braingaze) in 2013. End 2017 I started the centre ACAP at the UB where graduate and master students can carry out clinical work using Cognitive Vergence.

Currently my research investigates 1) the neural mechanism of dynamic neural interactions, 2) the function of eye movements in visual cognition (Cognitive Vergence), and 3) clinical applications of Cognitive Vergence i early diagnosis of mental pathology being ADHD, Alzheimer, ASD, Dyslexia. Methods we use are computational spiking networks, eye tracking, machine learning, and psychophysics.

### Selected publications

- Romeo A & **Supèr H** 2017, 'Bump competition and lattice solutions in two-dimensional neural fields', *Neural Networks*, 94, 141 - 158.
- Romeo A & **Supèr H** 2017, 'Two vs one' rivalry by the Loxley-Robinson model', *Biological Cybernetics*, 111, 5-6, 405 - 420.
- Solé Puig M, Romeo A, Cañete Crespillo J & **Supèr H** 2017, 'Eye vergence responses during a visual memory task', *Neuroreport*, 28(3):123-127.

### Selected research activities

In 2017 I have been invited to give a talk at several conferences:

- Vergència Cognitiva i Diagnòstic de TDAH at the TDAH Valles III Congrés Nacional TDAH VALLÈS, Sabadell, Spain
- Cognitive Vergence: a novel biomarker supporting ADHD diagnosis in children and adults. Eunethydis, Cologne, Germany
- Nieuwe objectieve methode voor ADHD diagnostiek ADHD network meeting, Utrecht, The Netherlands

I have been invited to be member of the commission of QANU to evaluate the Faculties of Psychology of all Dutch universities

We were finalists of the HealthTech Start-up Competition of Biocat

We have clinically validated Cognitive Vergence as an objective diagnostic support tool for adult ADHD and child Dyslexia

Braingaze opened offices in UK at the MedTech Centre and in The Netherlands at the Noviotech Campus.



## Marcel Swart

Universitat de Girona (UdG)  
Experimental Sciences & Mathematics

Marcel Swart obtained his PhD in Groningen (NL) with a study on copper proteins (2002). He works since 2006 at the IQCC (Univ. Girona), and was promoted to ICREA Research Professor in 2009. He has published ca. 140 papers (cited ca. 4500 times, H-index 35; Scopus), formed part of tribunals for Masters and PhD ceremonies, evaluation committees (ANEP), reviewer for >30 journals and (inter)national science organizations. He received funding from science organizations and companies, organized a CECAM/ESF Workshop (Zaragoza, 2012) and is the main organizer of Girona Seminars. He is Editor of a Wiley-book on "Spin states in Biochemistry and Inorganic Chemistry" (2015), director IQCC, and Chair of COST Action CM1305 (ECOSTBio). He supervised three PhD theses (two with Premi Extraordinari), was awarded the Young Scientist Excellence Award 2005, MGMS Silver Jubilee Prize 2012, was elected for the Young Academy of Europe (2014) and its Board (2016), and elected Fellow of RSC (2015).

### Research interests

He works in the field of theoretical (bio)inorganic and supramolecular chemistry, and works on transition-metal complexes, metalloproteins, enzymes, and DNA. The effect of (transition) metal ions on reactivity, selectivity and chemical bonding is one of the main topics in these studies. The development of computational tools for these studies is an important ingredient, to which he has contributed largely both with his own software (QUILD, DRF90) as in contributions in general purpose software (ADF, NWChem). One of the main areas where these tools are applied is in the field of transition-metal chemistry, the spin states involved, and the effect this has on reactivity. For this he developed spin-state consistent density functional (SSB-D, S12g).

### Selected publications

- Monte Pérez I, Engelmann X, Lee Y-M, Yoo M, Elumalai K, Farquhar ER, Bill E, England J, Nam W, **Swart M** & Ray K 2017, 'A Highly Reactive Oxoiron(IV) Complex Supported by a Bioinspired N<sub>3</sub>O Macrocyclic Ligand', *Angew. Chem. Int. Ed.*, 56, 14384-14388 [+frontispiece]
- Padamati SK, Angelone D, Draksharapu A, Primi G, Martin DJ, Tromp M, **Swart M** & Browne WR 2017, 'Transient Formation and Reactivity of a High Valent Nickel(IV) Oxido Complex', *J. Am. Chem. Soc.*, 139, 8718-8724.
- Stepanovic S, Angelone D, Gruden M & **Swart M** 2017, 'The role of spin states in the catalytic mechanism of the intra- and extradiol cleavage of catechols by O<sub>2</sub>', *Org. Biomol. Chem.*, 15, 37, 7860 - 7868.
- Castro AC, **Swart M** & Fonseca Guerra C 2017, 'Influence of Substituents and Environment on NMR Shielding Constants of Supramolecular Complexes based on A-T and A-U Base Pairs', *Phys. Chem. Chem. Phys.*, 19, 13496-13502.
- Unjaroen D, **Swart M** & Browne WR 2017, 'Electrochemical Polymerization of Iron(III) Polypyridyl Complexes through C-C Coupling of Redox Non-Innocent Phenolato Ligands', *Inorg. Chem.*, 56, 470-479.

### Selected research activities

- Author of computational chemistry software (ADF, DRF90, NWChem, QUILD)
- Supervisor of six PhD students, two postdocs
- Member of Editorial Board of *Inorg. Chim. Acta*, *J. Mol. Graph. Model.*, *J. Serb. Chem. Soc.*, *Comp. Chem. Highlights* and *J. Comp. Meth. Sci. Engin.*
- Award for best paper at University Belgrade
- Special award by Serbian Chemical Society
- Organizer Symposium Progress in Theoretical Chemistry (Bial RSEQ), and online popularity poll for density functionals (DFT2017)
- Plenary speaker at PAC Symposium (Utrecht, NL)
- Keynote speaker at "NCCC Conference" (Noordwijkerhout, NL) and "FemEx 2017: Promoting female excellence in theoretical and computational chemistry" (Putten, NL)
- Invited speaker at WATOC (München, DE), DFT-2017 (Lyon, FR), "Missions of universities over time" (Stockholm, SE), and Bickelhaupt lab (Amsterdam, NL)
- Member of five PhD committees (ES, IT, NL)



## Gian Gaetano Tartaglia

Centre de Regulació Genòmica (CRG)  
Life & Medical Sciences

\* 2014 - ICREA Research Professor \* 2013 ERC Starting Grant \* 2010 - Group Leader, Bioinformatics and Genomics Program, Centre for Genomic Regulation, Barcelona (Spain) \* 2011 - Clare Hall Life Member, University of Cambridge (UK) \* 2005-2010 - Postdoctoral Fellow, Clare Hall College, Chemistry Department, University of Cambridge (UK) \* 2001-2005 - PhD, Biochemistry Department, University of Zurich, Zurich (CH) \* 1996-2000 - MPhil Theoretical Physics, Statistical Mechanics, University la Sapienza, Rome (Italy)

### Research interests

My main focus is to understand the role played by RNA molecules in protein networks. Characterizing protein-RNA associations is key to unravel the complexity and functionality of mammalian genomes and will open up therapeutic avenues for the treatment of a broad range of human disorders. Using computational and experimental approaches I study ribonucleoprotein complexes involved in i) transcriptional and translational regulation (e.g., X-chromosome inactivation) and ii) neurodegenerative diseases (examples include Parkinson's SNCA and Amyotrophic Lateral Sclerosis proteins TDP-43 and FUS). I aim to discover the involvement of RNA molecules in regulatory networks controlling protein production and I am interested in understanding mechanisms whose alteration lead to aberrant aggregation. We have recently observed that interaction between proteins and mRNAs induce feedback loops that are crucial in protein homeostasis. We also found that specific proteins and RNAs phase separate in the cytosol and nucleus when their abundance is significantly high and we are investigating how large assemblies formation affects cell function.

### Selected publications

- Cirillo D, Blanco M, Armaos A, Bunes A, Avner P, Guttman M, Cerase A & **Tartaglia GG** 2017, 'Quantitative predictions of protein interactions with long noncoding RNAs', *Nat Methods*, 1;14(1):5-6.
- Gelpi E, Botta-Orfila T, Bodi L, Marti S, Kovacs G, Grau-Rivera O, Lozano M, Sánchez-Valle R, Muñoz E, Valldeoriola F, Pagonabarraga J, **Tartaglia GG** & Milà M 2017, 'Neuronal intranuclear (hyaline) inclusion disease and fragile X-associated tremor/ataxia syndrome: a morphological and molecular dilemma', *Brain.*, 140(8):e51.
- Marchese D, Botta-Orfila T, Cirillo D, Rodriguez JA, Livi CM, Fernández-Santiago R, Ezquerro M, Martí MJ, Bechara E & **Tartaglia GG** 2017, 'Discovering the 3' UTR-mediated regulation of alpha-synuclein', *Nucleic Acids Research*, (45), 22, 12888-12903.
- Armaos A, Cirillo D & **Tartaglia GG** 2017, 'omiXcore: a web server for prediction of protein interactions with large RNA', *Bioinformatics*, 33,(19):3104-3106.
- Delli Ponti R, Marti S, Armaos A, **Tartaglia GG** 2017, 'A high-throughput approach to profile RNA structure', *Nucleic Acids Research*, 45(5): e35.

### Selected research activities

- Proof of Concept Commercialization Gap Fund grant on the design of RNA aptamers;
- The post-doc Benedetta Bolognesi became PI at IBEC;
- The doctoral student Davide Cirillo received the prize for best PhD thesis at UPF;
- Editor of two special issues of *Frontiers in Molecular Sciences*: "The non-coding RNA world" and "Disordered Systems: From Physics to Biology";
- In 2017 the articles and video clips mentioning my science reached an audience of 12 millions of people, resulting in an economic value of more than 64 thousand euros.



## Sergey Tikhonov

Centre de Recerca Matemàtica (CRM)  
Experimental Sciences & Mathematics

I was born in Russia in 1976. I graduated from the Lomonosov Moscow State University in 1999 and obtained my PhD in Mathematics from MSU in 2003. 2004-2006: Marie Curie Fellow at the Centre de Recerca Matemàtica, Barcelona. 2006-2008: Post-doctoral Fellow at the Scuola Normale Superiore, Pisa. 2008-September 2012: ICREA Researcher, CRM From September 2012, I am an ICREA Research Professor at the Centre de Recerca Matemàtica. 2009: ISAAC Award. 2013: Humboldt Research Fellowship for Experienced Researchers.

### Research interests

Mostly my research deals with Fourier Analysis and Approximation Theory. Particularly, I study the relationship between “smoothness” of a function and the possibility to approximate or to represent this function by a sum of “simple” functions. The case when “simple” functions have wave structure is of special interest.

### Selected publications

- Bondarenko A & **Tikhonov S** 2017, ‘Bernstein inequalities with nondoubling weights’, *J. Eur. Math. Soc.*, vol. 19, no. 1, pp 67-106.
- Ganzburg MI & **Tikhonov SY** 2017, ‘On Sharp Constants in Bernstein-Nikolskii Inequalities’, *Constructive Approximation*, vol. 45, pp 449-466.
- Temlyakov V & **Tikhonov S** 2017, ‘Remez-Type Inequalities for the Hyperbolic Cross Polynomials’, *Constr. Approx.*, vol. 46, pp 593-615.
- De Carli L, Gorbachev D & **Tikhonov S** 2017 ‘Pitt inequalities and restriction theorems for the Fourier transform’, *Revista Matem. Iberoamericana*, 33, no. 3, pp 789-808.

### Selected research activities

#### Research Visits:

Research in teams, BIRS (Canada).  
Invited Researcher at University of Alberta (Canada); Laboratoire Jacques-Louis Lions, Université Pierre et Marie Curie, Paris (France); and IHES, Bures-sur-Yvette (France).

#### Invited Conference Talks:

New perspectives in the theory of function spaces and their applications (Poland); Workshop on Fourier Analysis and Related Fields, (Hungary); International Conference in Approximation Theory, (USA); AMS Sectional Meeting, Hunter College, New York (USA); and Modern Methods, Problems and Applications of Operator Theory and Harmonic Analysis (Russia).

#### Seminar and Colloquium Talks:

PIMA/AMI Seminar, Univ. of Alberta, Edmonton (Canada); Approximation Theory Seminar, Univ. of Alberta, Edmonton (Canada); General Seminar, USC, SC (USA); Analysis Seminar, Aristotle University of Thessaloniki (Greece); Approximation Theory Seminar, Steklov Math. Inst, Moscow (Russia); and Analysis Seminar, Univ. of Coimbra (Portugal).

#### Member of Editorial board:

Abstract and Applied Analysis, Analysis Mathematica, Bulletin of Mathematical Analysis and Applications, Demonstratio Mathematica, Jaen Journal on Approximation, Journal of Mathematical Analysis and Applications, Guest editor of the special issue “Function Spaces and Approximation Theory”, *Analysis Math.*, V. 43, Is. 2, 2017.

#### Conference Organizer:

June 26-30, 2017: Main organizer of the Follow up Workshop on Approximation Theory and Function Spaces, Barcelona (Spain).





## Matthias Tischler

Universitat Autònoma de Barcelona (UAB)  
Humanities

Matthias M. Tischler, born 1968 in Münchberg (Germany), studied Medieval and Modern History, Applied Historical Sciences, Latin and Romance Philology, Philosophy, Theology and Islamic Studies at the Universities of Heidelberg, Munich and Frankfurt. He obtained his PhD in Heidelberg (1998). After holding PostDoc positions at Paris (DHI) and Bamberg, he was an Assistant Professor at Frankfurt (2001-2009). After his habilitation at Dresden (2008/2009), he was Associate Professor (2009/2012), Senior Research Fellow at the Autonomous University of Barcelona (UAB) (2013/2014) and Research Group Leader at the Austrian Academy of Sciences (IMAFO) in Vienna (2015/2016). He was a Visiting Professor of the ÉPHÉ in Paris (2015) and a Senior Research Fellow at the Medieval Institute of the University of Notre Dame, USA (2016). In 2016 he accepted a position at ICREA at the Department of Ancient and Medieval Studies of the UAB, which he has held since January 1, 2017.

