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Microtechnologies

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Conferences:

18–20 April 2011

Exhibition:

19–20 April 2011

Prague Congress Centre
Prague, Czech Republic

SPIE 
Optics+
Optoelectronics

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Conferences:

18–21 April 2011

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Prague Congress Centre
Prague, Czech Republic

Connecting minds for global solutions

Technical Programme



SPIE Microtechnologies

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Thomas Becker
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2011 Symposium Co-chairs



José Feliciano López
Univ. de Las Palmas de Gran Canaria (Spain)



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SPIE Optics+ Optoelectronics

General Chairs



Miroslav Hrabovský
Palacký Univ., Czech Republic



Wolfgang Sandner
Max-Born-Institut (Germany) and
Laserlab Europe



Bahaa Saleh
CREOL, The College of Optics and Photonics,
Univ. of Central Florida, USA

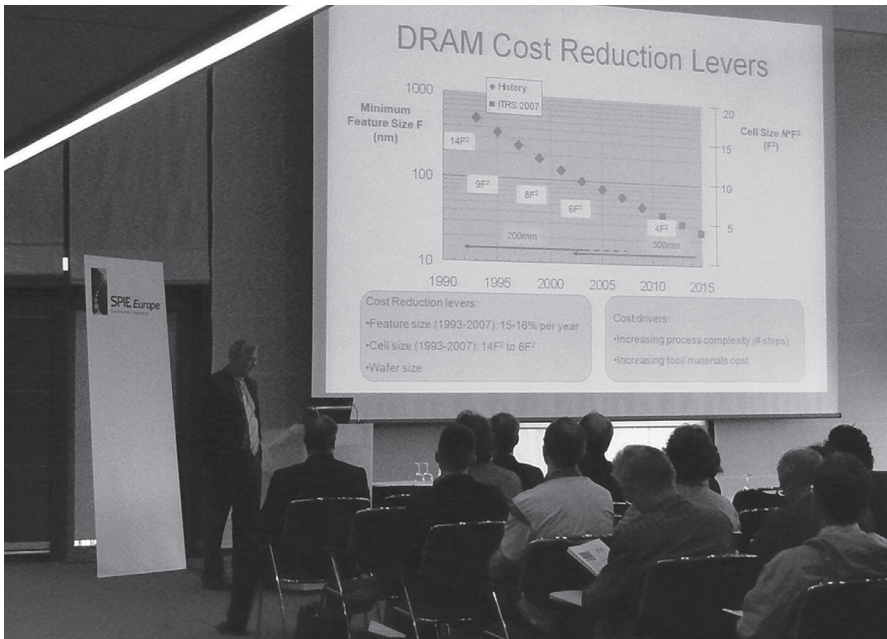


Jan Řídký
Institute of Physics, ASCR v.v.i.,
Czech Republic

Honorary Chair



Jan Peřina, Sr.,
Palacký Univ., Czech Republic



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Facility Maps	2-3
Daily Schedule	5
Microtechnologies Plenary Sessions	6-7
Optics and Optoelectronics Plenary Sessions	8-10
Special Events	11

Exhibition Directory	12-13
Floorplan	12
Workshop: HiPER: the European Pathway to Laser Energy	30-31
General Information	77-79
SPIE Proceedings/CD-ROMs	80

SPIE Microtechnologies 2011

Technical Committees	4 and 14
Index of Authors, Chairs, and Committee Members	26-29

Technical Conferences

8066	Smart Sensors, Actuators and MEMS	15
8067	Circuits and Systems	19
8068A	Bioelectronics, Biomedical, and Bio-inspired Systems	21
8068B	Nanotechnology	23
8069	Integrated Photonics: Materials, Devices and Applications	24

SPIE Optics and Optoelectronics 2011

Technical Committees	4 and 14
Index of Authors, Chairs, and Committee Members	66-76

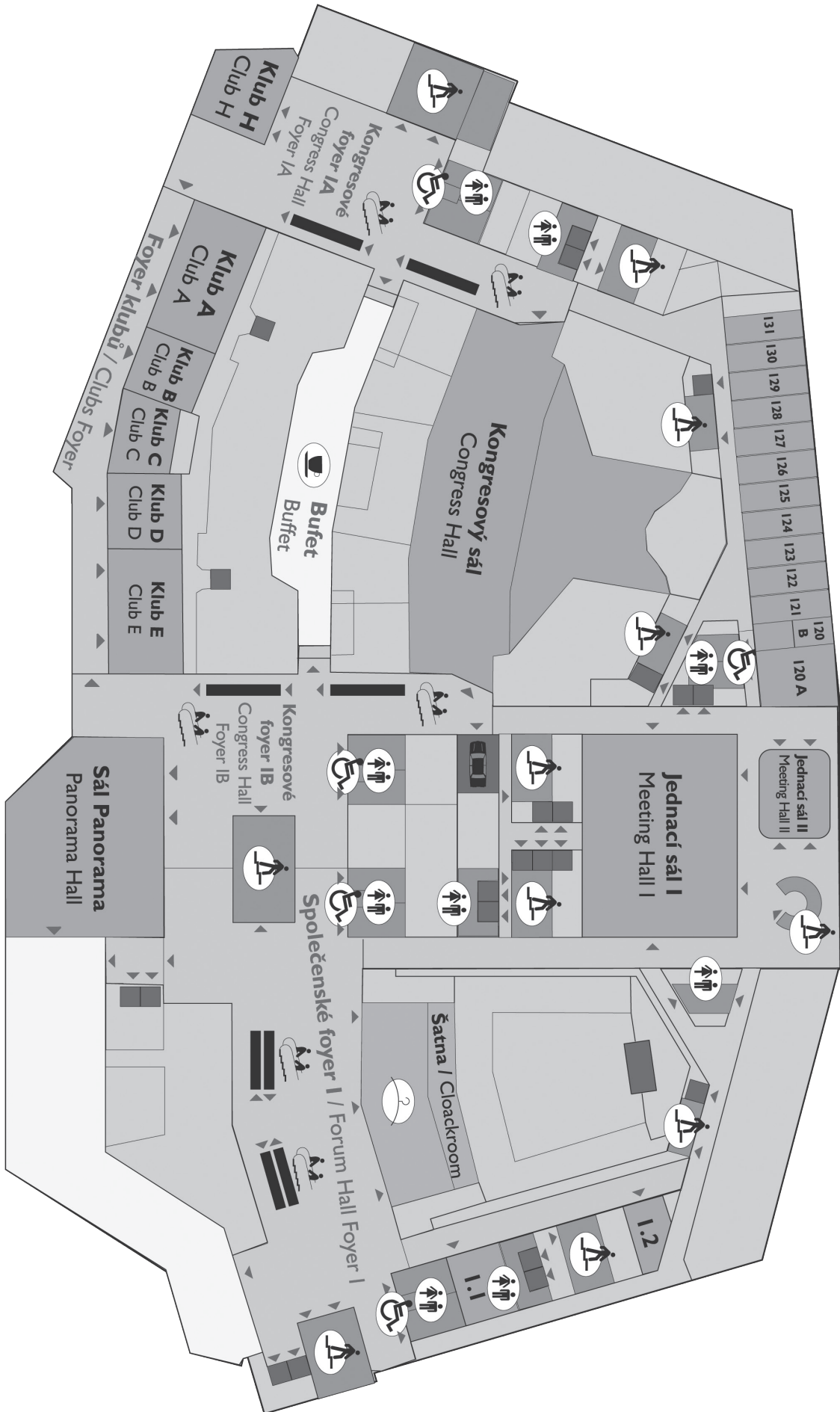
Technical Conferences

8070	Metamaterials	33
8071	Nonlinear Optics and its Applications	35
8072A	Photon Counting Applications	38
8072B	Quantum Optics and Quantum Information Transfer and Processing	40
8073A	Optical Sensors	41
8073B	Photonic Crystal Fibres	44
8074	Holography: Advances and Modern Trends	46
8075	Harnessing Relativistic Plasma Waves as Novel Radiation Sources from Terahertz to X-rays and Beyond	48
8076	EUV and X-ray Optics: Synergy between Laboratory and Space	50
8077	Damage to VUV, EUV, and X-ray Optics (XDam3)	52
8078	Advances in X-ray Free-Electron Lasers: Radiation Schemes, X-ray Optics and Instrumentation	55
8079A	Laser Acceleration of Electrons, Protons and Ions	57
8079B	Medical Applications of Laser-Generated Secondary Sources of Radiation and Particles	60
8080A	Diode-Pumped High Energy and High Power Lasers	62
8080B	ELI: Ultrarelativistic Laser-Matter Interactions and Petawatt Photonics	64