### Research interests

My studies are raising the question about the geographical, linguistic, religious, cultural and mental borders of the multi-layered legacy in the centers and peripheries of the Medieval Worlds. First, I have analyzed the Europe-wide intellectual attraction and radiance of the Parisian abbey of Saint-Victor in the mirror of its exegetical and theological production, focusing on the German, Anglo-Saxon, French, Italian and Hispanic areas. Then, I have broadened my panorama to reconstruct European religious and intellectual identities by conducting extensive research on texts of Christian-Muslim encounters and perceptions in Europe. On this basis, I have been able to pursue studies on early Christian polemics against Islam, on the linguistic and religious borders between Christians, Jews and Muslims, and on processes of religious and cultural passages, entanglement and dis/integration among the members of the three monotheisms, especially in the Carolingian and Iberian Worlds.

### Selected publications

- **Tischler M** 2017, *Journal of Transcultural Medieval Studies* 4, 1-2, 336 pp. (Editor-in-Chief).
- **Tischler M** 2017, 'Eine unbekannte Handschrift der Chronik des Frutolf von Michelsberg/Ekkehart von Aura des 12. Jahrhunderts im Gleimhaus zu Halberstadt', *Gemeinnützige Blätter* 48, 77-81.
- **Tischler M** 2017, 'The Biblical Tradition of the Iberian Peninsula from the Eighth to the Twelfth Centuries seen from a Typological Standpoint', *Lusitania Sacra* 34, 33-59.
- **Tischler M** 2017, 'Quelques remarques sur Nicolas Maniacoria. À propos de l'édition critique de son 'Suffraganeus Bibliotheca', *Revue d'histoire ecclésiastique* 112, 239-244.
- **Tischler M** & Marschner P 2017, 'The Bible in Historical Perception and Writing of the Transcultural Iberian Societies, Eighth to Twelfth Centuries', *Medieval Worlds* 5, 195-220.
- Stöber K & **Tischler M** 2017, 'Der Stand der Zisterziensenforschung auf der Iberischen Halbinsel', *Cistercienser Chronik* 124, 573-585.
- **Tischler M** 2017, 'Eine Cisterzienserreform in Saint-Victor zu Beginn des 13. Jahrhunderts? Beobachtungen zu einer neuen Handschrift der 'Carta Caritatis posterior' und der 'Instituta Capitula Generalis Ordinis Cisterciensis'. Mit Edition, *Analecta Cisterciensia* 69, 234-278.

### Selected research activities

Reviewer of the PhD Thesis by Andrea Collella MA: *Jüdischer Kulturschatz auf der Insel des göttlichen Taus. Die Juden in Süditalien von den Anfängen bis zur Zeit Gregors des Großen*, Univ. of Vienna, Sep. 28, 2017.

Co-Director of the FWF-Project "Bible and Historiography in Transcultural Iberian Societies, 8<sup>th</sup> to 12<sup>th</sup> Centuries" (2015-2019) and the HERA-Project "After Empire: Using and Not Using the Past in the Crisis of the Carolingian World, c.900–c.1050" (2016-2019).

Member of the Editorial Board of the *Arxiu de textos catalans antics*.

Papers at conferences, workshops and a doctoral school in St Andrews, Berlin, Vienna, Zwettl and Barcelona.

Courses in Berlin, Barcelona and Vienna.

Peer Reviewer of Early Medieval Europe and Netherlands Institute for Advanced Study.



## Xavier Tolsa

Universitat Autònoma de Barcelona (UAB)  
Experimental Sciences & Mathematics

I was born in Barcelona in 1966. First I studied engineering, but later I turned to mathematics. After obtaining my PhD in mathematics in 1998 (UAB), I spent about one year in Gotteborg (University of Gotteborg - Chalmers) and another year in Paris (Université de Paris-Sud), until I came back to Barcelona (UAB) by means of a "Ramón y Cajal" position. In 2002 I was awarded the Salem Prize by the Institute of Advanced Study and Princeton University for the proof of the semiadditivity of analytic capacity and my works in the so called Painlevé problem. Since 2003 I am an ICREA Research Professor. In 2004 I received the prize of the European Mathematical Society for young researchers. In 2012 I was awarded an ERC Advanced Grant to develop the project "Geometric analysis in the Euclidean space". My current research in mathematics focuses in Fourier analysis, geometric measure theory, and potential theory.

### Research interests

I work in mathematical analysis. My research deals with complex analysis, Fourier analysis, geometric measure theory, and quasiconformal mappings. Particularly, I am interested in the relationship between analytic notions such as analytic capacity or harmonic measure, and geometric concepts like rectifiability. In a sense, analytic capacity measures how much a set in the plane is visible or invisible for analytic functions. On the other hand, rectifiability tells you if a set is contained in a (countable) collection of curves with finite length. Some years ago, I proved that analytic capacity is semiadditive. This means that the analytic capacity of the union of two sets  $A$  and  $B$  is smaller or equal than some constant times the addition of the analytic capacities of  $A$  and  $B$ . This was an open problem since the early 1960s. More recently I have studied related problems in higher dimensions. In particular, in a recent collaboration with F. Nazarov and A. Volberg I have proved the so called David-Semmes conjecture in the codimension 1 case. This result has important applications to the study of harmonic measure, which is another of my main interests.

### Selected publications

- **Tolsa X** 2017, 'Rectifiable measures, square functions involving densities, and the Cauchy transform', *Memoirs of the American Mathematical Society*, vol. 245, no. 1158.
- Azzam J, Mourgoglou M & **Tolsa X** 2017, 'Singular sets for harmonic measure on locally flat domains with locally finite surface measure'. *Int Math Res Notices*, (12): 3751-3773.
- Mas A & **Tolsa X** 2017, 'Lp-estimates for the variation for singular integrals on uniformly rectifiable sets', *Trans. Amer. Math. Soc.* 369, no. 11, 8239-8275.
- Azzam J, Mourgoglou M & **Tolsa X** 2017, 'Mutual absolute continuity of interior and exterior harmonic measure implies rectifiability'. *Communications on Pure and Applied Mathematics*, Vol. LXX, 2121-2163.
- Azzam J, Mourgoglou M & **Tolsa X** 2017, 'The one-phase problem for harmonic measure in two-sided NTA domains', *Analysis & PDE* 10-3, 559-588.

### Selected research activities

- Congreso Bienal de la RSME. Zaragoza, January 2017. Plenary speaker: "Rectifiability, Riesz transforms, and harmonic measure".
- Spring School of Analysis. Bedlewo (Poland), March 2017. Minicourse.: "The Riesz transform, rectifiability, and harmonic measure".
- Geometry, Analysis and Probability. Conference in honor of Peter Jones. Seoul (South Korea), May 2017. Plenary speaker: "Harmonic measure, Riesz transforms, and uniform rectifiability".
- Recent Developments in Harmonic Analysis. MSRI, Berkeley, May 2017. Plenary speaker: "Uniform rectifiability, bounded harmonic functions, and elliptic PDE's".
- Real Analysis, Harmonic Analysis, and Applications. Oberwolfach (Germany), July 2017. "Riesz transforms, square functions, and rectifiability".
- CIMPA2017 Research School - IX Escuela Santaló: Harmonic Analysis, Geometric Measure Theory and Applications, Buenos Aires, August 2017. Minicourse.: "The Riesz transform, rectifiability, and harmonic measure".
- Harmonic Analysis and Geometric Measure Theory. Marseille, October 2017. Plenary speaker: "Harmonic and elliptic measures, and uniform rectifiability".



**Toribio, Josefa**  
 Universitat de Barcelona (UB)  
 Humanities

I got my PhD in Philosophy from Complutense University, Madrid, in 1988. I worked as Assistant Professor in the Department of Logic and Philosophy of Science at Complutense between 1989 and 1991. I was then awarded a postgraduate fellowship by the British Council to work in the School of Cognitive and Computing Sciences at the University of Sussex (1991-93). I was Assistant Professor at Washington University in St. Louis (1993-2000), Lecturer in Philosophy in the School of Cognitive and Computing Sciences at the University of Sussex (2000-2002), Associate Professor at the University of Indiana, Bloomington (2002-2004), and Senior Lecturer at the University of Edinburgh (2004-2008). I joined ICREA in 2009. I am a member of the research group LOGOS (Research Group in Analytic Philosophy) at the UB. I have been president of the Spanish Society of Analytic Philosophy (SEFA) between 2010 and 2016.

### Research interests

My goal in philosophy has long been the same: to explore the nature of the mind within a naturalistic framework. What is most distinctive of my research is my ongoing effort to respect scientific findings about mental phenomena while insisting on the critical importance of the method of analysis and the theoretical tools provided by analytic philosophy. My current research focuses on the analysis of central topics in the philosophy of mind and the philosophy of cognitive science, with a special emphasis on the philosophy of perception and rationally responsive unconscious mental states such as implicit attitudes.

### Selected publications

- **Toribio J** 2017, 'At the border between perception and cognition. An Interview', *Niin & Näin, Filosofinen Aikakauslehti*, 3, pp. 60-67.

### Selected research activities

#### Conference Presentations

##### (Refereed) □

- Toribio, J. "Underground attitudes". Eighth European Congress of Analytic Philosophy (ECAP9). Munich, 21-26 August, 2017.

#### Invited Presentations

- Toribio, J. Perception and Representation Section of Round Table at the DIAPHORA Second Workshop: The nature of representation. University of Stockholm, Sweden, May 17-19, 2017.
- Toribio, J. "Fragmented beliefs or associations: the case of implicit attitudes". Fourth Fragmentation Workshop: Dissonance and Implicit Bias. University of Graz, Austria. May 25-26, 2017. Keynote speaker.
- Toribio, J. "Implicit bias and justification: accessibilism re-visited". Institute of Philosophy. London. November 20<sup>th</sup>, 2017. Keynote speaker.

#### Research Management

- Organizer of the First International Workshop on the Complexity of the Perception. MINECO. Project FFI2014-51811-P. University of Barcelona, July 3-4, 2017.
- Co-organizer of the DIAPHORA Midterm Conference. H2020-MSCA-ITN-2015. University of Barcelona, December 12-15, 2017.

#### Teaching Management

Coordinator of the MA in Analytic Philosophy (until September 2017).



**Juan Manuel Toro**  
Universitat Pompeu Fabra (UPF)  
Social & Behavioural Sciences

I was born in Bogotá (Colombia) in 1976. I studied Psychology at the Universidad Nacional de Colombia. In 2005, I got a PhD from the Universitat de Barcelona, and moved to work as a postdoc with Jacques Mehler at the Language and Cognitive Development lab at SISSA (Trieste, Italy). Later I was a research fellow under the Ramón y Cajal program. My studies are mainly funded through a grant awarded by the European Research Council (ERC Starting Grant). Currently I am an ICREA Research Professor at the Center for Brain and Cognition of the Universitat Pompeu Fabra, where I coordinate the Language and Comparative Cognition Group.

### Research interests

I am interested in studying why the extraordinary ability of language has only emerged in humans and not in other animals. I tackle this issue using a combination of experimental techniques and populations that include human adults and infants, and non-human animals. Our studies have demonstrated that some of the building blocks of language learning are found in other animals, including the ability to extract information from speech using prosodic and statistical regularities. We have also showed how phonological representations guide of rule learning (providing the ground to explore how linguistic representations constrain general structure extraction mechanisms). Recently, we have grown more interested in music cognition and how similar learning mechanisms might work across modalities. We have thus done work exploring consonance processing, brain entrainment to metrical structures and harmonic predictions. Through this work, I have experimentally tackled the issue of how mechanisms interact while processing complex auditory stimuli such as speech and music, and to what extent they might be present in other species. More generally, this research has tried to unveil what is uniquely human and what is shared with other animals in the field of language processing.

### Selected publications

- **Toro JM** & Hoeschele M 2017, 'Generalizing prosodic patterns by a non-vocal learning mammal', *Animal Cognition*, 20, 2, 179 - 185.
- Monte-Ordoño J & **Toro JM** 2017, 'Different ERP profiles for learning rules over consonants and vowels', *Neuropsychologia*, 97, 104-111.
- **Toro JM** & Crespo-Bojorque P 2017. 'Consonance processing in the absence of relevant experience: Evidence from non-human animals'. *Comparative Cognition & Behavior Reviews*, 12, 33 - 44.
- Monte-Ordoño J & **Toro JM** 2017, 'Early positivity signals changes in abstract linguistic pattern', *PLoS ONE*, 12:e0180727.

### Selected research activities

- Best scientific article of the year (Sociedad Española de Psicología Experimental, SEPEX). Finalist.
- Coordinator, Master in Brain and Cognition, Universitat Pompeu Fabra.
- Associate Editor, *Journal of Language Evolution*.



## David Torrents

Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC - CNS)  
Life & Medical Sciences

After graduating in Biochemistry and Molecular Biology, I obtained the PhD in Molecular Biology at the University of Barcelona in 2000 in the group of Manuel Palacín working on amino acid transporters and associated genetic diseases. This PhD was awarded with the University PhD Extraordinary Prize. Then I moved with an EMBO long term fellowship to the group of Peer Bork to enter in the world of genomics, at the EMBL in Heidelberg, where I stayed from 2000 to 2006. There, I worked on genome annotation and analysis using bioinformatics approaches. Currently, since 2006, I'm group leader at the Barcelona Supercomputing Center doing research on computational biomedicine.

### Research interests

Genomes are the central molecules of life because they carry all the information necessary for the development, the survival and the reproduction of all organisms. Over the last 20 years, the study of the genome in a biomedical context has provided valuable information about the genetic and molecular basis of diseases. Current sequencing of DNA allows the incorporation of the genome analysis as an integrated and regular protocol within the health-care system, resulting in a Precision Medicine, where the genomic information will be determinant for a more accurate diagnosis and for the selection of a more precise treatment. In this context, our group and my research activity is focused on the understanding the relationship between genomic variation and disease, in order to generate the basis for more precise medical care.

### Selected publications

- Henssen AG, Koche R, Zhuang J, Jiang E, Reed C, Eisenberg A, Still E, MacArthur I C, Rodriguez-Fos E, Gonzalez S, Puiggros M, Blackford AN, Mason CE, de Stanchina E, Gonen M, Emde A-K, Shah M, Arora K, Reeves C, Succi ND, Perlman E, Antonescu CR, Roberts CWM, Steen H, Mullen E, Jackson SP, **Torrents D**, Weng Z, Armstrong SA & Kentsis A 2017, 'PGBD5 promotes site-specific oncogenic mutations in human tumors', *Nature Genetics*, 49, 7, 1005.
- Chinnaswamy S, Wardzynska A, Pawelczyk J, Skaaby T, Mercader JM, Ahluwalia TS, Grarup N, Guindo-Martinez M, Bisgaard H, **Torrents D**, Linneberg A, Bønnelykke K & Kowalski ML 2017, 'A functional IFN- $\lambda$ 4-generating DNA polymorphism could protect older asthmatic women from aeroallergen sensitization and associate with clinical features of asthma', *Sci Rep.* 7(1):10500.
- Mercader JM, Liao RG, Bell AD, Dymek Z, Estrada K, Tukiainen T, Huerta-Chagoya A, Moreno-Macías H, Jablonski KA, Hanson RL, et al, ... & Florez JC 2017, 'A Loss-Of-Function Splice Acceptor Variant in *IGF2* is Protective for Type 2 Diabetes', *Diabetes*, 66, 11, 2903 - 2914.
- Beekman R, Russinol N, Chapaprieta V, Verdaguer-Dot N, Vilarrasa-Blasi R, Clot G, Duran-Ferrer M, Kulis M, Castellano G et al... & Martin-Subero I 2017, 'INTEGRATIVE ANALYSIS OF THE GENOME, EPIGENOME, TRANSCRIPTOME AND THREE-DIMENSIONAL CHROMATIN STRUCTURE IN CHRONIC LYMPHOCYTIC LEUKEMIA', *Haematologica*, 102, 9 - 10.
- Wu H, Esteve E, Tremaroli V, Khan MT, Caesar R, Manneras-Holm L, Stahlman M et al, ... & Backhed F 2017, 'Metformin alters the gut microbiome of individuals with treatment-naive type 2 diabetes, contributing to the therapeutic effects of the drug', *Nature Medicine*, 23, 7, 850 - +.



## Diego F. Torres

Institut de Ciències de l'Espai (CSIC - ICE)  
Experimental Sciences & Mathematics

I was born in Argentina, where I studied up to obtaining a PhD from the National University at La Plata. After several fellowships (Sussex University, Inst. for Radioastronomy, Princeton University, Lawrence Livermore Natl. Lab.) and long stays in Italy, I started a new group on high-energy astrophysics in Barcelona. I have received several scientific awards (among them, the Chinese Academy of Science Senior Visiting Professorship, the Friedrich Wilhelm Bessel Award of the Humboldt Foundation of Germany, the Shakti Duggal Award on Cosmic Ray Physics of the International Union of Pure and Applied Physics, and the Guggenheim Fellowship). I have published 220+ papers, which have 12000+ citations. These papers can be accessed from ADS (<http://bit.ly/1f9pno4>). I edited 7 books. I became Director of the Institute of Space Sciences in March, 2016.

### Research interests

The familiar sights of peacefully shining stars would be replaced by something extreme and variable should you look with gamma-ray eyes. You would be glancing at the most energetic phenomena known in astrophysics: accreting masses around black holes, pulsars, close binaries, regions of stellar formation, explosions of supernovae, and others. I develop theoretical models for these scenarios, and test them with observations using ground-based telescopes and satellites. My research group hosted about 30 scientists and published more than 250 papers since its foundation in 2006. My research focuses on compact objects and cosmic rays. My earlier research includes gravitation and cosmology; particularly, scalar-tensor theories and non-minimal couplings, scalar dark matter, boson stars, gravitational lensing, and wormholes. I published several papers on all these topics.

You can know more about all this from my webpage, <https://sites.google.com/view/dft-research>

### Selected publications

- **Torres DF** 2017, 'A rotationally powered magnetar nebula around Swift J1834.9-0846', *Astrophysical Journal*, 835, 1, 54. 13pp.
- **Torres DF**, Long J, Jian L, Papitto A, Rea N, de Ona Wilhelmi E & Zhang S 2017, 'A Search for Transitions between States in Redbacks and Black Widows Using Seven Years of Fermi-LAT Observations', *Astrophysical Journal*, 836, 1, 68.
- The MAGIC Collaboration (including DFT) 2017, 'A cut-off in the TeV gamma-ray spectrum of the SNR Cassiopeia A', *Monthly Notices of the Royal Astronomical Society*, vol. 472, issue 3, pp. 2956-2962.
- Li J, **Torres DF**, Cheng K-S, de Ona Wilhelmi E, Kretschmar P, Hou X & Takata J 2017, 'GeV Detection of HESS J0632+057', *Astrophysical Journal*, 846, 2, 169.
- **Torres DF** (Editor) 2017, 'Modelling Pulsar Wind Nebulae', *Astrophysics and Space Science Library*, Volume 446. ISBN 978-3-3-9-63030-4. Springer International Publishing AG, 2017, 313 pages

### Selected research activities

I published 11 papers in international journals, either alone, or with a small number of co-authors, or significantly contributing within larger collaborations.

I edited 2 books, the latest being:

Modelling Pulsar Wind Nebulae

Torres, Diego F. (Editor)

Astrophysics and Space Science Library, Volume 446. ISBN 978-3-319-63030-4. Springer International Publishing AG, 2017, 313 pages

I acted as Director of the Institute of Space Sciences (The Institute pertains to the Consejo Superior de Investigaciones Científicas (CSIC),

has about 80 members, 3 departments, and 7 laboratories).

As such, and among many other things, I have organized the Institute's

- 1st Summer School
- 1st Annual Strategy Retreat
- 1st visit of the International Advisory Committee

I also acted as Co-Director of the Institut d'Estudis Espacials de Catalunya (IEEC). as referee for several astrophysical journals (in repeated occasions) and research projects of several countries.



## Joan Torruella

Universitat Autònoma de Barcelona (UAB)  
Humanities

Joan Torruella holds a PhD in Linguistics by the Autonomous University of Barcelona, a Masters in Philosophy by the University of Manchester, and a Masters in Lexicography by the University Pompeu Fabra in Barcelona. He obtained a research grant by the Ministero degli Affari Esteri of Italy to conduct research on Romance Studies at the University of Florence. Later he worked at the University of Manchester as a Lecturer of Spanish and Catalan, while in turn he conducted his Masters in Philosophy. He has worked on a wide range of computing tools and resources in collaboration with the Istituto di Linguistica Computazionale of the Consiglio Nazionale delle Ricerche in Pisa (Italy). He is ICREA Research Professor since January 2005. He is also co-director of the journal "Scriptum Digital" and a member of the Seminar of Philology and Computer Science. In 2009 he was awarded the Research Excellence Prize (PREI 2008).

### Research interests

My work consists of the research in the mediaeval Hispanic lexicon and of the development and application of new computer tools in order to understand and describe the process of language from real and quantifiable datum extracted from balanced corpora. At this moment I am working in contrastive studies among different Hispanic languages and in the realization of a corpus of texts of the Catalan language previous to the XVII century (Corpus Informatitzat del Català Antic). I am also working in the development of a portal in internet with scientific information about the lexicon of the Ibero-Romance languages (Portal de Léxico Hispánico). I'm currently working on those projects: development of a semi-automatic lemmatisator of the Old Catalan language; study of how to measure the lexical richness of the texts and the preparation of a computer program to do it, and a corpus of notarial documents written in Castilian language in Catalonia in the XVIII century.

### Selected publications

- **Torruella J** 2017, 'Lingüística de corpus: génesis y bases metodológicas de los corpus (históricos) para la investigación en lingüística', *Frankfurt am Main: Peter Lang*.
- **Torruella J** & Capsada R 2017, 'Métodos para medir la riqueza léxica de un texto. Revisión y propuesta', *Verba*, 44, pp. 347-408.

### Selected research activities

Director of the project "*Corpus de documentos castellanos escritos en Cataluña en el siglo XVIII*". Funding institution: Ministerio de Economía y Competitividad.

Co-Director of the *Scriptum Digital Journal* (magazine about diachronical corpus and digital edition in Ibero-Romance languages), <http://scriptumdigital.org>. ISSN: 2014-640X.

Director of *Computerised Corpus of Old Catalan (CICA)*. [Http://www.cica.cat](http://www.cica.cat). Funding institution: Grup de Lexicografia i Diacronia (2014SGR1328).

Editor Consultant of CODEA project (*Corpus de Documentos Españoles anteriores a 1700*) for Castilian texts of Catalonia and Valencia. The project is coordinated by Dr. Pedro Sánchez-Prieto Borja of the Universidad de Alcalá de Henares.

Member of the project "*Historia interna del Diccionario de la Lengua Castellana de la Real Academia Española en el siglo XIX (1817-1852)*". Funding institution: Ministerio de Ciencia e Innovación (FFI2014-51904-P).

Member of the "*CER Prolope*" (Centre d'estudis i recerca - UAB). Edición y estudio de treinta y seis comedias de Lope de Vega. Funding institution: Ministerio de economía y competitividad (FFI2015-66216-P).

Course on "Lingüística de corpus" in the module *Principios y métodos* del Màster oficial *Lengua española, literatura hispánica y español como lengua extranjera*, in the Departament de Filologia Espanyola at the Universitat Autònoma de Barcelona.



## Xavier Trepats

Institut de Bioenginyeria de Catalunya (IBEC)  
Engineering Sciences

Xavier Trepats received a BSc in Physics in 2000 and a BSc in Engineering in 2001. In 2004 he obtained his PhD from the Medical School at the University of Barcelona. He then joined the Program in Molecular and Integrative Physiological Sciences at Harvard University as a postdoctoral researcher. In 2008 he became a "Ramón y Cajal" researcher at the University of Barcelona and in January 2011 an ICREA Research Professor at the Institute for Bioengineering of Catalonia (IBEC). He is Group Leader of the Integrative Cell and Tissue Dynamics research line at IBEC. In 2015 he won the Banc de Sabadell Award for Biomedical Research.

### Research interests

We aim at understanding how physical forces and molecular control modules cooperate to drive biological function. We develop new technologies to map and perturb the main physical properties that determine how cells and tissues grow, move, invade and remodel. By combining this physical information with systematic molecular perturbations and computational models we explore the principles that govern the interplay between chemical and physical cues in living tissues. We study how these principles are regulated in physiology and development, and how they are derailed in cancer and aging.

### Selected publications

- Arroyo M & **Trepats X** 2017, '[Hydraulic fracturing in cells and tissues: fracking meets cell biology](#)', *Curr Opin Cell Biol*, vol. 44, pp 1-6.
- Labernadie A, Kato T, Brugués A, Serra-Picamal X, Derzi S, Arwert E, Weston A, González-Tarragó V, Elosegui-Artola A, Albertazzi L, Alcaraz J, Roca-Cusachs P, Sahai E & **Trepats X** 2017, '[A mechanically active heterotypic E-cadherin/N-cadherin adhesion enables fibroblasts to drive cancer cell invasion](#)', *Nat Cell Biol*, vol. 19 no. 3, pp 224-237.
- Rodriguez-Franco P, Bruges A, Marin-Llaurado A, Conte V, Solanas G, **Battle E**, Fredberg JJ, Roca-Cusachs P, Sunyer R & **Trepats X** 2017, '[Long-lived force patterns and deformation waves at repulsive epithelial boundaries](#)', *Nat Mater*, 16, 1029-1037.
- Valon L, Marín-Llauradó A, Wyatt T, Charras G & **Trepats X** 2017, '[Optogenetic control of cellular forces and mechanotransduction](#)', *Nat Comm*, vol 10, no 8, pp 14396.
- Roca-Cusachs P, Conte V & **Trepats X** 2017, '[Quantifying forces in cell biology](#)', *Nat Cell Biol*, 19, 7, 742 - 751.
- Malinverno C, Corallino S, Giavazzi F, Bergert M, Li Q, Leoni M, Disanza A, Frittoli E, Oldani A, Martini E, Lendenmann T, Deflorian G, Beznoussenko GV, Poulidakos D, Ong KH, Uroz M, **Trepats X**, Parazzoli D, Maiuri P, Yu W, Ferrari A, Cerbino R & Scita G 2017, '[Endocytic reawakening of motility in jammed epithelia](#)', *Nat Mater*, 16, 5, 587.
- Oria R, Wiegand T, Escibano J, Elosegui-Artola A, Uriarte JJ, Moreno-Pulido C, Platzman I, Delcanale P, Albertazzi L, Navajas D, **Trepats X**, García-Aznar JM, Cavalcanti-Adam EA, Roca-Cusachs P 2017, '[Force loading explains spatial sensing of ligands by cells](#)', *Nature*, 14;552(7684):219-224.
- Elosegui-Artola A, Andreu I, Beedle AEM, Lezamiz A, Uroz M, Kosmalka AJ, Oria R, Kechagia JZ, Rico-Lastres P, Le Roux A-L, Shanahan CM & **Trepats X**, Navajas D, Garcia-Manyes S & Roca-Cusachs P 2017, 'Fo





## Isabel Usón

Institut de Biologia Molecular de Barcelona (CSIC - IBMB)  
Life & Medical Sciences

Isabel Usón Finkenzeller completed a Chemistry degree (1987) and Ph. D. (1992) in synthetic organometallic chemistry at the U. of Zaragoza. In November 1992, she joined Procter & Gamble as Product Research Scientist in Brussels, gaining insight into the science and management of industrial chemistry. She moved as HCM postdoc to the U. of Göttingen in 1994. She has developed methods for crystallography for 23 years, first within the group of Prof. Sheldrick FRS, author of SHELX, during her postdoctoral research and Habilitation (1994-2001) and as of July 2001 leading an emergent group. September 2003, she moved to Barcelona as ICREA Research Professor. Her work on structural chemistry and biology has led to over 135 publications. The software ARCIMBOLDO is the central output of her work. She is one of the seven members of the Maria de Maeztu Excellence Unit of Structural Biology at the IBMB-CSIC.