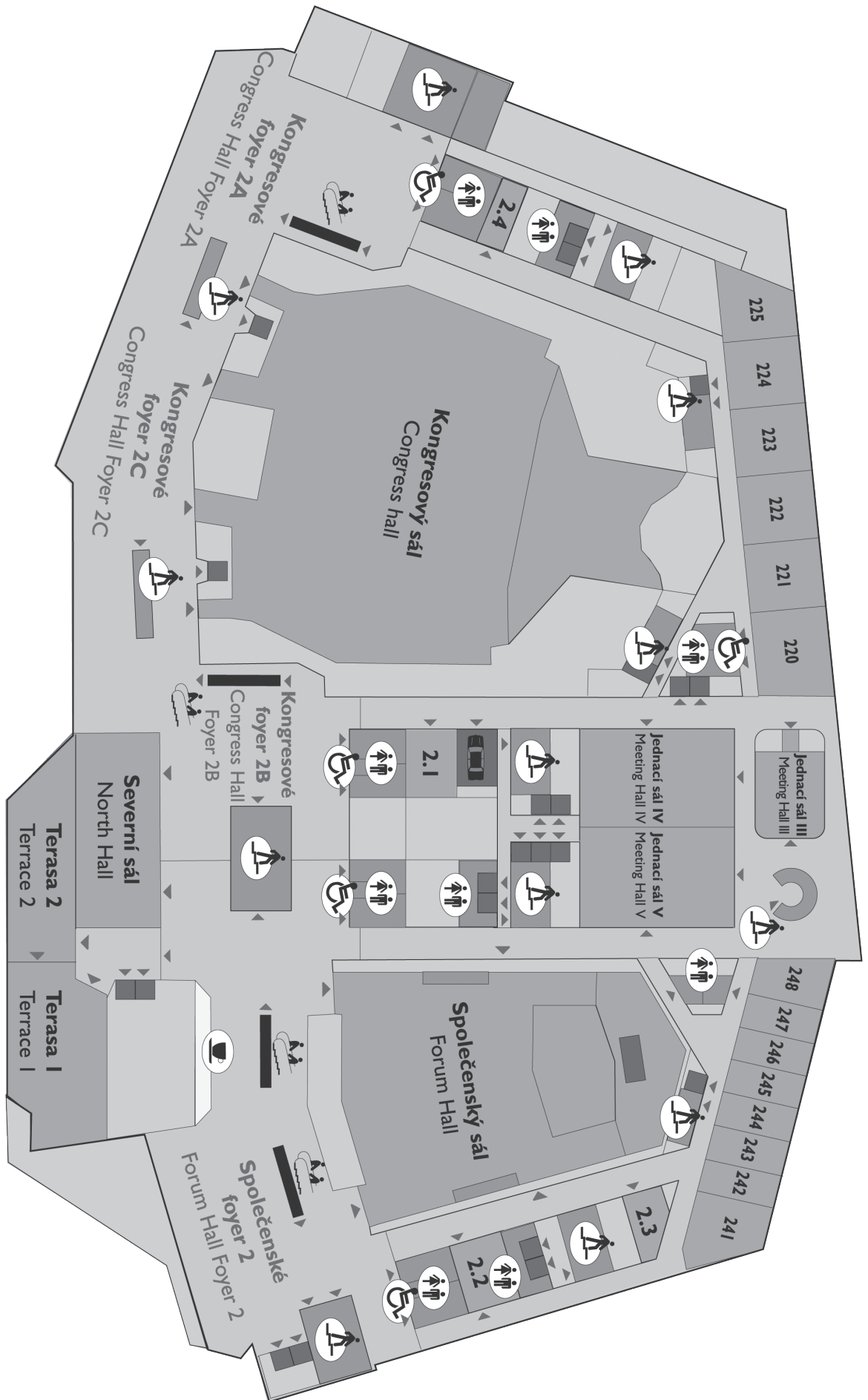
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SPIE would like to express its deepest appreciation to the symposium chairs, conference chairs, programme committees, session chairs, and authors who have so generously given their time and advice to make this symposium possible.

The symposium, like our other conferences and activities, would not be possible without the dedicated contribution of our participants and members. This programme is based on commitments received up to the time of publication and is subject to change without notice.

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Cooperating organisations



High Power Laser Energy Research Project

MONDAY		TUESDAY		WEDNESDAY	
Conferences					
Conf. 8066: Smart Sensors, Actuators and MEMS p.15					
Conf. 8067: VLSI Circuits and Systems p.19					
Conf. 8068A: Bioelectronics, Biomedical, and Bio-inspired Systems p.21					
Conf. 8068B: Nanotechnology p.23					
Conf. 8069: Integrated Photonics: Materials, Devices and Applications p.24					
Special Events					
Plenary Session p.6	Poster Session and Reception p.11	Plenary Session p.6	Welcome Reception p.11	Plenary Session p.7	

MONDAY		TUESDAY		WEDNESDAY		THURSDAY	
Conferences							
Conf. 8070 Metamaterials p.33							
Conf. 8071 Nonlinear Optics and its Applications p.35							
Conf. 8072B Quantum Optics and Quantum Information Transfer and Processing p.40							
Conf. 8072A Photon Counting Applications p.38							
Conf. 8073A Optical Sensors p.41							
Conf. 8073B Photonic Crystal Fibres p.44							
Conf. 8075 Harnessing Relativistic Plasma Waves as Novel Radiation Sources from Terahertz to X-rays and Beyond p.48							
Conf. 8074 Holography: Advances and Modern Trends p.46							
Conf. 8076 EUV and X-ray Optics: Synergy between Laboratory and Space p.50							
Conf. 8077 Damage to VUV, EUV, and X-ray Optics (XDam3) p.52							
Conf. 8078 Advances in X-ray Free-Electron Lasers: Radiation Schemes, X-ray Optics and Instrumentation p.55							
Conf. 8079A Laser Acceleration of Electrons, Protons and Ions p.57							
Conf. 8079B Medical Applications of Laser-Generated Secondary Sources of Radiation and Particles p.60							
Conf. 8080A Diode-Pumped High Energy and High Power Lasers p.62							
Conf. 8080B ELI: Ultrarelativistic Laser-Matter Interactions and Petawatt Photonics p.64							
Special Events							
Plenary Session p.8							
Welcome Reception p.11							
Poster Session and Reception p.11							
<i>Workshop: HiPER: the European Pathway to Laser Energy</i> p.30							
Exhibition Dates and Hours: Tuesday 19 April 10.00 to 17.00 Wednesday 20 April 10.00 to 16.00							

SPIE Microtechnologies Plenary Sessions

Monday 18 April

9.00 to 10.10 | Meeting Hall IV

9.00 to 9.25

Welcome Address

Katarina Svanberg, Lund Univ. Hospital, Sweden
2011 SPIE President

Welcome and Introduction

Thomas Becker, EADS Deutschland GmbH, FR Germany
2011 Symposium Chair

Čestmír Ondrůšek, Technical University of Brno, Czech Republic
2011 Symposium Local Chair

9.25 to 10.10

Intra-aircraft communications for cabin & cargo - requirements and applications



Achim Loock, AIRBUS Operations GmbH, Germany

The presentation will give an overview on the requirements and applications for intra-aircraft communication for cabin and cargo in commercial aircrafts. Beside the requirements in commercial aircraft industry possible technology applications for wireless sensor networks, wireless cabin communication systems and photonic networks are given.

Biography: Achim Loock has been working on R&T projects for cabin and systems at Airbus in Hamburg since 2006. He is responsible for the research projects in cabin electronics, cabin communication systems and the project management of several national funded R&T consortium projects. From 2002 to 2006 Achim Loock was employed at Daimler AG in Stuttgart as development engineer for entertainment systems and head-units for Mercedes passenger cars. Prior to this he worked at the Daimler AG research centre in Ulm from 1998 to 2002 in the field of computer science. He studied electrical engineering with majors in communications engineering and technical computer science and holds an engineering degree (Dipl.-Ing.) from the RWTH Aachen.

10.10 to 10.30: Coffee Break

10.30: Conferences Begin

Tuesday 19 April

8.50 to 9.45 | Meeting Hall IV

8.50 to 9.00

Welcome and Introduction

Gerhard Krötz, Univ. of Applied Sciences in Kempten, Germany
2011 Symposium Chair

9.00 to 9.45

Technologies and Services for the Internet of Things - How Business Cases are effected by technological Innovations



Alexander Pflaum, Head of Department Technologies, Ctr. for Intelligent Objects, Fraunhofer Ctr. for Applied Research on Supply Chain Services SC, Germany

The talk will show how information services based on innovative microelectronic systems and technologies can be used in order to optimize supply chains and to make the "Internet of Things" vision a reality. Different types of technologies are introduced and discussed from an economic and a theory of systems point of view. A novel process model for the design of technology based information services will be introduced and applied to the design of a smart object based tracking and tracing system for pool parts in the aviation sector. The main goal of the talk is to make perfectly clear that the design of new microelectronic systems and communication technologies does not make sense without the comprehensive discussion of business cases and applications. In order to turn innovations into inventions technical as well as economical issues have to be addressed.

Biography: Alexander Pflaum finished his studies in electrical engineering in 1994. In 2001 he earned his Ph.D. in economics. His professional career began in 1994 at Siemens Transportation Systems in Erlangen near Nuremberg in the north of Bavaria. He is working for the Fraunhofer Society since 1996. Today he is head of the department "Supply Chain Technologies" at the Fraunhofer Institute for Integrated Circuits. Additionally he is directing the Center for Intelligent Objects which is a "joint venture" of different Fraunhofer institutes. The focus of his work is on the realization of smart object based problem solutions and on the development of basic Internet of Things technologies like RFID, wireless sensor networks and real time localization systems. Alexander Pflaum is giving lectures at the Friedrich-Alexander University in Erlangen-Nürnberg and at the University of applied Research in Hof, Germany.

9.45 to 10.05: Coffee Break

10.05: Conferences Begin

Wednesday 20 April

8.45 to 11.05 | Meeting Hall IV

8.50 to 9.00

Welcome and Introduction

José Feliciano López, Univ. de Las Palmas de Gran Canaria Spain)
2011 Symposium Chair

9.00 to 9.45

A Perspective over Wireless Sensor Networks Applications and Research



Jean-Dominique Decotignie, Centre Suisse
l'Electronique et de Microtechnique and Ecole
Polytechnique Fédérale de Lausanne, Switzerland

The idea of transmitting sensor information to remote users over radio links appeared in the early days of the 20th century and has since been widely used. Wireless sensor networks (WSNs) have emerged at the very beginning of this century as a separate subject leading to a huge quantity of publications. Progress is spectacular with cheaper, lower consumption, smaller, more flexible and easier to install solutions. This does not mean that all problems are solved and thus research continues to push forward the limits such as suppressing the batteries and to tackle unsolved issues like scalability, high dependability, co-existence and ease of operations. WSNs are now widely used in selected applications such as monitoring water consumption. Even if the number of deployed sensor nodes is not as high, WSNs have proved useful in a large number of applications from environmental to patient health monitoring. They start competing with RFIDs in many domains. The talk will give an overview of the state of the art in the domain. Examples of successful applications will be shown. Starting from the experience of a number of projects, we will explain what the main current problems are. We will sketch the corresponding research venues.

Biography: Jean-Dominique Decotignie is head of the wireless embedded systems group at Centre Suisse l'Electronique et de Microtechnique (CSEM) in Neuchatel, Switzerland. He is also adjunct professor at the Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland. His current research interests include real-time networks and self-organizing wireless sensor networks as well as software engineering and middleware for real-time systems. Dr. Decotignie received his MS in 1977 and PhD in 1982 both in EE from the EPFL. He has published more than 100 papers in international journals and conferences. He has been an evaluator and a reviewer for the EU and a number of journals and international conferences. He is an IEEE fellow for his work on sensor and actuator networks. He is also the convenor of the IEC working group on industrial wireless communications.

9.45 to 10.05: Coffee Break

10.05: Conferences Begin

SPIE Optics and Optoelectronics Plenary Session

Monday 18 April

16.10 to 19.55 | Panorama Hall

16.10 to 16.30

Welcome Address

Katarina Svanberg, Lund Univ. Hospital, Sweden
2011 SPIE President

Welcome and Introduction

Jan Řídký, Institute of Physics of the ASCR, v.v.i. (Czech Republic); **Wolfgang Sandner**, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany); **Bahaa Saleh**, CREOL, The College of Optics and Photonics, Univ. of Central Florida (United States); **Miroslav Hrabovský**, Palacký Univ. (Czech Republic);

16.30 to 17.00

Photonics in the EU: Opportunities and Challenges



Thomas Skordas, Head of Photonics Unit, DG INFSO-European Commission, Belgium

The talk will address developments in European photonics and the challenges that the research community and the industry are facing in a very competitive global market. In particular, the European Commission's strategy for Research, Development and Innovation in photonics will be

highlighted. Topics that will be covered include: the role of photonics as one of Europe's Key Enabling Technologies, information on recent and upcoming calls for R&D proposals in the area as well as on the preparation of the new Framework Programme 8 and the potential role of photonics.

Biography: **Thomas Skordas** received his Electrical Engineering degree in 1984 from the University Aristotle of Thessaloniki, Greece, and a PhD in Computer Science in 1988, from the Institut National Polytechnique de Grenoble, France. From 1988 to 1995, he worked at Cap Gemini Sogeti as project leader in EU-funded R&D projects in the area Information Technology and Robotics.

In 1995 Thomas joined the European Commission as a Scientific Officer in the Information Society Technologies Programme, part of the Directorate General Information Society & Media (DG INFSO). From 2003 to 2005 Thomas was part of the Future and Emerging Technologies Unit of DG INFSO, and from 2006 to 2009, he was Deputy Head of Unit in the DG INFSO's Unit dealing with research in ICT Security and Trust.

Thomas became Head of the Photonics Unit of DG INFSO in July 2009.

Presenting Author and Co-author:



Ronan Burgess, Head of Sector, Photonics Unit, DG INFSO-European Commission, Belgium

Biography: **Ronan Burgess** graduated with a Masters in Microelectronics from Trinity College, Dublin, Ireland in 1986. He started work at Philips in the Netherlands in 1986 as a researcher and later became a project manager in the area of digital video communications. In 1997 he

joined the European Commission as a Scientific Officer. He is currently Head of Sector in the Photonics Unit at the European Commission.

17.00 to 17.45

Molecular and Biomolecular/Nanoparticle Hybrids for Nanotechnological Applications



Itamar Willner, The Hebrew University of Jerusalem, Institute of Chemistry, Israel

Metal or semiconductor nanoparticles exhibit unique electronic, catalytic or optical size-controlled properties. The functionalization of the nanoparticles with molecular or biomolecular capping units lead to hybrid systems that combine the features of the composite materials. These

hybrid systems are implemented to develop electronic or optical sensors for clinical diagnostics, environmental control, and homeland security, and to design nanoscale devices via bottom-up approaches. The talk will review the advances of our laboratory in developing new electronic and sensing platforms, the fabrication of nanocomposites for stimuli-controlled uptake and release of substrates ("nano-sponges") and the preparation of metallic nanowires and nano-circuitry.

Biography: **Itamar Willner** received his academic degrees from The Hebrew University of Jerusalem, Israel. After a postdoctoral research at the University of California, Berkeley, he joined The Hebrew University of Jerusalem, where he was appointed as Full Professor in 1986. He is one of the world-leading scientists in nanobiotechnology and nanoscience. His research on chemically modified nanoparticles, the self-assembly of hybrid nanoparticles on surfaces, and the tailoring of biomolecular hybrid systems has an immense impact on the development of new sensing platforms, nanoscale machinery and the fabrication of nano-devices. He has co-authored about 600 manuscripts and monographs and presented hundreds of lectures worldwide. He has received many awards and distinctions, including the Israel Prize in Chemistry, The EMET Prize and the Rothschild Prize. He is a member of the Israel Academy of Science, The European Academy of Sciences and Arts, The German National Academy of Sciences Leopoldina, and he is a Fellow of the Royal Society of Chemistry, UK.

17.45 to 18.05 Coffee Break

18.05 to 18.50

The Frontier of High Field Science



Toshiki Tajima, Ludwig Maximilian Univ. Munich, Germany, Chair of Scientific Advisory Committee of Extreme Light Infrastructure

The concept of laser acceleration with relativistic laser has nurtured the growth of high field science and intense lasers. These in turn bear relativistic optics in which the relativistic dynamics helps the relativistic coherence emerge, because particles cohere in its relativistic velocity at c . Laser acceleration applications now abound with novel radiation sources of various kinds, compact accelerators for chemical and medical uses, high energy physics accelerators, and for fundamental physics exploration purposes. We show an example of precision experiment at extremely high energies (such as PeV by laser acceleration) with time resolutions as small as attoseconds. In this case we no longer need to stick to the high luminosity constraint, looking at the validation of relativity itself. We also show an ever shorter scale science such as in zeptoseconds and even yoctoseconds by employing the properties of vacuum under intense laser fields. Along this we (Gerard Mourou and I) have stumbled into a realization (Conjecture) that the layer of nonlinearities of matter provides the reason why the pulse length can be shortened if and when we employ greater intensity of laser to drive coherent radiation from matter.