### Research interests

Macromolecular crystallography provides conclusive structural info. down to atomic detail and has been inextricable from major advances in the life sciences. Nevertheless, this structural model cannot be directly calculated from the experimental data, as we cannot measure the phases of the diffracted X-ray beams. Our group develops methods to exploit the stereochemical knowledge present in small, accurate units such as secondary structure fragments and their association into local folds. Their use to solve the central phase problem of crystallography is implemented in our software ARCIMBOLDO. This has required devising our own particular toolbox for fragments. We are extending this detailed view to map interpretation within the program SHELXE (Sheldrick) and general structure interpretation within our program BORGES\_MATRIX. As illustrated in paintings by G. Arcimboldo, the information content derived from a correct combination of fragments goes beyond their simple addition.

### Selected publications

- Hernandez K, Parella T, Petrillo G, **Usón I**, Wandtke CM, Joglar J, Bujons J & Clapes P 2017, 'Intramolecular Benzoin Reaction Catalyzed by Benzaldehyde Lyase from *Pseudomonas Fluorescens Biovar I*', *Angewandte Chemie-international Edition*, 56, 19, 5304 - 5307.
- Bustamante N, Iglesias-Bexiga M, Bernardo-García N, Silva-Martín N, García G, Campanero-Rhodes MA, ... Menéndez M 2017, 'Deciphering how Cpl-7 cell wall-binding repeats recognize the bacterial peptidoglycan', *Scientific Reports*, 7, 16494.
- Pomowski A#, **Usón I**#, Nowakowska Z, Veillard F, Sztukowska MN, Guevara T, Goulas T, Mizgalska D, Nowak M, Potempa B, Huntington JM, Potempa J\* & Gomis-Rüth FJ\* 2017, 'Structural insights unravel the zymogenic mechanism of the virulence factor gingipain K from *Porphyromonas gingivalis*, a causative agent of gum disease from the human oral microbiome', *J. Biol. Chem.*, 292, 5724-5735. #co-first authors

### Selected research activities

- Release of the ARCIMBOLDO programs (LITE, BORGES and SHREDDER) within the main European consortium for crystallographic software, CCP4.
- Release of coauthored SHELXE
- 2 Months research stay at the CIMR, University of Cambridge.
- Member of the management board for the construction of the XAIRA microfocus beamline at ALBA.
- Organisation of an international conference for 150 participants: "Conference on methods and applications in the frontier between MX and CryoEM. 19-21 September 2017 | Barcelona, Spain



## Pablo O. Vaccaro

Institut de Ciència de Materials de Barcelona (CSIC - ICMAB)  
Engineering Sciences

Pablo Vaccaro earned his Licenciatura in Physics working on LPE of IV-VI compound semiconductors, in 1986, and his Doctor in Physics degree working on CdS/CdTe solar cells, in 1991, at Balseiro Institute, Bariloche, Argentina. He joined Prof. Hiroyuki Matsunami's laboratory at the Dept. of Electrical Engineering, Kyoto University, Japan, where he conducted post-doctoral research on chemical beam epitaxy (CBE) of III-V compound semiconductors until 1993. He then moved to Advanced Telecom. Research Institute, in Kyoto, Japan, where he conducted research on MBE of III-V compound semiconductors and optoelectronic devices fabrication, reaching the position of Senior Researcher. In 2006 he was hired by Sharp Corporation at the Advanced Technology Research Labs., in Nara, Japan, where he worked on MOCVD of III-N compound semiconductors and fabrication process of blue laser diodes and LEDs. He became ICREA Research Professor at the Institute of Materials Science of Barcelona in 2010.

### Research interests

SiGe thermoelectric far-infrared sensors integrated on silicon substrates. Tensile strained germanium on silicon substrates for monolithically integrated optoelectronics. SiGe nanowires for thermoelectric applications. Piezoresistivity in Si/Ge nanostructures and III-V heterostructures. Surface plasmons in ferroelectric materials Soft X-ray lithography.



## Juan Valcárcel

Centre de Regulació Genòmica (CRG)  
Life & Medical Sciences

Juan Valcárcel studied biology and chemistry at the Universities of Santiago de Compostela and Autónoma de Madrid. He obtained his PhD in 1990 for work carried out at the Centro de Biología Molecular Severo Ochoa under the supervision of Juan Ortín. He did postdoctoral work in the laboratory of Michael Green at the University of Massachusetts and in 1996 he joined the European Molecular Biology Laboratory in Heidelberg as a group leader. In 2002 his group moved to the Centre de Regulació Genòmica in Barcelona, where he is a senior scientist and ICREA Research Professor. Since the time of his PhD work, his research has focused on how pre-mRNAs are spliced and how this process can be regulated.

### Research interests

The genome provides the instructions to build and maintain the function of a living organism. Strangely, in complex organisms these instructions are not written as continuous messages, but rather as smaller pieces interrupted by meaningless text. This arrangement has the advantage that the pieces can be combined in different ways to generate alternative instructions. We study the molecular machinery that puts messages together and how the production of alternative messages is regulated.

### Selected publications

- Vigevani L, Gohr A, Webb T, Irimia M & **Valcarcel J** 2017, 'Molecular basis of differential 3' splice site sensitivity to anti-tumor drugs targeting U2 snRNP', *Nature Communications*, 8, 2100.
- Makowski K, Vigevani L, Albericio F, **Valcárcel J\*** & Álvarez M\* 2017, 'Sudemycin K: a synthetic anti-tumor splicing inhibitor variant with improved activity and versatile chemistry', *ACS Chemical Biology*, vol 12, pp 163 - 173. \* Co-corresponding authors.
- Cifdaloz M, Osterloh L, Graña O, Riveir-Flakenbach E, Ximenez-Embrun P, Muñoz J, Tejedó C, Calvo TG, Karras P, Olmeda D, Miñana B, Gómez-López G, Cañón E, Eyra E, Guo H, Kappes F, Ortiz-Romero PL, Rodrigues-Peralto JL, Megías D, **Valcárcel J** and Soengas MS 2017, 'Systems analysis identify melanoma-enriched pro-oncogenic networks controlled by the RNA binding protein CELF1', *Nature Communications*, 8, 2249.



## Alfonso Valencia

Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC - CNS)  
Life & Medical Sciences

Computational biologist, pioneer scientist applying computer science to solve biological problems, recognized as leader in his field. Focused on the analysis of large collections of genomic data, especially protein interaction networks applied to (epi)Genomics, Cancer Biology and Precision Medicine, his group train the application of Text Mining methodology to biomedical problems. He earned a PhD in Biochemistry and Molecular Biology (UAM) plus a PostDoctoral researcher in Bioinformatics (EMBL Heid). Prof. at ICREA, Scientific Director and Director's of Life Sciences in BSC-CNS, home of the MareNostrum Supercomputer. Head of the Spanish node of the European Infrastructure for Life-Science Information, ELIXIR. Founding member and President of the ISCB. Elected member of the European Molecular Biology Organization (EMBO). Exec. Editor of "Bioinformatics", OUP of FEBS Letters, Prof. Honoris Causa by the Danish Technical University and advisory board in several Institutions.

### Research interests

- \*Personalized Medicine Initiative: Organize resources for the analysis of large scale genomics and phenotypic data and its translation to clinic.
- \*NLP/text mining: Analyzing large biomedical corpora to detect bioentities relations and specific conditions, e.g. disease specific genes affected in particular contexts.
- \*New approaches to predict protein structures and interactions: exploration of the sequence and structure spaces combined with simulations highly improve prediction methods, useful in applications such as drug design.
- \*Network Biology: Investigation of AI approaches for the analysis of biological networks, ontology constructions and diseases comorbidity.
- \*Evaluation of research and social projects: Analyzing large data sets to assess the impact of specific projects, monitoring their progress and planning of new projects.
- \*Building a sustainable bioinformatic infrastructure: In collaboration with the Instituto Nacional de Bioinformatica and the European Bioinformatics Infrastructure, systematically catalog, interoperate and benchmark methods and data resources.

### Selected publications

- Sanchez-Valle J, Tejero H, Ibanez K, Portero JL, Krallinger M, Al-Shahrour F, Tabares-Seisdedos R, Baudot A & **Valencia A** 2017, 'A molecular hypothesis to explain direct and inverse co-morbidities between Alzheimer's Disease, Glioblastoma and Lung cancer', *Scientific Reports*, 7, 4474.
- Krallinger M, Rabal O, Lourenco A, Oyarzabal J & **Valencia A** 2017, 'Information Retrieval and Text Mining Technologies for Chemistry', *Chemical Reviews*, 117, 12, 7673 - 7761.
- Carrillo-de-Santa-Pau E, Juan D, Pancaldi V, Were F, Martin-Subero I, Rico D & **Valencia A** 2017, 'Automatic identification of informative regions with epigenomic changes associated to hematopoiesis', *Nucleic Acids Research*, 45, 16, 9244 - 9259.

### Selected research activities

Current projects:

- Studying cancer genomics and its variation in different sample.
- Investigation of the genetic basis of rare diseases and genetic variation, including copy number variants across populations.
- Investigation of the role, source and impact of phenotypic heterogeneity across and within individuals.
- Study of disease co-occurrence patterns and their interpretation based on transcriptomes including direct and inverse comorbidity.
- Integration of different types of omics datasets into chromatin states seen in the context of 3D genome structure.
- Systems biology, logical and agent-based models of tumour cell proliferation applied to drug synergy prediction.
- AI/ML approaches to mapping of biological ontologies.



## Sergio O. Valenzuela

Institut Català de Nanociència i Nanotecnologia (ICN2)  
Engineering Sciences

Sergio O. Valenzuela is an ICREA Prof. at the Catalan Institute of Nanoscience and Nanotechnology (ICN2), The Barcelona Institute of Science and Technology. He leads the Physics and Engineering of Nanodevices group, which focuses on quantum transport, spintronics, and thermoelectricity in materials such as graphene and topological insulators. He has pioneered the use of nonlocal devices to study the spin Hall effect, thermopiles to isolate the magnon drag in ferromagnetic materials, and implemented novel qubit control and spectroscopy methods. Prof. Valenzuela received a PhD in Physics at the University of Buenos Aires, and held research positions at Harvard University and MIT. He is recipient of the Giambiagi prize, the IUPAP Young Scientist Prize and a ERC Consolidator Grant. He is also Principal Investigator of the Graphene Flagship and Grantor of the ICN2 "Severo Ochoa" Centre of Excellence Project.

### Research interests

In recent years, electronic devices have been scaled down to nanoscale sizes where quantum effects begin to interfere with their functioning. Materials and devices in such scales often present unexpected and unintuitive physical properties. Prof. Valenzuela's Group focus is the development of novel devices, which are designed to gain insight of specific physical properties of the system components, relevant both for fundamental reasons and applications at the nanoscale. The current research interests of the group span Spintronics, Spin Caloritronics, and quantum transport in particular in graphene and topological insulators. For more information see: <http://nanodevices.icn2.cat>.

### Selected publications

- Sander D, **Valenzuela SO** et al. 2017, 'The 2017 Magnetism Roadmap', *Journal Of Physics D-Applied Physics*, 50, 36, 363001.
- Bonell F, Cuxart MG, Song K, Robles R, Ordejon P, **Roche S, Mugarza A & Valenzuela SO** 2017, 'Growth of Twin-Free and Low-Doped Topological Insulators on BaF<sub>2</sub>(111)', *Crystal Growth & Design*, 17, 9, 4655 - 4660.
- Saverio Torres W, Sierra J F, Benitez LA, Bonell F, Costache MV & **Valenzuela SO** 2017, 'Spin precession and spin Hall effect in monolayer graphene/Pt nanostructures', *2d Materials*, 4, 4, 041008.
- Raes B, Cummings AW, Bonell F, Costache MV, Sierra JF, **Roche S & Valenzuela SO** 2017, 'Spin precession in anisotropic media', *Phys. Rev. B* 95, 085403.
- Maekawa S, **Valenzuela SO**, Saitoh E & Kimura T, Eds, *Spin Current*. 2nd Edn, Oxford University Press.

### Selected research activities

#### Selected Invited/Plenary Talks

- Zernike Institute, Groningen University, Groningen, The Netherlands, November, 2017.
- 5th Joint CNRS-CSIC Workshop. Trends in Spintronics and Nanomagnetism, Madrid, October 5-6, 2017.
- Solvay Workshop "From physics of graphene to graphene for physics", Brussels, September 6 - 8, 2017.
- Spins, Valleys, and Topological States in 2D and Layered Materials, The Ohio State University, Ohio, USA. June 5-8, 2017
- 2<sup>nd</sup> EU-Japan Workshop on Graphene and Related 2D Materials, Barcelona, May 6-8, 2017.
- Nanoscale Science Department, Max-Planck Institute of Solid State Research, Stuttgart, Germany, January, 2017.

#### Other Activities

- Lecturer, ESONN'17 European School on Nanoscience & Nanotechnologies (Spintronics), Grenoble, France.
- Scientific Advisory Committee Member of the European School on Magnetism (ESM).
- Co-Editor Focus Issue on Tailoring Spin-Dependent Transport in 2D Materials (2D Materials Journal; <http://2dmaterials.org>).
- Scientific Committee Member of New Trends of Topological Insulator Workshop (NTTI) and Frontiers in Magnetism (2017).
- Principal Investigator of ERC Consolidator Grant SPINBOUND and within the Graphene Flagship.



**Jeroen van den Bergh**  
 Universitat Autònoma de Barcelona (UAB)  
 Social & Behavioural Sciences

Jeroen van den Bergh is ICREA Research Professor at the Institute of Environmental Science & Technology of Univ. Autònoma de Barcelona. He is also honorary professor of Environmental & Resource Economics in the Faculty of Economics & Business Administration and the Institute for Environmental Studies, VU University Amsterdam (VUA). Previously, he was professor of Environmental Economics (1997-2007) at VUA and member of the Dutch Energy Council (2003-2007). He obtained a Masters degree in Econometrics & Operations Research from Tilburg University, and a PhD from VUA. He published 16 books and ~200 journal articles. He was awarded the Royal Shell Prize 2002 and the IEC Environmental Prize 2011, and received awards for several publications. He is editor-in-chief of the journal "Environmental Innovation and Societal Transitions", and was awarded an ERC Advanced Grant for the theme "Behavioral-evolutionary analysis of climate policy".