Biography: **Toshiki Tajima** along with Professor J. M. Dawson suggested in 1979 the concept and theory of the formation of wakefield behind an ultrashort intense laser pulse and its subsequent acceleration of particles to high energies in a very compact way. This concept spurred the creation of the field that is called Advanced Accelerator Research and is regarded one of major options of the future of high energy accelerators that go much beyond what is currently available. It has been now clearly experimentally demonstrated, whose applications are rapidly emerging. This allows us to compactly generate high energy electrons, ions, and X-rays in ultrafast (femto- and attosecond and beyond) time scales. High field science thus started. Recent applications of this new field include ultrafast radiolysis, compact cancer therapy (such as intraoperative radiation therapy and hadron therapy), and compact THz, X-ray, and gamma ray sources (including compact free electron laser and betatron sources). He led the foundation of high field He is currently serving as Chair of International Committee for Ultrahigh Intensity Lasers (ICUIL), Chair of Scientific Advisory Committee of Extreme Light Infrastructure (ELI), among others. He was awarded the Blaise Pascal Chair as well as the Nishina Memorial Prize in recent years. Before moved to Europe he served as Director General of Kansai Photon Science Institute in Japan from 2002-2008. Prior to this he served as assistant, associate, and full professor as well as the Jane and Roland Blumberg Professor of Physics at University of Texas at Austin in the period of 1980-2001. During 1976-1980 he worked at UCLA, after he obtained a PhD from University of California at Irvine on laser-plasma interaction under the tutelage of Professor N. Rostoker in 1975.

18.50 to 19.35

Laser Fusion and The National Ignition Facility: Bringing Star Power to Earth



Christopher P. J. Barty, Chief Technology Officer, National Ignition Facility and Photon Science Directorate, Lawrence Livermore National Lab., United States

At 1.8 Mega-Joules, the National Ignition Facility (NIF) at the Lawrence Livermore National Laboratory is the world's highest-energy laser system. NIF exceeds the next largest laser system by nearly two orders of magnitude. Designed and constructed for the U.S. Department of Energy, NIF will be the first laser facility to achieve controlled nuclear fusion ignition and burn in the laboratory, a hallmark event for science in the 21st century.

The development of NIF has required numerous advances in science and technology. These range from technologies for rapid manufacturing of advanced laser glass and meter-scale nonlinear crystals to the fundamental materials understanding of optical damage and the development of nano- and micro-scale materials systems for fusion targets. The demonstration of fusion ignition on NIF will open the possibility of clean, limitless, fusion power from a NIF-like inertial fusion process, so-called Laser Inertial Fusion Energy (LIFE). LIFE, however, will require increasing NIF's repetition rate from one shot every four hours to approximately 10 shots per second. This ambitious goal presents an entirely new set of challenges, including the development of novel, high power laser architectures, laser glasses and ceramics with high thermal conductivity, final optics with resistance to high neutron fluxes, and the development of fusion chamber materials capable of surviving in a high neutron and x-ray radiation environment.

This talk will review the development of NIF and the associated challenges, the architecture and operation of NIF, the status of the National Ignition Campaign to achieve fusion burn and gain with NIF, and introduced the concept and challenges for solving the world's energy needs with LIFE.

Biography: **Dr. C. P. J. Barty** is the Chief Technology Officer for the National Ignition Facility and Photon Science Directorate at the Lawrence Livermore National Laboratory. His academic background includes PhD and MS degrees in applied physics from Stanford University, and B.S. degrees, each with honors, in chemistry, physics, and chemical engineering from North Carolina State University. He has published more than 200 manuscripts and presented over 200 invited talks, spanning topics in lasers, optics, materials science, medicine, chemistry, engineering, and physics. He was elected a Fellow of the Optical Society of America for his pioneering work on intense short-pulse lasers and x-ray applications. During his career, he has founded both the biennial International Meeting on Ultrafast Optics and the International Conference on Ultrahigh Intensity Lasers; he is currently the co-chair of the International Committee on Ultrahigh Intensity Lasers (www.icuil.org).

Before his arrival at LLNL in 2000, Dr. Barty had been director of laser science for a privately funded research organization at the University of California at San Diego, and director of advanced technology for a Silicon Valley laser company, and had also served as a member of the Stanford University Applied Physics and Electrical Engineering Faculty. Dr. Barty has served as the chief scientist for the LLNL Laser Science and Technology Programme, and was the architect and the first programme director of the mission-based Photon Science and Applications Programme at LLNL.

His technical interests include development of new optical capabilities for fusion energy drivers, directed energy systems, nuclear photonics, high-energy-density science, fast ignition and laser-based x-ray applications of relevance to national security missions.

Plenary Sessions
Continued on page 10 ➔

SPIE Optics and Optoelectronics Plenary Session

19.35 to 19.55

HiPER: The European route to Laser Energy



Chris Edwards, HiPER Fusion Project Director, Central Laser Facility, Science and Technology Facilities Council (United Kingdom)

HiPER is a European Consortium of 26 institutions from 10 nations dedicated to developing the route to commercially viable power from Laser fusion. Currently in its Preparatory Phase, HiPER is assessing options for the development of the required

technology including the laser driver, mass production of the fusion target and target area technology.

This talk will outline the need and benefits of Laser Energy as a future source of baseload electricity generation. It will describe the progress made in this field within Europe to date and describe the future route to realisation of this technology following the proof of principle demonstration at the National Ignition Facility.

Biography: **Dr. Chris Edwards** is the Coordinator of the HiPER Laser Energy project.

Following a Ph.D received from Imperial College London, Chris' career in lasers began at the Central Laser Facility in 1978. In 1988, he was appointed Vulcan Laser Group leader with responsibility for all aspects of facility management including operations, development and delivery of the user programme. In 1994, Chris was appointed Associate CLF Director with particular responsibility for the High Power Laser Programme. It was in this role that Chris managed the successful delivery of the Vulcan Petawatt Upgrade project.

In 2002, Chris moved to AWE Aldermaston where he was appointed Senior Project Manager for the delivery of the technical and commercial bid for the £150M Orion Laser facility. Following the success of securing funding for Orion, Chris led the project delivery team in the start up phase before moving to the role of Project Sponsor in 2006.

Chris joined the HiPER project in 2008 in the role of Project Director where he has been actively engaged with all aspects of project development and strategy.



POSTER SESSION AND RECEPTION

Conference Area Hallway
Monday 18 April, 16.15 to 17.30

SPIE Microtechnologies attendees are invited to attend the Monday poster session provided as an opportunity to enjoy networking and refreshments while reviewing poster papers. The interactive poster sessions are designed to promote opportunities for networking with colleagues in your field. Attendees are encouraged to review the high-quality papers that are presented and interact with the poster authors.

Poster presenters may post their poster papers starting at 16.15 hrs on Monday in the Conference Area Hallway. Any papers left on the boards following the end time of the poster session will be considered unwanted and will be discarded. SPIE assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 16.15 to 17.30 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

POSTER SESSION AND RECEPTION

Conference Area Hallway
Wednesday 20 April, 17.40 to 19.15

SPIE Optics and Optoelectronics attendees are invited to attend the Wednesday poster session provided as an opportunity to enjoy networking and refreshments while reviewing poster papers. The interactive poster sessions are designed to promote opportunities for networking with colleagues in your field. Attendees are encouraged to review the high-quality papers that are presented in this alternate format and to interact with the poster authors.

Poster presenters may post their poster papers starting at 10.00 hrs on Wednesday in the Conference Area Hallway. Any papers left on the boards following the end time of the poster session will be considered unwanted and will be discarded. SPIE assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 17.45 to 19.15 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.



WELCOME RECEPTION

Tuesday 19 April, 18.30 to 20.30

SPIE Microtechnologies and Optics+Optoelectronics registered attendees are invited to relax, socialize and enjoy light refreshments. Please remember to wear your conference registration badge. Dress is casual.



WORKSHOP: HiPER: the European Pathway to Laser Energy

Room: Club A
Wednesday-Thursday, 20-21 April

HiPER is a European collaboration of 26 partners from ten nations designed to develop the route to commercially viable power production from Laser Energy. The current Preparatory Phase is a five-year collaborative project that will define the technical options and strategic basis for progression into the next phase, known as the Technology Development Phase, contingent on ignition at NIF.

The HiPER workshop at the SPIE Optics and Optoelectronics Symposium will consist of dedicated sessions that focus on the main elements of the technology and physics required for Laser Energy. Representatives from the HiPER project will present the highlights of their work undertaken over the course of the past three years. See www.hiper.org for further information.