### Research interests

The intersection of economics, environmental science and innovation studies. Work in recent years is focused on environmental innovation, notably renewable energy, the design of effective climate policy, assessment of climate policy impacts, carbon and energy rebound, and modelling a transition to a low-carbon economy. He makes frequent use of insights and approaches of behavioral and evolutionary economics. Past work covered integrated environmental-economic modelling, construction of aggregate performance indicators, contributions to the growth-versus-environment debate, economic aspects of dematerialization and recycling, and spatial/international aspects of environmental policy.

### Selected publications

- **van den Bergh JCJM** 2017, 'Rebound policy in the Paris Agreement: instrument comparison and climate-club revenue offsets', *Climate Policy* 17:6, 801-813.
- Safarzynska K & **van den Bergh J** 2017, 'Integrated Crisis-Climate Policy: Macro-Evolutionary Modelling of Technology, Finance and Energy Interactions', *Technological Forecasting & Social Change* 114: 119-137.
- King LC & **van den Bergh JCJM** 2017, 'Worktime reduction as a solution to climate change: Five scenarios compared for the UK', *Ecological Economics*, vol. 132, pages 124-134.
- **van den Bergh J** 2017, 'A third option for climate policy within potential limits to growth', *Nature Climate Change* 7: 107-112.
- Baranzini A, **van den Bergh J**, Carattini S, Howard R, Padilla E & Roca J 2017, 'Carbon pricing in climate policy: Seven reasons, complementary instruments, and political-economy considerations', *WIREs Climate Change*, 8, 4, UNSP e462.
- Safarzynska K & **van den Bergh J** 2017, 'Financial stability at risk due to investing rapidly in renewable energy', *Energy Policy* 108: 12-20.
- Drews S & **van den Bergh J** 2017, 'Scientists' views on economic growth versus the environment: A questionnaire survey among economists and non-economists', *Global Environmental Change* 46: 88-103
- Drews S, Antal M & **van den Bergh J** 2017, 'Challenges in assessing public opinion on economic growth versus environment: Considering European and US data', *Ecological Economics* 146: 265-272.
- **van den Bergh JCJM** 2017, 'Green Agrowth: Removing the GDP-growth constraint on human progress', In: Victor PA & Dolter B (eds.), *Handbook on Growth and Sustainability*. Edward Elgar, Cheltenham.



## Niek F. van Hulst

Institut de Ciències Fotòniques (ICFO)  
Engineering Sciences

Following study in Astronomy and Physics, I obtained my PhD (1986) in Molecular & Laser-Physics at the University of Nijmegen (the Netherlands), on microwave-laser double resonance molecular-beam spectroscopy. After research in non-linear optics of organic materials, integrated optics, atomic force and near-field optical microscopy, since 1997 full Professor in Applied Optics at MESA+ Institute for NanoTechnology, University of Twente (the Netherlands) with focus on single molecule detection and scanning probe technology. In 2005, attracted by the Catalan quality-based science policy, I started as ICREA Research Professor and senior group leader at ICFO - the Institute of Photonic Sciences, within The Barcelona Institute of Science & Technology; also I am Head Academic Programs at ICFO. Recipient of 2003 Körber European Science Award, 2010 City of Barcelona Prize; ERC Advanced Grants in 2010 and 2015, PoC in 2017; 2017 European Physical Society Prize.

### Research interests

My current interest is to control light interaction at the nanometer scale. To this end, my group specializes on optical antennas, with nanoscale hot spots, and on coherent control schemes to command light on the “femto-nano” scale. We study individual molecules, quantum dots and single proteins, in strong interaction with nanoantenna-cavities and sub-10-fs pulses; controlling excitation-emission rates, direction, spectra, polarization, single photon character. We focus particularly on long-lived coherences in single light-harvesting antenna complexes at native conditions, to unravel the remarkably high efficiency of energy conversion in such natural molecular antennas. At ICFO I aim to stimulate young researchers, towards well-rooted skilled scientists and assertive critical thinkers, ready to shape their future and sustain the world. To recharge, I like to touch ground in the Massis del Garraf or to stroll around the coast, inspired by the ancient Mediterranean waters.

### Selected publications

- Liebel M, Toninelli C & **van Hulst NF** 2017, ‘Room-temperature ultrafast nonlinear spectroscopy of a single molecule’, *Nature Photonics*, 12, 45–49.
- Liebel M, Hugall JT & **van Hulst NF** 2017, ‘Ultrasensitive label-free nanosensing and high-speed tracking of single proteins’, *NanoLetters*, 17 (2), 1277–1281.
- Accanto N, de Roque PM, Galvan-Sosa M, Christodoulou S, Moreels I & **van Hulst NF** 2017, ‘Rapid and robust control of single quantum dots’, *Light: Science & Applications*, 6, e16239.
- Flauraud V, Regmi R, Winkler PM, Alexander DTL, Rigneault H, **van Hulst NF**, **Garcia-Parajo MF**, Wenger J & Brugger J 2017, ‘In-plane plasmonic antenna arrays with surface nanogaps for giant fluorescence enhancement’, *NanoLetters*, 17 (3), 1703–1710.
- Pastorelli F, Accanto N, Jørgensen M, **van Hulst NF** & Krebs FC 2017, ‘In situ electrical and thermal monitoring of printed electronics by two-photon mapping’, *Sci. Reports*, 7, 3787.

### Selected research activities

2017 European Physical Society Prize, for Fundamental Aspects of Quantum Electronics and Optics.  
2017 ERC-Proof of Concept: IBIS a platform for label-free quantitative detection of single proteins and extracellular vesicles.

### Selected invited talks:

- Joan van der Waals colloquium, Univ.Leiden, the Netherlands
- 20 years Nano-Optics, MPL, Erlangen, Germany
- 23<sup>rd</sup> Int. Workshop on Single Molecule Spectroscopy, Berlin, Germany
- NANOP2017, Barcelona
- ICES2017, München, Germany
- GRC Quantum Control of Light & Matter, South Hadley, MA, USA
- Plasmonica2017, Lecce, Italy
- CLEO/Europe, München, Germany
- EPSRC Doctoral Training in Metamaterials, Exeter, UK
- DINAMO2017, Siglufjörður, Iceland
- CQS2017 - Complex Quantum Systems dynamics, Cartagena, Spain
- EuroPhotonics Spring School, Sitges
- Quantum Nanophotonics, Benasque, Spain
- 1<sup>st</sup> EPS Biology for Physics Conference, Barcelona

### Organisation:

- CLEO/Europe, EQEC/EG Light-matter Interactions at the Nano-scale



## Licia Verde

Universitat de Barcelona (UB)  
Experimental Sciences & Mathematics

Originally from Venice (Italy) Licia Verde studied physics as an undergraduate at the Università degli Studi di Padova. She obtained her PhD from the University of Edinburgh (UK) sponsored by a Marie Curie grant from the EU, and then moved to a research assistant position at Princeton University and at Rutgers University (USA). At Princeton she held a Chandra postdoctoral fellowship and a Spitzer postdoctoral fellowship and she entered the WMAP science team. She spent 4 years as faculty at the University of Pennsylvania (USA). In September 2007, she moved to Barcelona as an ICREA Research Professor.

### Research interests

I am interested in Cosmology, which is the study of the origin, evolution and composition of the universe. One of the recent discoveries in cosmology is that more than 70% of what makes up the universe is not even matter, but something that suggests that some energy is associated with the nothingness of vacuum. This component has been dubbed "dark energy". Dark energy may as well be one of the major problems in physics today and is motivating a host of future and planned experiments. I study the "large-scale distribution of galaxies" and the statistical properties of the heat left over from the big bang to shed some light on the universe composition, including the dark energy component, and its history.

### Selected publications

- Simpson F, **Jimenez R**, Pena-Garay C & **Verde L** 2017, 'Strong Bayesian evidence for the normal neutrino hierarchy', *Journal Of Cosmology And Astroparticle Physics*, 6, 029.
- Bernal JL, Bellomo N, Raccanelli A & **Verde L** 2017, '[Cosmological implications of primordial black holes](#)', 2-10, *JCAP*, 10, 052.
- Gil-Marin H, Percival WJ, **Verde L**, Brownstein JR, Chuang C-H, Kitaura F-S, Rodriguez-Torres SA & Olmstead MD 2017, 'The clustering of galaxies in the SDSS-III Baryon Oscillation Spectroscopic Survey: RSD measurement from the power spectrum and bispectrum of the DR12 BOSS galaxies', *Monthly Notices Of The Royal Astronomical Society*, 465, 2, 1757 - 1788.
- **Verde L**, Bernal JL, Heavens AF & **Jimenez R** 2017, 'The length of the low-redshift standard ruler', *Monthly Notices Of The Royal Astronomical Society*, 467, 1, 731 - 736.

### Selected research activities

- ERC Consolidator grant BePreSySE
- Narcis Monturiol Medal
- 2018 Breakthrough Prize in fundamental physics (with the WMAP team)
- Editor of Physics of the Dark Universe
- Editor of Journal of Cosmology and Astroparticle Physics
- This year I started scaling up my research group. Up to date information can be found [here](#). Investigations ranged from cosmological constraints on neutrino masses, robustness of the interpretation of cosmological measurements to implications of primordial black holes (if they exist in large enough number) on cosmological observations.





## Isabelle Vernos

Centre de Regulació Genòmica (CRG)  
Life & Medical Sciences

Isabelle Vernos obtained a PhD in Biology in 1989 from the University Autònoma of Madrid. In 1992 she moved to the EMBL in Heidelberg where she established her first independent research group in 2001. In 2005, she obtained an ICREA research professor position and she moved to the CRG in Barcelona where is senior group leader. She has published more than 70 papers in international journals. She has served as advisor and referee for several international research organisations. She was nominated as member of the [ERC scientific Council](#) in 2011. Since 2013 she chairs the [Gender Balance working group of the ERC](#). Prof Isabelle Vernos was a member of the Advisory Board for Science, Technology and Innovation for the Spanish Ministry of Economy and Competitiveness from 2012 to 2015.

### Research interests

Life depends on the ability of cells to divide while maintaining their genomic integrity. Cell division is therefore a critical process and yet involves the full reversible reorganization of the intra-cellular components. We are currently trying to understand the mechanism and regulatory signalling pathways involved in the transient formation of the mitotic spindle, the microtubule based molecular machine that segregates the chromosomes during cell division.

### Selected publications

- Brouwers N, Mallol Martínez N & **Vernos I** 2017, 'Role of Kif15 and its novel mitotic partner KBP in K-fiber dynamics and chromosome alignment.' *PLoS One*. 12(4):e0174819.



## Paul Verschure

Institut de Bioenginyeria de Catalunya (IBEC)  
Engineering Sciences

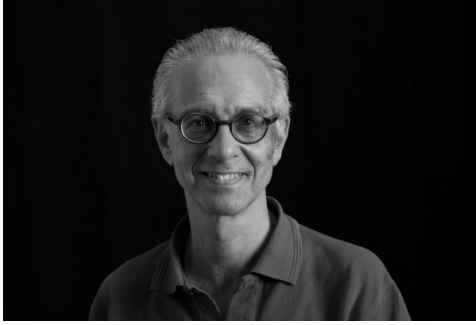
Dr. Paul Verschure (1962) is an ICREA Research Prof. and director of the Center of Autonomous Systems and Neurorobotics at Univ. Pompeu Fabra where he runs the Laboratory of Synthetic Perceptive, Emotive and Cognitive Systems (SPECS). He received both his MA and PhD in Psychology and pursued his research at different leading institutes: the Neurosciences Institute and The Salk Institute, both in San Diego, the Univ. of Amsterdam, Univ. of Zurich and the Swiss Federal Institute of Technology-ETH and currently with ICREA and Universitat Pompeu Fabra. Paul's research group comprises a multidisciplinary team of 25 doctoral and post-doctoral researchers including psychologists, engineers and biologists. He is a consultant for the European Commission regarding the integration of Neuroinformatics in the 5th-6th & 7th FP, Horizon 2020 and a referee for Science, Nature, Royal Society London, Trends in Neuroscience, IEEE neural networks, PLoS Computational Biology and PLoS ONE.

### Research interests

His scientific aim is to find a unified theory of mind, brain and body through the use of synthetic methods and to apply such a theory to the development of novel technologies and quality of life enhancing applications. Paul's research group on Synthetic Perceptive, Emotive and Cognitive Systems (specs.upf.edu) comprises a multidisciplinary team of about 25 doctoral and post-doctoral researchers that include physicists, psychologists, engineers and biologists. Paul has organized SPECS along three dimensions: 1) computational models of neuronal mechanisms underlying perception, cognition, emotion and behavior, including: the cerebellum and motor learning, the hippocampus, ventral striatum and prefrontal cortex in decision making and the amygdala and cortex in emotional learning. 2) robotics and avatars as artificial bodies for neuronal models. 3) the application of the technologies developed in 2) combined with the theories from 1) to the enhancement of the quality of life.

### Selected publications

- Caligiore D, Pezzulo G, Baldassarre G, Bostan AC, Strick PL, Doya K, Helmich RC, Dirkx M, Houk J, Jörntell H, Lago-Rodriguez A, Galea JM, R Miall C, Topa T, Kishore A, **Verschure PFMJ**, Zucca R & Herreros I 2017, 'Consensus Paper: Towards a Systems-Level View of Cerebellar Function: the Interplay Between Cerebellum, Basal Ganglia, and Cortex', *Cerebellum.*, 16(1):203-229.
- Maffei G, Herreros I, Sanchez-Fibla M, Friston KJ & **Verschure PF** 2017, 'The perceptual shaping of anticipatory actions', In *Proc. R. Soc. B*, Vol. 284, No. 1869, p. 20171780. The Royal Society.
- Rubio Ballester B, Nirme J, Camacho I, Duarte E, Rodriguez S, Cuxart A, Duff A & **Verschure PFMJ** 2017, 'Domiciliary VR-Based Therapy for Functional Recovery and Cortical Reorganization: Randomized Controlled Trial in Participants at the Chronic Stage Post Stroke', *Jmir Serious Games*, 5, 3, e15.
- Llobet JYP, **Gonzalez-Ballester MA** & **Verschure PFMJ** 2017, 'Modeling the neural substrates of learning through conditioning: A two-phased model', *IBM Journal of Research and Development*, 61(2/3), 9-1.