SPIE Optics and Optoelectronics Exhibitor Directory



Exhibition Dates and Hours:
 Tuesday 19 April 10.00 to 17.00
 Wednesday 20 April 10.00 to 16.00

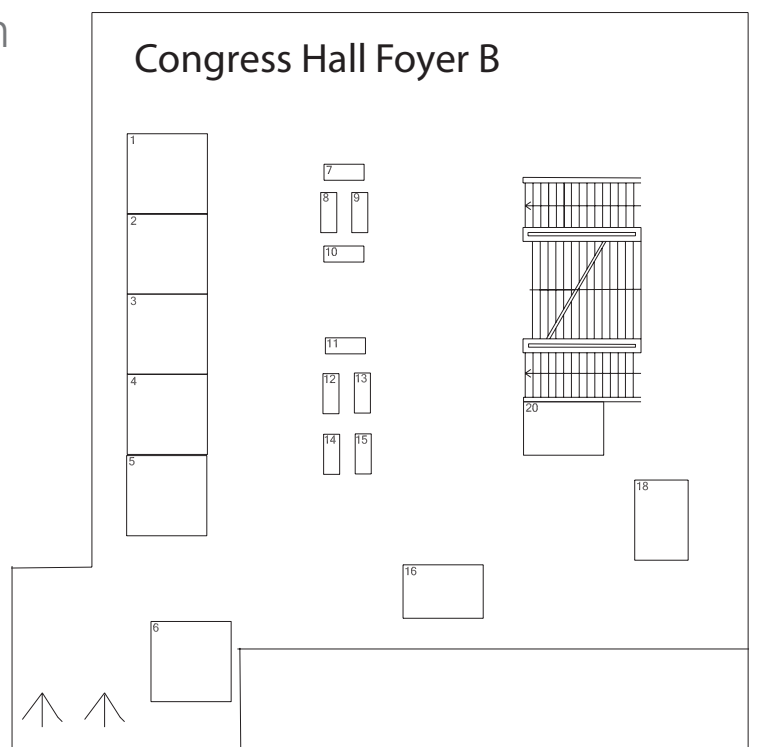
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Floorplan



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#15

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+37 165422180
du@du.lv; www.du.lv

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#9

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HiPER

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SPIE Corporate Member

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info@hiper.org; www.hiper.org

Incoatec GmbH

#5

Max-Planck-Str. 2, Geesthacht, Germany, 21502
+49 (0) 4152 889-381; fax +49 (0) 4152 889-383
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Featured Product: Incoatec develops and manufactures multilayer and total-reflection X-ray optics.

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Institute of Physics AS CR, ELI BEAMLINES

#2

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eli-cz@fzu.cz; www.eli-beams.eu

Laser 2000 GmbH

#8

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Lumera Laser GmbH

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Military University of Technology - Institute of Optoelectronics

#4

Military Univ of Technology, Kaliskiego 2, Warsaw, Poland, 00-908
48 22 683 94 30; fax 48 22 666 89 50
www.ioe.wat.edu.pl

Featured Product: Laser plasma X-ray and EUV sources for application in nanotechnology and biomedical engineering.

The Institute of Optoelectronics at the Military University of Technology in Warsaw is a leading research institution on laser development and application in Poland. The specific areas of research activities in the field include: laser optics and electronics, laser systems, laser-matter interactions, laser ranging and sensing. The Laser-Matter Interaction (LMI) group is specializing in development of laser-plasma X-ray and EUV sources for application in nanotechnology and biomedical engineering. Contact: Andrzej Bartnik, Chief, abartnik@wat.edu.pl; Jerzy Kostecki, Manager, jkostecki@wat.edu.pl.

PicoQuant GmbH

#16

Rudower Chaussee 29, Berlin, Germany, 12489
+49 30 6392 6929; fax +49 30 6392 6561
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PicoQuant GmbH is a research and development company in the field of optoelectronics. The company was founded in 1996 and is based in the science and technology park Berlin-Adlershof, Germany. The company is a worldwide leader in the field of single photon counting applications. The product line includes pulsed diode lasers and LEDs, photon counting instrumentation, fluorescence lifetime spectrometers and time-resolved confocal microscopes. Contact: Guillaume Delpont, info@picoquant.com.

Rigaku Innovative Technologies Europe s.r.o.

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SPIE Microtechnologies

Conferences: 18–21 April 2011
 Exhibition: 19–20 April 2011
 Prague Congress Centre
 Prague, Czech Republic

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Technical Conferences

8066	Smart Sensors, Actuators and MEMS.	15
8067	Circuits and Systems.	19
8068A	Bioelectronics, Biomedical, and Bio-inspired Systems.	21
8068B	Nanotechnology	23
8069	Integrated Photonics: Materials, Devices and Applications	24

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Smart Sensors, Actuators and MEMS

Conference Chair: **Ulrich Schmid**, Technische Univ. Wien (Austria)

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Monday 18 April

Opening Remarks

Room: 220 Mon. 10.30 to 10.40

Ulrich Schmid, Technische Univ. Wien (Austria)

SESSION 1

Room: 220 Mon. 10.40 to 12.30

High Temperature Sensors

Session Chairs: **Ulrich Schmid**, Technische Univ. Wien (Austria); **Pietro Siciliano**, Consiglio Nazionale delle Ricerche (Italy)

10.40: **Wireless SAW sensor for high temperature applications: material point of view** (*Invited Paper*), Omar Elmazria, Univ. Henri Poincaré Nancy (France) [8066-01]

11.10: **Design and fabrication of piezoresistive p-SOI wheatstone bridges for high-temperature applications**, Julian Kähler, Technische Univ. Braunschweig (Germany); Lutz Döring, Physikalisch-Technische Bundesanstalt (Germany); Stephan Merzsch, Andrej Stranz, Andreas Waag, Erwin Peiner, Technische Univ. Braunschweig (Germany) [8066-02]

11.30: **Microthruster with integrated heater and platinum thin film resistance temperature detector (RTD) investigated up to 1000°C**, Natsuki Miyakawa, Wolfgang Legner, Thomas Ziemann, EADS Deutschland GmbH (Germany); Dimitri Telitschkin, EADS Astrium GmbH (Germany); Hans-Jörg Fecht, Univ. Ulm (Germany); Alois Friedberger, EADS Deutschland GmbH (Germany) [8066-03]

11.50: **Miniaturized piezoelectric structures for application temperatures up to 1000 °C**, Denny Richter, Jan Sauerwald, Silja Schmidtchen, Holger Fritze, Technische Univ. Clausthal (Germany) [8066-04]

12.10: **Thin film electrodes and passivation coatings for harsh environment microwave acoustic sensors**, Robert J. Lad, Scott C. Moulzolf, David J. Frankel, George P. Bernhardt, Bryn Nugent, Univ. of Maine (United States) [8066-05]

Lunch Break 12.30 to 14.00

SESSION 2

Room: 220 Mon. 14.00 to 16.00

Materials

Session Chairs: **José Luis Sánchez de Rojas Aldavero**, Univ. de Castilla-La Mancha (Spain); **Achim Bittner**, Technische Univ. Wien (Austria)

14.00: **Smart ultrasonic sensors systems: investigations on aluminium nitride thin films for the excitation of high frequency ultrasound**, Susan Walter, Thomas Herzog, Henning Heuer, Fraunhofer-Institut für Zerstörungsfreie Prüfverfahren (Germany) [8066-06]

14.20: **Measurement of Young's modulus and residual stress of thin SiC layers for MEMS high temperature applications**, Oliver Pabst, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Michael Schiffer, EPCOS AG (Germany); Tolga Tekin, Ernst Obermeier, Klaus-Dieter Lang, Ha-Duong Ngo, Technische Univ. Berlin (Germany) [8066-07]

14.40: **Mechanical properties of 1 µm-thick metallic freestanding coatings measured by in-plane uniaxial stress**, Thibaut Fourcade, NOVA MEMS (France) and Univ. de Toulouse (France); Cedric Segueineau, NOVA MEMS (France); Jean-Michel Desmarres, Ctr. National d'Études Spatiales (France); Talal Masri, Joël Alexis, Olivier Dalverny, Ecole Nationale d'Ingénieurs de Tarbes (France); Julien Martegoutte, Ctr. National d'Études Spatiales (France) and Institut National des Sciences Appliquées de Lyon (France); Xavier Lafontan, NOVA MEMS (France) [8066-08]

15.00: **Fabrication process and characterization of micromechanical sensors based on SU-8 resist**, Alexa Jordan, Stephanus Büttgenbach, Technische Univ. Braunschweig (Germany) [8066-09]

15.20: **On-device extraction of thermal thin-film properties in calorimetric flow sensors**, Roman Beigelbeck, Almir Talic, Institute for Integrated Sensor Systems (Austria); Samir Cerimovic, Technische Univ. Wien (Austria); Franz Kohl, Institute for Integrated Sensor Systems (Austria); Franz Keplinger, Technische Univ. Wien (Austria) [8066-10]

15.40: **Thin catalyst layers based on carbon nanotubes for PEM-fuel cell applications**, Timo Bohnenberger, Jovan Matovic, Ulrich Schmid, Technische Univ. Wien (Austria) [8066-11]

Coffee Break 16.00 to 16.15

Posters Mon. 16.15 to 17.30

Poster Session and Reception

Conference attendees are invited to attend the EMT Poster Session and Reception on Monday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Resonant piezoelectric AlN-actuated microcantilevers for detection of antigen/antibody interactions, Maria Jesús Oliver-Gomez, Jorge Hernandez-García, Univ. de Castilla-La Mancha (Spain); Abdallah Ababneh, Yarmouk Univ. (Jordan); Helmut Seidel, Univ. des Saarlandes (Germany); Ulrich Schmid, Technische Univ. Wien (Austria); Jimena Olivares, Enrique Iborra, Univ. Politécnica de Madrid (Spain); Paulius Pobedinskas, Ken Haenen, Univ. Hasselt (Belgium); José Luis Sánchez-Rojas, Univ. de Castilla-La Mancha (Spain). [8066-14]

Energy harvesting circuit for special purpose generator power management, Pavel J. Fiala, Brno Univ. of Technology (Czech Republic) [8066-46]

MEMS-microfabricated folded waveguide circuit for THz TWT, Yajun Wang, Zhang Chen, Yang Gao, Zhigui Shi, Chinese Academy of Engineering Physics (China) [8066-47]

Multilayer gold-based thin films for ohmic contacts in RF-MEMS switches, Viviana Mulloni, Jacopo Iannacci, Ruben Bartali, Sabrina Colpo, Nadira Bensaada, Benno Margesin, Fondazione Bruno Kessler (Italy) [8066-48]

Aluminum nitride based piezoelectric bimorph microgenerator utilizing low-level non-resonant excitation, Stefan Hampl, Technische Univ. Ilmenau (Germany); Volker Cimalla, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany); Tobias Polster, Martin Hoffmann, Technische Univ. Ilmenau (Germany) [8066-50]

Airborne particle generation for optical tweezers by thermo-mechanical membrane actuators, Tobias Polster, Steffen Leopold, Martin Hoffmann, Technische Univ. Ilmenau (Germany) [8066-51]

Characterization of the first in-plane mode of AlN-actuated microcantilevers, Víctor Ruiz, Jorge Hernando-García, Univ. de Castilla-La Mancha (Spain); Abdallah Ababneh, Yarmouk Univ. (Jordan); Helmut Seidel, Univ. des Saarlandes (Germany); Ulrich Schmid, Technische Univ. Wien (Austria); James K. Gimzewski, Univ. of California, Los Angeles (United States); José Luis Sánchez de Rojas Aldavero, Univ. de Castilla-La Mancha (Spain) [8066-52]

Growth and characterization of uniform ZnO film as piezoelectric material using a hydrothermal growth technique, Eleni Makarona, Claudia Fritz, Georgios Niarchos, Thanassis Speliotis, National Ctr. for Scientific Research Demokritos (Greece); Aggeliki Arapoyanni, Univ. of Athens (Greece); Christos Tsamis, National Ctr. for Scientific Research Demokritos (Greece) [8066-53]

Piezoelectric AlN-actuated micro-tuning forks for sensing applications, Marta Gil Barba, Tomas Manzaneeque, Jorge Hernando-García, Univ. de Castilla-La Mancha (Spain); Abdallah Ababneh, Yarmouk Univ. (Jordan); Helmut Seidel, Univ. des Saarlandes (Germany); José Luis Sánchez de Rojas Aldavero, Univ. de Castilla-La Mancha (Spain) [8066-54]

Improved load-deflection method for the extraction of elastomechanical properties of circularly-shaped thin-film diaphragms, Johannes Schalko, Roman Beigelbeck, Michael Stifter, Institute for Integrated Sensor Systems (Austria); Michael Schneider, Achim Bittner, Ulrich Schmid, Technische Univ. Wien (Austria) [8066-55]

The impact of substrate properties on the electromigration resistance of sputter-deposited Cu thin films, Achim Bittner, Technische Univ. Wien (Austria); Natalie Pagel, Helmut Seidel, Univ. des Saarlandes (Germany); Ulrich Schmid, Technische Univ. Wien (Austria) [8066-56]

Microfabricated self-resonant structure as a passive wireless chemical sensor, Sheng P. Zhang, Praveenkumar Pasupathy, Dean P. Neikirk, The Univ. of Texas at Austin (United States) [8066-57]

In incubator live cell imaging platform, Nicola Moscelli, Technische Univ. Wien (Austria); Wojciech Witariski, Institute of Virology (Slovakia); Sander van den Driesche, Michael J. Vellekoop, Technische Univ. Wien (Austria) [8066-58]

Analytical investigation of the pull-in voltage in capacitive mechanical sensors, Joseph Lardies, Marc Berthillier, Univ. de Franche-Comté (France) [8066-59]

Biomimetic MEMS to assist, enhance and expand human sensory perceptions: survey on state-of-the-art developments, Teresa Makarczuk, Ulrich Schmid, Technische Univ. Wien (Austria); Tina R. Matin, Univ. Kebangsaan Malaysia (Malaysia); Mark O. Macqueen, Aramis Technologies (Malaysia); Ille C. Gebeshuber, Univ. Kebangsaan Malaysia (Malaysia) [8066-60]

System modeling of a piezoelectric energy harvesting module for environments with high dynamic forces, Alexander Frey, Matthias Schreiter, Julian Seidel, Ingo Kuehne, Siemens AG (Germany) [8066-61]

3D capacitive vibrational micro-harvester using isotropic charging of electrets deposited on vertical sidewalls, Antwi Nimo, Bernhard Müller, Awad Saad, Ulrich Mescheder, Hochschule Furtwangen Univ. (Germany) [8066-62]

Vibration energy harvester optimization using artificial intelligence, Zdenek Hadas, Cestmir Ondrusek, Jiri Kurfurst, Vladislav Singule, Brno Univ. of Technology (Czech Republic) [8066-63]

Modified thermopile structure for THz detection, Béla Szentpáli, Research Institute for Technical Physics and Materials Science (Hungary); Gábor Matyi, EnerSys GmbH (Hungary); Péter Fürjes, Research Institute for Technical Physics and Materials Science (Hungary); Endre László, Research Institute for Technical Physics and Materials Science (Hungary) and Pázmány Péter Catholic Univ. (Hungary); Gábor Battistig, István Bársony, Research Institute for Technical Physics and Materials Science (Hungary); Gergely Károlyi, Tibor Berceli, Budapest Univ. of Technology and Economics (Hungary) [8066-64]

Microfabricated ultrashort cantilever probes for high speed AFM, Christoph Richter, Oliver Krause, Wolfgang Engl, Thomas Sulzbach, Nanoworld Services GmbH (Germany); Sebastian Schade, Christian Penzkofer, Bernd Irmer, nanotools (Germany); Philipp Weinzierl, Nanoworld Services GmbH [8066-65]

Tactile refreshable screen based on magneto-rheological fluids for map exploration and navigation tasks, Gwénaél Changeon, Virginie Plaud, Samuel Roselier, Jose Lozada, Christian Bolzmacher, Moustapha Hafez, Commissariat à l'Énergie Atomique (France) [8066-66]

Robust pressure sensor for measurements in boundary layers of liquid fluids with medium total pressures, Tobias T. Beutel, Nelson J. Ferreira, Monika Leester-Schädel, Stephanus Büttgenbach, Technische Univ. Braunschweig (Germany) [8066-67]

Non-electrical-power temperature-time integrating sensor for RFID based on micro fluidics, Mike Schneider, Martin Hoffmann, Technische Univ. Ilmenau (Germany) [8066-68]

Investigation on micromachining technologies for the realization of LTCC devices and systems, Thomas Haas, Christian Zeilmann, Micro Systems Engineering GmbH (Germany); Achim Bittner, Technische Univ. Wien (Austria); Ulrich Schmid, Technische Univ. Wien (Germany) [8066-69]

IR thermocycler for centrifugal microfluidic platform with direct on-disk temperature measurement system, Jürgen Burger, André Gross, Albert-Ludwigs-Univ. Freiburg (Germany); Daniel Mark, Hahn Schickard Gesellschaft HSG-IMIT (Germany); Günter Roth, Felix von Stetten, Roland Zengerle, Albert-Ludwigs-Univ. Freiburg (Germany) [8066-70]