## Fernando Vidal

Universitat Autònoma de Barcelona (UAB)  
Humanities

Born in Buenos Aires, I received a BA from Harvard University, graduate degrees in psychology and the history and philosophy of science from the Universities of Geneva and Paris, and a Habilitation from the École des Hautes Études en Sciences Sociales, Paris. I work on the history of the human sciences and the mind/brain sciences from the early modern period to the present. I have been a Guggenheim Fellow, Athena Fellow of the Swiss National Science Foundation, Visiting Scholar at the American Academy in Rome and Harvard University's Department of the History of Science, Fellow at the Brocher Foundation, and Visiting Professor in Buenos Aires, Paris, Rio de Janeiro, Mexico and Japan. Before ICREA I was permanent Research Scholar at the Max Planck Institute for the History of Science, Berlin. In 2016 I was elected Associate Member of the Centre Alexandre Koyré-Histoire des sciences et des techniques (Paris) and in 2017 Member of the Academia Europaea.

### Research interests

My research concerns the history and historiography of the human sciences and the mind/brain sciences, focusing on the relationships between knowledge and values as they shape views about the human being. Major topics have been the early modern "sciences of the soul" and the contemporary "neurocultures" that privilege neuroscientific interpretations of the human; others have included miracles and science, the body and sexuality in the Enlightenment, the history of education in the inter war years, and the emergence of the notion of biocultural diversity. My most recent book is *Being Brains: Making the Cerebral Subject* (2017). Work in progress includes a book on "performing" brains in film, and a project (close to biomedical ethics and medical anthropology) on how neurological conditions, in particular the disorders of consciousness and the locked-in syndrome, articulate with conceptions of personhood and subjectivities in historical and transcultural perspectives.

### Selected publications

- Vidal F & Ortega F 2017, *Being Brains: Making the Cerebral Subject*, Fordham University Press, NY (USA).
- Vidal F & Piperberg M 2017, 'Born Free: The Theory and Practice of Neuroethical Exceptionalism', in Racine E & Aspler J (eds), *Debates About Neuroethics: Perspectives on Its Development, Focus, and Future* (New York, Springer), 67-81.

### Selected research activities

In 2017 I was Fellow at the Fondation Brocher (Geneva) and Invited Professor at Ritsumeikan University (Kyoto). Among other events and invitations, I co-organized the symposium *Knowledge Translation in Mental Health: History and Forms of a Global Imperative* at the 25th International Congress of the History of Science and Technology (Rio de Janeiro), and was keynote speaker at the International Workshop *Challenges of Illness Narratives* (Kyoto) and at the annual meeting of the Spanish Neuropsychiatry Association (Madrid), as well as lecturer in the Bar-Hillel Colloquium for the History, Philosophy and Sociology of Science (Cohn Institute for History and Philosophy of Science, Tel Aviv University). I was elected Member of the Academia Europaea.



## Anton Vidal-Ferran

Institut Català d'Investigació Química (ICIQ)  
Experimental Sciences & Mathematics

Anton Vidal graduated in Chemical Engineering at the "Institut Químic de Sarrià" in 1987 and completed his PhD on the synthesis of new heterocycles at the same institution in 1992 with Prof. P. Victory. Throughout the two post-doctoral appointments that followed (at the University of Cambridge 1993-1994 with Prof. J.K.M. Sanders and the University of Barcelona 1995-1999 with Prof. M.A. Pericàs) he studied topical and diverse areas of chemistry such as Molecular Recognition, Supramolecular Chemistry and aspects of Enantioselective Catalysis. He had the opportunity to complement his academic background with the industrial experience gained during his tenure in a number of research departments at Bayer-AG (Leverkusen 1999 - 2003). Following the appointment as ICREA Research Professor (Catalan Institution for Research and Advanced Studies) he started his independent research activities as a Group Leader at the ICIQ in September 2003.

### Research interests

Our past and current objectives encompass the Design of Efficient Enantioselective Catalysts for Transformations of Interest, and the study of their use to prepare products with relevance in the life-science sector. We are working in an area of research in which cutting-edge chemistry combines concepts from supramolecular and physical organic chemistry with traditional approaches from enantioselective catalysis. Crucial aspects of this work include modular design of the catalysts; use of versatile synthetic procedures; incorporation of regulation mechanisms to optimize the geometry of the catalyst's active-site; and computational study of their catalytic cycles (through collaborations).

### Selected publications

- Carreras L, Rovira L, Vaquero M, Mon I, Martin E, Benet-Buchholz J & **Vidal-Ferran A** 2017, 'Syntheses, characterisation and solid-state study of alkali and ammonium BArF salts', *RSC Advances*, 7, 32833 - 32841.

### Selected research activities

Ten invited lectures at the seminar programmes in a number of University Departments. Selection:

- Speaker at the College of Chemistry and Molecular Engineering of the Peking University, "Efficient Enantioselective Catalytic Tools for Challenging Hydrogenative Transformations", Beijing, February 2017.
- Speaker at the Department of Chemistry of Boston College, "Efficient Ligand Platforms for Enantioselective Catalysis", Boston, May 2017.

Continued funding from MINECO (CTQ2017-89814-P) as the principal investigator.

Principal investigator on a collaborative research program with COVESTRO AG on developing new catalysts for transformations of COVESTRO's interest. Filing of one European patent on the identification and development of efficient Zn-based catalysts for the alkoxycarbonylation of anilines (Application number: EP 17 170 988.4).

Evaluator of projects for a number of national and international chemistry panels and reviewer of articles for a number of editorial boards (e.g., ACS, Wiley, RSC, Thieme and Elsevier).

Member of the steering committee of the "International Conference on Phosphorus Chemistry (ICPC)"

Student promotion: Joan Ramon Lao Mulinari (PhD-URV).



## Miquel Vila

Vall d'Hebron Institut de Recerca (VHIR)  
Life & Medical Sciences

Miquel Vila received his MD from the University of Barcelona (Spain) and then moved to the laboratory INSERM U289 (Prof. Y. Agid) at the Salpêtrière Hospital (Paris, France), where he obtained a Master degree (DEA) and PhD in Neuroscience from the University of Paris 6. From 1998 to 2001 he worked as a postdoctoral researcher at the laboratory of Dr. S. Przedborski at the Dept. of Neurology of Columbia University (New York, USA). In 2001, he obtained a tenure-track position as Assistant Professor of Neurology at Columbia University, a \$1M-R01 NIH grant and the US permanent residency (outstanding researcher category). In December 2005, he moved back to Barcelona as an ICREA Research Professor to create and lead a new research group on Neurodegeneration at the Vall d'Hebron Research Institute, with the support of a 1.5M€ European Commission's Marie Curie Excellence Grant. He also holds positions as Associate Professor at the UAB and as Principal Investigator at the CIBERNED.

### Research interests

Our research is geared toward elucidating the molecular mechanisms of neuron cell death occurring in Parkinson's disease, the second most common neurodegenerative disorder after Alzheimer's dementia, in order to: (i) identify biomarkers for the diagnosis, early detection, patient stratification, disease progression, prognosis or response to treatment, (ii) identify new molecular targets for potential therapeutic intervention, (iii) develop novel therapeutic strategies with disease-modifying potential for this currently incurable disease, (iv) unravel molecular pathways common to other neurodegenerative diseases.

### Selected publications

- Soria FN, Engeln M, Martínez-Vicente M, Glangetas C, Lopez-Gonzalez MJ, Dovero S, Dehay B, Normand E, **Vila M**, Favereaux A, Georges F, Lo Bianco C, Bezaud E, Fernagut P-O 2017, '**Glucocerebrosidase deficiency in dopaminergic neurons induces microglial activation without neurodegeneration**', *Human Molecular Genetics*, 26, 14, 2603 - 2615.

- García-Lezana T, Oria M, Romero-Giménez J, Bové J, **Vila M**, Genescà J, Chavarria L & Cordoba J 2017, '**Cerebellar neurodegeneration in a new rat model of episodic hepatic encephalopath**', *J. Cereb. Blood Flow Metab.*, 37(3):927-937.



## Josep Vilardell

Institut de Biologia Molecular de Barcelona (CSIC - IBMB)  
Life & Medical Sciences

Since 2009 ICREA Research Professor at the Molecular Biology Institute of Barcelona (IBMB). (2002) Group Leader at the Center for Genomic Regulation. (1991) Post-doc at the Albert Einstein College of Medicine (New York). (1990) PhD in Biochemistry by the Universitat Autònoma de Barcelona (UAB), with research on the regulation of gene expression by the plant hormone abscisic acid in maize, supervised by Dr. Montserrat Pagès at the Center for Research and Development (CID), Barcelona. (1988) BA in Sciences (Biochemistry), UAB.

### Research interests

Living systems carry on the information to reproduce. This property is subjected to Natural Selection and there are many examples of strategies to optimize storage of genetic information. However, apparently this does not hold in multicellular organisms, including us. Most our genes are repeatedly interrupted by comparatively many large, meaningless, segments, that are neatly removed before decoding the gene. This removal is done by the spliceosome, genome's ghostwriter and possibly the most complex machine in a eukaryotic cell. Our research aims at what controls the spliceosome and how this is achieved. For this we follow a reductionist scheme with the yeast model, using molecular and computational approaches. We study the initial steps in the recognition of "meaningless" segments and their regulation. In addition, taking advantage of large datasets publicly available, we investigate how the spliceosome responds to aging, mutations, or disease, both in yeast and human cells.

### Selected publications

- Chakraborty A, Lyonnais S, Battistini F, Hospital A, Medici G, Prohens R, Orozco M, **Vilardell J** & Solà M 2017, 'DNA structure directs positioning of the mitochondrial genome packaging protein Abf2p', *Nucleic Acids Res.*, 45(2):951-967.

### Selected research activities

- Co-organizer of the XXIV Molecular Biology Symposium of the Catalan Society of Biology (Jornades de Biologia Molecular de la Societat Catalana de Biologia).
- Inspirer & Organizer of the Barcelona Yeast Group (BYG): Series of bi-monthly meetings of laboratories using yeast (budding and fission) as working model.
- Editor in *Frontiers in Molecular Biosciences*.



Alexander Voityuk  
Universitat de Girona (UdG)  
Experimental Sciences & Mathematics

Dr. Alexander Voityuk joined the Institut de Química Computacional at the Universidad de Girona as an ICREA research professor in May 2004. 1973-1978 Master degree with honor NSU, Russia. Speciality: Chemistry, Specialization: Physical and Inorganic chemistry. 1979-1983 PhD in Physical Chemistry (Institute of Inorganic Chemistry, Academy of Sciences, USSR ). 1985-1992 Associate Professor in Physical Chemistry and Quantum Chemistry group leader at the Institute of Bioorganic Chemistry (Novosibirsk, Russia). Before obtaining his ICREA position in 2004, he was a senior research associate at the University of Zurich, Switzerland (1992-1995), Technical University of Munich (1995-2000) and Max-Planck-Institute of Quantum Optics, Garching, Germany (2000-2004). He has published >170 articles with more than 3500 total citations in the field of quantum chemistry and computational modeling of charge transfer in biomolecules and organic materials.

### Research interests

Electron transfer (ET) and excitation energy transfer (EET) are important processes in biochemistry and material science. The main area of my research is the development of theoretical and computational tools to explore ET and EET in molecular systems and their application to biomolecules and organic materials to understand underlying mechanisms that control the charge and exciton migration in the systems. Semiempirical methods, the development of computer codes and simulation of ET and EET in DNA and related systems are of special interest.

### Selected publications

- **Voityuk AA** 2017, 'Electronic Couplings for Photoinduced Electron Transfer and Excitation Energy Transfer Computed Using Excited States of Noninteracting Molecules', *J. Phys. Chem. A*, 121, 5414-5419.
- Blancafort L & **Voityuk AA** 2017, 'Direct estimation of the transfer integral for photoinduced electron transfer from TD DFT calculations', *Phys. Chem. Chem. Phys.*, 19, 31007 - 31010.

### Selected research activities

A computer program *ECEET* for analysis of excited states and simulation of electron and excitation energy transfer in biomolecules and materials was developed. *ECEET* is used in combination with the quantum-chemical programs *Gaussian* and *Molcas* and allows one to derive microscopic parameters (electronic coupling and diabatic energies) for large molecules. An efficient program based on a COSMO-like scheme was written to compute equilibrium and non-equilibrium solvation energy for a number of excited states in large systems. A tool to predict kinetics of electron and exciton hopping using the Monte-Carlo and inverted matrix methods was written.



**Peter Wagner**  
 Universitat de Barcelona (UB)  
 Social & Behavioural Sciences

Educated in economics, political science and sociology in Hamburg, London and Berlin, Peter Wagner has been academically active in various European countries, including Germany, the United Kingdom, France, Italy and Norway, as well as in the USA and South Africa, before coming to Barcelona in 2010. He was Research Fellow at the Wissenschaftszentrum Berlin für Sozialforschung, Professor of Sociology at the U of Warwick and the U of Trento as well as Professor of Social and Political Theory at the European University Institute in Florence. Furthermore, he held visiting positions at Université de Paris 8 (2011); U catholique de Louvain-la-neuve (2009-10); U of Cape Town (2009-10); U of Bergen (2001); Ecole des Hautes Études en Sciences Sociales, Paris (1998; 2001); U of California at Berkeley (1996; 1997); Swedish Collegium for Advanced Study, Uppsala; Institute for Advanced Study, Princeton (1990-91); Centre National de la Recherche Scientifique, Paris (1994), among others.