Optical fiber waveguide sensor for the colorimetric detection of ammonia, Katrin Schmitt, Jonas Rist, Carolin Peter, Fraunhofer-Institut für Physikalische Messtechnik (Germany); Jürgen Wöllenstein, Univ. of Freiburg (Germany) [8066-72]

Sensor for mechanical liquid properties utilizing pressure waves, Hannes Antlinger, Johannes Kepler Univ. Linz (Austria); Roman Beigelbeck, Institute for Integrated Sensor Systems (Austria); Samir Cerimovic, Franz Keplinger, Technische Univ. Wien (Austria); Bernhard Jakoby, Johannes Kepler Univ. Linz (Austria) [8066-73]

Non-contact volume determination of free-flying nanoliter droplets using an adjustable capacitive measurement bridge, Andreas Ernst, Albert-Ludwigs-Univ. Freiburg (Germany); Bernhard Vondenbusch, Hochschule Furtwangen Univ. (Germany); Roland Zengerle, Peter Koltay, Albert-Ludwigs-Univ. Freiburg (Germany) [8066-74]

Micro-electro discharge machining: an innovative method for the fabrication of 3D microdevices, Claudia Lesche, Thomas Krah, Stephanus Büttgenbach, Technische Univ. Braunschweig (Germany) [8066-75]

Wafer bonding for MEMS and CMOS integration, Viorel Dragoi, Jürgen Burggraf, Gerald Mittendorfer, EV Group (Austria); Eric Pabo, EV Group Inc. (United States) [8066-77]

Use of self-sensing piezoresistive Si cantilever sensor for determining carbon nanoparticles mass, Hutomu Suroyo Wasisto, Stephan Merzsch, Andrej Stranz, Andreas Waag, Technische Univ. Braunschweig (Germany); Ina Kirsch, Erik Uhde, Tunga Salthammer, Fraunhofer-Wilhelm-Klauditz-Institut Holzforschung (Germany); Erwin Peiner, Technische Univ. Braunschweig (Germany) [8066-78]

Experimental setup for the coating of chlorosilanes based self assembling monolayers to reduce stiction in MEMS devices, Harald Steiner, Matthias Sachse, Johannes Schalko, Wilfried Hortschitz, Franz Kohl, Integrated Microsystems Austria GmbH (Austria); Artur Jachimowicz, Technische Univ. Wien (Austria) [8066-79]

Impedance spectroscopy on a digital microfluidic platform, Thomas Lederer, Stefan Clara, Bernhard Jakoby, Johannes Kepler Univ. Linz (Austria); Wolfgang Hilber, Johannes Kepler Univ. Linz (United States) [8066-80]

A comb-drive scanning-head array for fast SPM measurements, Sai Gao, Konrad Herrmann, Uwe Brand, Physikalisch-Technische Bundesanstalt (Germany); Karla Hiller, Susann Hahn, Alexander Sorger, Jan Mehner, Technische Univ. Chemnitz (Germany) [8066-82]

A MEMS-based thermal infrared emitter for an integrated NDIR spectrometer, Carlos A. Calaza, Marc Salleras, Neus Sabaté, Joaquin Santander, Carles Cané, Luis Fonseca, Instituto de Microelectrónica de Barcelona (Spain) [8066-83]

Flexible and large area pressure sensors for human-neuroprostheses and human-neurobotic interface assessment, Jaime Herrán, Iván Fernández, Estibalitz Ochoteco, Germán Cabañero, Hans Grande, CIDETEC (Spain); José Luis Pons, Consejo Superior de Investigaciones Científicas (Spain) [8066-84]

A study on tunable resonators for rheological measurements, Martin Heinisch, Johannes Kepler Univ. Linz (Austria); Erwin K. Reichel, Katholieke Univ. Leuven (Belgium); Bernhard Jakoby, Johannes Kepler Univ. Linz (Austria) [8066-85]

BinärZeroPowerSensors: an alternative solution for power-free energy-autonomous sensor systems, Thomas Frank, CiS Institut für Mikrosensorik und Photovoltaik GmbH (Germany); Gerald Gerlach, Technische Univ. Dresden (Germany); Arndt Steinke, CiS Institut für Mikrosensorik und Photovoltaik GmbH (Germany) [8066-86]

Fabrication process for the electrode structure of a dielectric elastomer bending tube actuator, Frank Wehrheim, Helmut F. Schlaak, Richard Wolf GmbH (Germany) [8066-87]

Evaluation of sensor arrays for engine oils using artificial oil alteration, Sedat Sen, Christoph Schneidhofer, Nicole Dörr, AC2T Research GmbH (Austria); Michael J. Vellekoop, Technische Univ. Wien (Austria) [8066-88]

Integrated microsystems based on intrinsically active polymers, Andreas Richter, Stephan Klatt, Rinaldo Greiner, Georgi Paschew, Merle Allerdissen, Willy Haas, Technische Univ. Dresden (Germany). [8066-89]

Viscosity and density measurements of glycerol-water mixtures utilizing a novel MEMS resonant sensor, Samir Cerimovic, Technische Univ. Wien (Austria); Roman Beigelbeck, Institute for Integrated Sensor Systems (Austria); Hannes Antlinger, Johannes Kepler Univ. Linz (Austria); Johannes Schalko, Technische Univ. Wien (Austria) and Institute for Integrated Sensor Systems (Austria); Bernhard Jakoby, Johannes Kepler Univ. Linz (Austria); Franz Keplinger, Technische Univ. Wien (Austria) [8066-90]

Fabrication and characterization of artificial hair cell sensor based on MWCNT-PDMS composite, Chi Yeon Kim, Pohang Univ. of Science and Technology (Korea, Republic of); Hyun Sup Lee, Samsung Electronics Co., Ltd. (Korea, Republic of); Yo Han Cho, Cheeyoung Joh, Agency for Defense Development (Korea, Republic of); Pyung Choi, Kyungpook National Univ. (Korea, Republic of); Seong Jin Park, Pohang Univ. of Science and Technology (Korea, Republic of) [8066-91]

Comparison among performance of strain sensors based on different semiconductor thin films, Mariana A. Fraga, Instituto de Estudos Avançados (Brazil); Humber Furlan, Faculdade de Tecnologia de São Paulo (Brazil); Rodrigo S. Pessoa, Instituto Tecnológico de Aeronáutica (Brazil) [8066-92]

Polyimide/PDMS flexible thermoelectric generator for ambient assisted living applications, Luca Francioso, Chiara De Pascali, Isabella Farella, Concetta Martucci, Pasquale Creti, Pietro Siciliano, Consiglio Nazionale delle Ricerche (Italy) [8066-93]

Nanostructured silicon for thermoelectrics, Andrej Stranz, Julian Kähler, Andreas Waag, Erwin Peiner, Technische Univ. Braunschweig (Germany) [8066-94]

Variable isotropy deep RIE process for through wafer via holes manufacturing, Dan Vasilache, Sabrina Colpo, Flavio Giacomozzi, Sabina Ronchin, Abdul Qader Ahsan Qureshi, Benno Margesin, Fondazione Bruno Kessler (Italy) [8066-95]

Development of a new technological MEMS process for AC voltage standards, Francois Blard, Alexandre Bounouh, Lab. National de Metrologie et d'Essais (France); Samuel Charlot, David Bourrier, Henri Camon, Lab. d'Analyse et d'Architecture des Systèmes (France) [8066-96]

Hysteresis correction of tactile sensor response with a generalized Prandtl-Ishlinskii model, José Antonio Sánchez-Durán, Óscar Oballe-Peinado, Julián Castellanos-Ramos, Fernando Vidal-Verdú, Univ. de Málaga (Spain) [8066-97]

Tuesday 19 April

SESSION 3

Room: 220 Tues. 10.10 to 12.00

Bio-MEMS

Session Chairs: **Jeong-Bong Lee**, The Univ. of Texas at Dallas (United States); **Dean P. Neikirk**, The Univ. of Texas at Austin (United States)

10.10: **Poly(dimethylsiloxane) photonic microreactors and multiple internal reflection systems for real-time cell screening** (*Invited Paper*), Pedro Ortiz, Ctr. Nacional de Microelectrónica (Spain); Stefanie Demming, Technische Univ. Braunschweig (Germany); Elisabet Fernández-Rosas, Univ. Autònoma de Barcelona (Spain); Bergoi Ibarlucea, Jordi Vila-Planas, Ctr. Nacional de Microelectrónica (Spain); Stephanus Büttgenbach, Technische Univ. Braunschweig (Germany); Andreu Llobera, Ctr. Nacional de Microelectrónica (Spain) and Technische Univ. Braunschweig (Germany) [8066-12]