### Research interests

Peter Wagner's research is based in comparative historical and political sociology, social and political theory, and sociology of the social sciences. It is focused on the identification and comparative analysis of different forms of social and political modernity and of the historical trajectories of modern societies. In this perspective, the term "modernity" does not signal a single and unique model of social organization, but rather variable interpretations of basic human problématiques in the light of specific historical experiences. It was initially applied to a comparative political sociology of European societies, and subsequently to the transformations in the self-understanding of Europe. Over the past few years, it was elaborated further towards a "world-sociology", focusing on the tensions between struggles for autonomy and persisting forms of domination and exploring current possibilities of progress in the light of historical experiences in different world-regions.

### Selected publications

- **Wagner P** 2017, 'The end of European modernity?', in: *Changing Societies & Personalities*, vol. 1, no. 2.
- **Wagner P** 2017, 'Progreso y modernidad: el problema con la autonomía', *Sociología Histórica*, no. 7, 2017, 95-120 (as well in English in the same issue: Progress and modernity: the problem with autonomy, pp. 71-94).
- **Wagner P** 2017, 'Finding one's way in global social space', in Wagner P (ed.), *The moral mappings of South and North*, Edinburgh: Edinburgh University Press.
- Strath B & **Wagner P** 2017, 'Europäische und globale Moderne', in Bach M & Hoenig B (eds), *Handbuch der Europasozologie*.
- Jaclin D & **Wagner P** 2017, 'Social sciences and social transformations', in: *Social Science Information*, vol. 56, no. 4.
- **Wagner P** (ed) 2017, 'The moral mappings of South and North', *Annual of European and Global Studies*, vol. 4, Edinburgh: Edinburgh University Press.
- Strath B & **Wagner P** 2017, 'European modernity: a global approach', London: *Bloomsbury*.

### Selected research activities

During 2017, Peter Wagner's main research activity was pursued within the framework of the project "The debt: historicizing Europe's relations to the 'South'", funded by the consortium Humanities in the European Research Area (HERA, 2016-2019) and pursued in co-operation with the Institute for Social Research, Frankfurt; the University of Helsinki; and the University of Eastern Piedmont. Against the background of the recent financial crisis, the project analyzes the generally increased significance of debt relations in the contemporary world. It aims to go beyond the narrow economic understanding of debt by considering wider historico-cultural and moral-philosophical meanings of indebtedness. The pursuit of this project is part of the wider research programme in a "world-sociology" that aims at providing an adequate "interpretation of the present".





## Leo Wanner

Universitat Pompeu Fabra (UPF)  
Humanities

Leo Wanner earned his Diploma degree in Computer Science from the University of Karlsruhe and his PhD in Linguistics from the University of The Saarland. Prior to joining ICREA, he held positions at the German National Centre for Computer Science (GMD), University of Waterloo, the University of Stuttgart and the Pompeu Fabra University, Barcelona. As visiting researcher, he was also affiliated with U of Montreal, U of Sydney, U of Southern California's Institute for Information Sciences, U Paris 7, Columbia University, and U of Augsburg. Throughout his career, Dr Wanner has been involved as Principal Investigator in a series of large scale national and European research projects. He has published eight books and about 185 peer reviewed papers. He is member of the Editorial Board of the Computational Intelligence Journal and serves as regular reviewer for a number of high profile conferences and journals in the areas of (Computational) Linguistics and Artificial Intelligence.

### Research interests

Leo Wanner is working in the field of computational linguistics, teaching the computer how to understand textual information, how to supply people with information that might be useful to them and how to interact with people. His research areas include human-computer interaction (in particular, the design and realization of conversation agents that reveal social and cultural competence), automatic written and spoken graph transduction-based language generation, automatic summarization of written material, data-driven parsing, information extraction, and, more recently, profiling of authors of written material and the information structure-prosody interface. He is furthermore interested in lexicology and lexicography, and there, in particular, in the automatic recognition, representation and use of lexical idiosyncrasies (so-called "collocations") by both native speakers and learners of a language. An important characteristic of his research is that it is multilingual.

### Selected publications

- Ten Ventura C, Carlini R, Dasioupoulou S, Llorach Tó G & **Wanner L** 2017, 'Towards Reasoned Modality Selection in an Embodied Conversation Agent', *Proc. Intelligent Virtual Agents (IVA) Conference*, Stockholm, Sweden.
- Soler-Company J & **Wanner L** 2017, 'On the Relevance of Syntactic and Discourse Features for Author Profiling and Identification', *Proc. Meeting of the European Chapter for Computational Linguistics (EACL)*, Short paper track, Valencia, Spain.
- **Wanner L** et al. 2017, 'KRISTINA: A Knowledge-Based Virtual Conversation Agent', *Proc. 15th International Conference on Practical Applications of Agents and Multi-Agent Systems (PAAMS)*, Porto, Portugal.
- Kleinhans J, Farrús M, Gravano A, Pérez JM, Lai C & **Wanner L** 2017, 'Using Prosody to Classify Discourse Relations', *Proc. Interspeech*, Stockholm, Sweden.
- Burga A, Öktem A & **Wanner L** 2017, 'Revising the METU-Sabancı Turkish treebank: An Exercise in Surface-Syntactic Annotation of Agglutinative Languages', *Proc. Fourth International Conference on Dependency Linguistics (DepLing)*, Pisa, Italy.
- Codina-Filba J, Bouayad-Agha N, Burga A, Casamayor G, Mille S, Mueller A, Saggion H & **Wanner L** 2017, 'Using genre-specific features for patent summaries', *Information Processing & Management*, 53, 1, 151 - 174.
- **Wanner L**, Ferraro G & Moreno P 2017, 'Towards Distributional Semantics-Based Classification of Collocations for Collocation Dictionaries', *International Journal Of Lexicography*, 30, 2, 167 - 186.
- Han Q, Heimerl F, Codina-Filbà J, Lohmann S, **Wanner L** & Ertl T 2017, 'Visual Patent Trend Analysis for Informed Decision Making in Technology Management', *World Patent Information Journal*, 49:34-42.

### Selected research activities

- PI and Coordinator of several large scale European research projects.
- Co-organizer of the Dagstuhl Seminar on Social Conversation Agents.
- Co-organizer of the Special Session on Basic and Healthcare Applications at the International Multimedia Modeling Conference 2017, Reykjavik.



**Andrew Williams**  
 Universitat Pompeu Fabra (UPF)  
 Humanities

Andrew Williams read Philosophy, Politics and Economics at the University of Oxford and was a graduate student at Nuffield College, Oxford and Harvard University. He then became a Junior Research Fellow at Jesus College, Oxford, and later taught at York, Reading and Warwick, where he was a Professor of Philosophy before joining ICREA in October 2009. He has also been a visiting professor in the Program in Ethics, Politics and Economics at Yale University and the Department of Philosophy at Harvard, and a Faculty Fellow in Ethics at the Kennedy School of Government at Harvard. He is an Editor of *Politics, Philosophy & Economics* and his articles have been published in such journals as *Ethics*, *Economics and Philosophy*, *Philosophical Quarterly*, *Philosophy & Public Affairs*, and *Utilitas*.

### Research interests

My interests lie in moral and political philosophy and practical rationality, as well as intersecting areas in economics and politics. I am especially interested in issues of distributive justice, including ones arising across states and generations. My current work examines how egalitarian distributive principles should accommodate concerns with risk and with personal and collective choice and responsibility. It also explores how such principles should guide the design of social institutions that shape the prospects of children, parents, the elderly, and future generations.

### Selected publications

- **Williams A** 2017, 'Symposium on justice, the family, and public policy', *Politics Philosophy & Economics*, 16, 2, 115 - 116.
- Quong J & **Williams A** 2017, 'Symposium on Settlement, Borders, and Violence', *Politics Philosophy & Economics*, 16, 4, 349 - 350.

### Selected research activities

Co-Editor, *Politics, Philosophy & Economics*

Coordinator of Marie Skłodowska-Curie Project by Professor Paul Bou-Habib on Ethics and Aging

Age, Justice, and Longevity, with Paul Bou-Habib, Conference on Taking Age Discrimination Seriously, Institute of State and Law, Czech Academy of Sciences, Prague

Longevity and Liability: What Difference Does Variation in Lifespan Make To The Demands of Fairness? with Paul Bou-Habib, Conference on Aging and Distributive Justice, Universitat Pompeu Fabra

Panel Session, with Nora Lustig and Jaume Ventura, on Globalization, Inequality and Democracy, 1st Catalan Economic Society Conference

Is It Fair To Free-Ride On Parents?, Jerusalem Forum for Political Philosophy, Department of Political Science, Hebrew University

Is Multiculturalism Bad for Future Generations?, University of Tromsø

On Predistribution, Conference entitled On Economic Inequality and Capitalism Murphy Institute, Tulane University

Caney on Equality, Ecology, and Demography, Workshop entitled On Cosmopolitanism, Centre for the Study of Global Ethics, University of Birmingham

Invited participant in seminar series on Combatting Inequalities: the Great Global Challenge, Fundació Catalunya Europa

Co-organized conference entitled On Economic Inequality and Capitalism, Murphy Institute, Tulane University

Co-organized conference on Distributive Justice and Aging, Universitat Pompeu Fabra

Supervised four successful Masters dissertations at Universitat Pompeu Fabra and Universitat de Barcelona

European Research Council Advanced Grant Panel Evaluator

External Examiner of DPhil at University of Oxford



## Andreas Winter

Universitat Autònoma de Barcelona (UAB)  
Experimental Sciences & Mathematics

Andreas Winter was born in Altötting, a small rural town near Munich, known also as the Heart of Bavaria. After developing an infatuation with science early on, and in particular with mathematics, he decided to study this subject in Konstanz and Berlin. He graduated in 1997 from the Freie Universität Berlin, and went on to obtain a doctorate in mathematics from the Universität Bielefeld in 1999, with the late Rudolf Ahlswede. In 2001 he joined the quantum information group in Bristol as a postdoc, became Lecturer in Applied Mathematics there in 2003, and Professor of the Physics of Information in 2006. In 2012 he left Bristol after 11 years, to move to the Universitat Autònoma de Barcelona as ICREA Research Professor, where he is now part of the quantum information group.

### Research interests

I work on quantum information, especially quantum Shannon theory, which aims at incorporating information-theoretic ideas into physics. The Shannon theoretic approach has succeeded in quantifying entanglement as a resource in information processing task, and likewise for other properties of quantum systems such as channel and storage capacities of quantum systems. One of my favourite topics is the interplay between classical and quantum information, evident in the intricate structure of local operations in composite quantum systems (LOCC), such as data hiding or "information locking". I also work on additivity and non-additivity of quantum channel capacities, quantum data compression, and zero-error quantum communication. Further quantum information interests include statistical mechanics, thermodynamics, resource theories, entropy characterization and entanglement measures. But at heart I am a mathematician and will still get fascinated by classic problems: existence of Hadamard matrices, incompleteness, etc.

### Selected publications

- Bera MN, Riera A, **Lewenstein M & Winter A** 2017, 'Generalized laws of thermodynamics in the presence of correlations', *Nat Commun.*, vol. 8, 2180.
- Tomamichel M, Wilde MM & **Winter A** 2017, '**Strong Converse Rates for Quantum Communication**', *IEEE Trans Inf Theory*, vol. 63, no. 1, pp 715-727.
- Nakata Y, Hirche Ch, Koashi M & **Winter A** 2017, 'Efficient Quantum Pseudorandomness with Nearly Time-Independent Hamiltonian Dynamics', *Phys. Rev. X*, vol. 7, 021006.
- Sutter D, Scholz VB, **Winter A** & Renner R 2017, 'Approximate Degradable Quantum Channels', *IEEE Trans Inf Theory*, vol. 63, no. 12, pp 7832-7844.
- Biswas T, García Díaz M & **Winter A** 2017, 'Interferometric visibility and coherence', *Proc. Royal Society London A*, vol. 473, no. 2203, 20170170.
- Ben Dana Kh, García Díaz M, Mejatty M & **Winter A** 2017, 'Resource theory of coherence: Beyond states', *Phys. Rev. A*, vol. 95, 062327.
- **Winter A** 2017, 'Weak locking capacity of quantum channels can be much larger than private capacity', *J Cryptol*, vol. 30, no. 1, pp 1-21.
- Garcia-Pintos LP, Linden N, Malabarba ASL, Short AJ & **Winter A** 2017, 'Equilibration Time Scales of Physically Relevant Observables', *Phys. Rev. X*, vol. 7, 031027.
- Acín A, Duan R, Roberson DE, Sainz AB, & **Winter A** 2017, '**A new property of the Lovász number and duality relations between graph parameters**', *Discr Appl Math*, vol. 216(3), pp 489-501.
- Auletta V, Ferraioli D, Rai A, Scarpa G & **Winter A** 2017, 'Belief-invariant and Quantum Equilibria in Games of Incomplete Information', in: *Proc. 18th Italian Conference on Theoretical Computer Science (ICTCS)*, vol. 1949, pp 198-202.

### Selected research activities

The joint work '**The Quantum Reverse Shannon Theorem and Resource Tradeoffs for Simulating Quantum Channels**' (with CH Bennett, I Devetak, AW Harrow & PW Shor) has won the **2017 Information Theory Society Paper Award**. This award is given annually for an outstanding publication in the fields of interest to the IT Society from the preceding four calendar years.



## Andriy Yaroshchuk

Universitat Politècnica de Catalunya (UPC)  
Experimental Sciences & Mathematics

Born on 7 March 1959 in Kiev, Ukraine. Candidate of Sciences (equivalent to PhD) in Colloid Chemistry, A.V. Dumanskiy Institute of Colloid and Water Chemistry, National Academy of Sciences of Ukraine, Kiev, 1983. Doctor of Sciences in Physics and Mathematics, Institute of Physical Chemistry of Russian Academy of Sciences, Moscow, 1992. ICREA Research Professor at the Polytechnic University of Catalonia, since 2007. Invited researcher/professor at Karl-Franzens Universität, Graz, Austria; École Nationale Supérieure de Chimie et de Physique de Bordeaux (France); École Supérieure Chimie Physique Electronique de Lyon (France); Universität Duisburg - Essen (Germany); Paul-Scherrer-Institute (Switzerland), etc. Member of Editorial Board of Desalination and Water Treatment (Taylor & Francis UK). Published 118 papers on theoretical and experimental studies of membranes, colloids, porous media and micro-/nano-fluidic systems.

### Research interests

The keyword is behaviour of fluids at nano-scale. I study the transfer of ions and water molecules through nano-metric (tens of nanometers) barrier layers of composite nanofiltration membranes. Another example is the transfer of ions and water through nanoporous track-etched membranes having identical cylindrical pores. I also study processes of current-induced concentration polarization of nano-/micro-interfaces where concentration polarization is strongly-coupled to electroosmosis and fine separation of solutes like peptides can occur. Recently, I discovered that a layered structure consisting of a micro-perforated ion-exchange membrane and a nanoporous layer can have very interesting properties useful for AC electroosmotic pumping. Another topic is experimental and theoretical studies of ion transfer across polyelectrolyte multilayers where we have recently discovered very high (>1000) selectivities in the electrically-driven transfer of ions of different charge magnitudes.

### Selected publications

- **Yaroshchuk A** & Bruening ML 2017, 'An Analytical Solution of the Solution-Diffusion-Electromigration Equations Reproduces Trends in Ion Rejections during Nanofiltration of Mixed Electrolytes', *J. Membr. Sci.*, 523, 361-372.
- **Yaroshchuk A**, Licón EE, Zholkovskiy EK, Bondarenko MP & Heldal T 2017 'Asymmetric electroosmotic pumping across porous media sandwiched with perforated ion-exchange membranes', *Faraday Discussions*, 199, 175-193.
- **Yaroshchuk A** 2017, "'Breakthrough" osmosis and unusually high power densities in Pressure-Retarded Osmosis in non-ideally semi-permeable supported membranes', *Scientific Reports*, 7, 45168.
- Zhu Y, Ahmad M, Misovich M, Yang L, **Yaroshchuk A** & Bruening ML 2017, 'Adsorption of polyelectrolyte multilayers imparts high monovalent/divalent cation selectivity to aliphatic polyamide cation-exchange membranes', *J. Membr. Sci.*, 537, 177-185.

### Selected research activities

International patent (PCT) "Layered Electroosmotic Structure" filed in cooperation with Osmotex AG (Switzerland)

Presentation "Asymmetric electroosmotic pumping across porous media sandwiched with perforated ion-exchange membranes" delivered at Faraday Discussion "Chemical Physics of Electroactive Materials" held in Cambridge, UK, April 10-12, 2017

Diploma of Doctoral School of Polytechnic University of Catalonia (BarcelonaTech) for supervising a doctoral thesis defended in the 2014-2015 academic year and awarded a Special Doctoral Award

Invited lecture "Energy harvesting by Reverse Electrodialysis: What membrane properties are important and how can we get to them?" delivered at Imagine Membrane - A Patrick Meares Conference, Horta, Portugal, September 24-29, 2017



**Santiago Zabala**  
 Universitat Pompeu Fabra (UPF)  
 Humanities

Santiago Zabala was raised in Rome, Vienna, and Geneva. He studied philosophy at the University of Turin and at the Pontifical Lateran University of Rome where he obtained his PhD in 2006. The following year Zabala was awarded the Humboldt Research Fellowship at the University of Potsdam. After spending the spring semester of 2010 as a visiting scholar at Johns Hopkins University, Zabala has been appointed ICREA Research Professor at the Pompeu Fabra University, where he currently teaches contemporary and political philosophy, supervises Ph.D. students and directs the UPF Center for Vattimo's Archives and Philosophy. In addition to an extensive speaking schedule at conferences, seminars, and art Biennales, Zabala is also visiting professor at Renmin University, IDSVA, and several other international institutions.

### Research interests

Zabala's research focus in three areas each of which have generated several authored and edited books and Journals: ontology, political philosophy, and aesthetics. All these three areas are studied following the hermeneutic principle according to which truth is not an objective goal that philosophy must submit to, but rather the effect of the conflict of interpretations. Following the work of Martin Heidegger, Hans-Georg Gadamer, and Gianni Vattimo Zabala has emphasized the ontological nature of hermeneutics in order to demonstrate the danger of truth impositions for religious and political emancipation. The problem of emergency has been at the center of his research this past years in relation to politics, society, and art. His next books, essays, and articles will be on the problem of freedom in this age of so called alternative facts to demonstrate, once again, how there are no facts, but only interpretations as Nietzsche once said.

### Selected publications

- **Zabala A** 2017, *Why Only Art Can Save Us: Aesthetics and the Absence of Emergency*, New York: Columbia University Press, 220pp
- Vattimo G, **Zabala S**, et al. 2017, *Making Communism Hermeneutica: Reading Vattimo and Zabala*, Mazzini S & Glyn-Williams O (Eds), with contributions from W. Egginton, B. Babich and many others. Springer Verlag.
- **Zabala S** 2017, 'Introduction to the Special Issue: On Philosophical Education', in *Special Issue: On Philosophical Education* edit by **Zabala S** in *Philosophy Today*, Volume 61, Issue 2, 267-280.
- **Zabala S** 2017 (editor of series) György Lukács, *Falsa y autentica ontologia de Hegel*. Bellaterra. Barcelona.
- **Zabala S** (Ed) 2017, '*Special Issue: On Philosophical Education*' in "*Philosophy Today*", Volume 61, Issue 2, with contributions from J. Butler, G. Vattimo, and others.
- **Zabala S** 2017, 'Анархија на херменевтиката', (translated in Macedonian of "Anarchy of Hermeneutics") in "*IDENTITIES - Journal for Politics, Gender and Culture*", vol. 13, pp: 19-36.
- **Zabala S** & Vattimo G 2017, 'Nihilismo a la (Union) Europea', in *¿Dónde Vas, Europa?*, editores, M. Seguro and D. Innerarity. Barcelona: Herder, 197-202.
- **Zabala S** (editor of series) 2017 Salvador López Arnal, *Siete historias lógicas y un cuento breve*. Bellaterra, Barcelona.

### Selected research activities

Also:

- S. Zabala (co-author) 17 "Replies" (with Gianni Vattimo) in S. Mazzini and O. Glyn-Williams, *Making Communism Hermeneutica: Reading Vattimo and Zabala*, with contributions from W. Egginton, B. Babich and many others. Springer Verlag, 2017.
- S. Zabala (author) "*Turning to Art's Demands*," in e-flux, June 16th 2017.
- "*Richard Rorty: Life, Pragmatism, and Conversational Philosophy*," in The Los Angeles Review of Books, 22nd July, 2017.



**João Zilhão**  
 Universitat de Barcelona (UB)  
 Humanities

Prior to current appointment, taught at the Universities of Bristol and Lisbon, as well as, on a temporary basis, Paris and Bordeaux. Appointed January 1996 by the Portuguese government to set up the Côa Valley Archeological Park, coordinate scientific research to establish the age of its Paleolithic rock art, and prepare the nomination of the site for World Heritage status (listing date, December 1998). Created and directed the Instituto Português de Arqueologia (IPA), a department of the Ministry of Culture for the supervision of archaeological activity in the country (May 1997-2002). Member of the Executive Board of the European Association of Archeologists (2003-06). Humboldt Foundation Research Awardee (2003-04, University of Cologne) for "past achievements in teaching and research". Recipient of the London Prehistoric Society's Europa Prize (2005), for "significant and enduring contribution to the study of European prehistory". In 2012 profiled in "Science".

### Research interests

The Middle-to-Upper Paleolithic transition in Europe has been the focus of my research for the last 20 years. This research interest has led to fieldwork at different sites, namely: (a) the Lagar Velho rock-shelter (Portugal) and its burial of an early modern human child with diagnostic Neandertal features (skeletal evidence of interbreeding at the time of Neandertal/modern contact in Europe); (b) the Gruta da Oliveira (Almonda karstic system, Portugal), where fieldwork exposed 13 m of deposit spanning the ~35-105 ka interval; (c) the Pestera cu Oase (Romania), site of Europe's oldest modern humans; (d) Cueva Antón (Murcia, Spain), with its Mousterian painted/perforated Pecten shell. My current focus lies on documenting the behavioral modernity of the last Neandertals and the ecological and cultural underpinnings of their late persistence in Iberian regions located to the south of the Ebro drainage.

### Selected publications

- Isern N, **Zilhão J**, Frot J & Ammerman AJ 2017, '**Modeling the role of voyaging in the coastal spread of the Early Neolithic in the West Mediterranean**', *Proceedings of the National Academy of Sciences USA*, 114 (5), p. 897-902.
- Daura J, Sanz M, Arsuaga JL, Hoffmann DL, Quam RM, Ortega MC, Santos E, Gómez S, Rubio A, Villaescusa L, Souto P, Mauricio J, Rodrigues F, Ferreira A, Godinho P, Trinkaus E & **Zilhão J** 2017, '**New Middle Pleistocene hominin cranium from Gruta da Aroeira (Portugal)**', *Proceedings of the National Academy of Sciences USA*, vol. 114, no. 13, 3397-3402.
- Hoffmann DL, Utrilla P, Bea M, Pike AWG, García-Diez M, **Zilhão J** & Domingo R 2017, '**U-series dating of Palaeolithic rock art at Fuente del Trucho (Aragón, Spain)**', *Quaternary International*, 432, p. 50-58.
- Pike AWG, Hoffmann DL, Pettitt PB, García-Diez M & **Zilhão J** 2017, '**Dating Palaeolithic cave art: Why U-Th is the way to go**', *Quaternary International*, 432, p. 41-49.
- **Zilhão J**, Anesin D, Aubry Th, Badal E, Cabanes D, Kehl M, Klasen N, Lucena A, Martín-Lerma I, Martínez S, Matias H, Susini D, Steier P, Wild EM, Angelucci DE, Villaverde V & Zapata J 2017, '**Precise dating of the Middle-to-Upper Paleolithic transition in Murcia (Spain) supports late Neandertal persistence in Iberia**', *Heliyon*, 3, e00435.

### Selected research activities

Participation in fifteen scientific conferences held during 2017 with presentation or co-authorship of oral communications (16), posters (2) and/or keynote addresses (2). Eleven invited lectures at academic institutions in Spain, Portugal, France, Italy and United Kingdom. Twelve weeks of archeological fieldwork at the site La Boja (Mula, Murcia, Spain). In October 2017 found by ResearchGate to be that month's most read author in Archaeology.



## Patrizia Ziveri

Universitat Autònoma de Barcelona (UAB)  
Experimental Sciences & Mathematics

Patrizia Ziveri is ICREA Research Professor and Scientific Director of the Institute of Environmental Science and Technology (ICTA) Unit of Excellence 'María de Maeztu', Univ. Autònoma de Barcelona (UAB). She started to work on marine global change in the 1990's during her PhD dissertation at the Univ. of Padua (Italy), and Univ. of South Carolina (USA), focusing on the impacts of El Niño climate oscillations on calcareous phytoplankton in the Eastern Pacific. After a postdoc at USC, she moved to the Vrije Univ. Amsterdam, The Netherlands, first as a researcher then as professor/senior scientist. She was awarded with a Spanish 'Ramón y Cajal fellowship at the UAB before joining ICREA in 2014. She coordinates the Marine and Environmental Biogeosciences Research Group (MERS) that catalyzes research on the natural and human-driven marine processes addressing major marine global change and sustainability challenges.

### Research interests

Global environmental change on marine ecosystems, ecology, and biogeochemistry at various time scales and complexity is a key theme of her research, focusing on multidisciplinary investigation of marine calcifying groups at the base of the food web. With her work on the ocean in a high CO<sub>2</sub> world, she is linking the CO<sub>2</sub> dynamics, climate change and marine organisms in target regions. Interest on pressing threats to marine systems has led to developing research on ocean acidification (OA) in Africa and in the North Pacific on both OA and the cycle of microplastics. The study of marine litter and microplastics in Mediterranean island coastlines is an emerging topic in her research group and a new clean laboratory for microplastic studies opened this year at ICTA-UAB. These changes can disturb the capacity of marine systems to provide ecosystem services, thereby affecting economic activities and human welfare.

### Selected publications

- Mallo M, **Ziveri P**, Mortyn G, Schiebel R & Grelaud M 2017, 'Low planktic foraminiferal diversity and abundance observed in a 2013 West-East Mediterranean Sea transect', *Biogeosciences*, 14, 2245-2266.
- Oviedo A, **Ziveri P** & Gazeau F 2017, 'Coccolithophore response to increasing pCO<sub>2</sub> in Mediterranean oligotrophic waters', *Estuarine, Coastal and Shelf Science*, 186, Part A, 58-71.
- D'Amario B, **Ziveri P**, Grelaud M, Oviedo A & Kralj M 2017, 'Coccolithophore haploid and diploid distribution patterns in the Mediterranean Sea: can a haplo-diploid life cycle be advantageous under climate change?', *Journal of Plankton Research*, 39, 5, 781 - 794 - *Cushing Prize winner*.
- Manno C, Bednaršek N, Tarling GA, Peck VL,... & **Ziveri P** 2017, 'Shelled pteropods in peril: Assessing vulnerability in a high CO<sub>2</sub> ocean', *Earth-Science Reviews*, 169, 132-145.
- **Ziveri P**, Delpiazzi E, Bosello F, Eboli F & **van den Bergh J** 2017, 'Adaptation policies and strategies as a response to ocean acidification and warming in the Mediterranean Sea', In: *Handbook on the Economics and Management for Sustainable Oceans*, Editors: Svansson LE, Nunes PALD, Kumar P & Markandya A, 339-352.

### Selected research activities

- Keynote speaker: "The present impacts and the future risks for the Mediterranean Sea ecosystems " at "Human impacts on Mediterranean marine ecosystems and the economy"/ Oceanographic Museum of Monaco, Principality of Monaco.
- Co-principal investigator to NSF-funded research cruise on ocean acidification and microplastics in the North Pacific, Hawaii-Alaska transect.
- Ocean acidification research in Africa: invited lectures on "Establishing ocean acidification research in the Western Indian Ocean (WIO) region (Tanzania) and Ocean acidification dynamics and impacts in the Gulf of Guinea, west Africa: the state of knowledge and research gaps (Senegal).
- WP4 leader of 'Severo Ochoa and Maria Maeztu' Alliance for research excellence in Spain.
- Director of Ph.D. dissertation of Barbara D'Amario, UAB, 09/2017.