10.40: **Mid-infrared CH₂-stretch ratio sensor system for suspended mammalian cells**, Sander van den Driesche, Christoph Haiden, Technische Univ. Wien (Austria); Wojciech Witarski, Institute of Virology (Slovakia); Michael J. Vellekoop, Technische Univ. Wien (Austria) [8066-13]

11.00: **Optimization of an impedance sensor for droplet-based microfluidic systems**, Brian P. Cahill, Institut für Bioprozess- und Analysenmesstechnik e.V. (Germany) [8066-76]

11.20: **Microfluidic cartridges for DNA purification and genotyping processed in standard laboratory instruments**, Maximilian Focke, Albert-Ludwigs-Universität Freiburg (Germany); Daniel Mark, Fabian Stumpf, Hahn Schickard Gesellschaft HSG-IMIT (Germany); Martina Müller, Günter Roth, Roland Zengerle, Albert-Ludwigs-Universität Freiburg (Germany); Felix von Stetten, Hahn Schickard Gesellschaft HSG-IMIT (Germany). [8066-15]

11.40: **Investigation of enzyme kinetics based on a fluidic microprocessor**, Merle Allerdissen, Rinaldo Greiner, Andreas Richter, Technische Univ. Dresden (Germany) [8066-16]

Lunch/Exhibition Break 12.00 to 13.20

SESSION 4

Room: 220 Tues. 13.20 to 15.20

Gas Sensors

Session Chairs: **Alois Friedberger**, EADS Deutschland GmbH (Germany); **Robert J. Lad**, Univ. of Maine (United States)

13.20: **New method for selectivity enhancement of SiC field effect gas sensors for quantification of NO_x**, Christian Bur, Peter Reimann, Univ. des Saarlandes (Germany); Mike Andersson, Linköping Univ. (Sweden); Andreas Schuetze, Univ. des Saarlandes (Germany); Anita Lloyd Spetz, Linköping Univ. (Sweden) . [8066-17]

13.40: **Fabrication of a miniaturized ionization gas sensor with polyimide spacer**, Thomas H. Walewys, Gilles Scheen, Ester Tooten, Lamia El Fissi, Pascal Dupuis, Laurent A. Francis, Univ. Catholique de Louvain (Belgium) [8066-18]

14.00: **Fabry-Perot-based thin film structure used as IR-emitter of a NDIR gas sensor: ray tracing simulations and measurements**, Johann Mayrwoeger, Johannes Kepler Univ. Linz (Austria); Wolfgang Reichl, E+E Elektronik (Austria); Christian Krutzler, Integrated Microsystems Austria GmbH (Austria); Bernhard Jakoby, Johannes Kepler Univ. Linz (Austria) [8066-19]

14.20: **Metallo-porphyrine as gas sensing material for colorimetric gas sensors on planar optical waveguides**, Carolin Peter, Katrin Schmitt, Martin Schiel, Jürgen Wöllenstein, Fraunhofer-Institut für Physikalische Messtechnik (Germany) [8066-20]

14.40: **Nanostructured ZnO-based field effect transistors for enhanced gas sensing applications**, Nikolaos Kelaidis, Matthias Widmann, Eleni Makarona, National Ctr. for Scientific Research Demokritos (Greece); Michalis G. Kompitsas, National Hellenic Research Foundation (Greece); Thanassis Speliotis, National Ctr. for Scientific Research Demokritos (Greece); Filippos V. Farmakis, Demokritos Univ. of Thrace (Greece); Piotr T. Jedrasik, Chalmers Univ. of Technology (Sweden); Christos Tsamis, National Ctr. for Scientific Research Demokritos (Greece) [8066-21]

15.00: **Gas sensors based on MEMS structures made of ceramic ZrO₂/Y₂O₃ material**, Alexey A. Vasiliev, Russian Research Ctr. Kurchatov Institute (Russian Federation); Alexandr Lipilin, Institute of Electrophysics (Russian Federation); Alexandr Pisljakov, Nikolay Samotaev, Andrey Sokolov, Alexandr Lagutin, Russian Research Ctr. Kurchatov Institute (Russian Federation) [8066-22]

Coffee Break 15.20 to 15.50

SESSION 5

Room: 220 Tues. 15.50 to 17.50

Optical Devices and Systems

Session Chairs: **Pavel J. Fiala**, Brno Univ. of Technology (Czech Republic); **Jacopo Iannacci**, Fondazione Bruno Kessler (Italy)

15.50: **Closed-loop synchronization scheme of resonant MOEMS-mirrors with two axes**, Andreas Tortschanoff, Albert Frank, Carinthian Tech Research AG (Austria); Michael Wildenhain, Thilo Sandner, Fraunhofer-Institut für Photonische Mikrosysteme (Germany); Andreas Kenda, Carinthian Tech Research AG (Austria) [8066-23]

16.10: **Design of a (non-)linear hybrid optical MEMS displacement sensor**, Wilfried F. Hortschitz, Franz Kohl, Harald Steiner, Matthias Sachse, Michael Stifter, Integrated Microsystems Austria GmbH (Austria); Johannes Schalko, Artur Jachimowicz, Franz Keplinger, Technische Univ. Wien (Austria) [8066-24]

16.30: **Miniaturized multi-channel infrared optical gas sensor system**, Jürgen Wöllenstein, Sven Rademacher, Andre Eberhardt, Fraunhofer-Institut für Physikalische Messtechnik (Germany) [8066-25]

16.50: **Polyvinylidene fluoride (PVDF) based bimorph actuator for high-speed laser beam manipulation**, Ricardo Pérez Suárez, Miroslav Král, Hannes Bleuler, Reymond Clavel, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [8066-26]

17.10: **A systems engineering approach to structural health monitoring of composites using embedded optical fibre Bragg sensors for aeronautical applications**, Albertus J. van Wyk, C. Roberson, Univ. of Johannesburg (South Africa) [8066-27]

17.30: **Impact damage detection of composite materials by fiber bragg gratings**, Zoran V. Djinic, Integrated Microsystems Austria GmbH (Austria); Michael Scheerer, Aerospace & Advanced Composites (Austria); Milos C. Tomic, Univ. of Belgrade (Serbia) [8066-28]

Wednesday 20 April

SESSION 6

Room: 220 Wed. 10.10 to 12.00

High-Frequency MEMS

Session Chairs: **Monika Leester-Schaedel**, Technische Univ. Braunschweig (Germany); **Bernhard Jakoby**, Johannes Kepler Univ. Linz (Austria)

- 10.10: **Electro-acoustic sensors based on AlN thin film: possibilities and limitations** (*Invited Paper*), Gunilla Wingqvist, Linköping Univ. (Sweden) . [8066-29]
- 10.40: **Development of capacitive RF MEMS switches with TaN and Ta₂O₅ thin films**, Anna Persano, Fabio Quaranta, Adriano Cola, Giorgio De Angelis, Romolo Marcelli, Pietro Siciliano, Istituto per la Microelettronica e Microsistemi (Italy) [8066-30]
- 11.00: **Effect of electro-thermo-mechanical coupling on the short-circuit in RF microswitch operation**, Eugenio G. M. Brusa, Politecnico di Torino (Italy); Mircea G. Munteanu, Univ. degli Studi di Udine (Italy) [8066-31]
- 11.20: **A reconfigurable impedance matching network entirely manufactured in RF-MEMS technology**, Jacopo Iannacci, Fondazione Bruno Kessler (Italy); Diego Masotti, Univ. degli Studi di Bologna (Italy) [8066-32]
- 11.40: **Mechanical contact in system-level models of electrostatically actuated RF-MEMS switches: experimental analysis and modeling**, Martin Niessner, Technische Univ. München (Germany); Jacopo Iannacci, Fondazione Bruno Kessler (Italy); Gabriele Schrag, Technische Univ. München (Germany) [8066-33]
- Lunch/Exhibition Break 12.00 to 13.20

SESSION 7

Room: 220 Wed. 13.20 to 15.20

Modelling

Session Chairs: **Gabriele Schrag**, Technische Univ. München (Germany); **Jürgen Wöllenstein**, Fraunhofer-Institut für Physikalische Messtechnik (Germany)

- 13.20: **Modeling of gold microbeams for characterizing MEMS packages**, Alessandro Faes, Alena Repchankova, Francesco Solazzi, Fondazione Bruno Kessler (Italy); Benno Margesin, Univ. degli Studi di Trento (Italy) [8066-34]
- 13.40: **Hardware implementation of an electrostatic MEMS-actuator linearization**, Florian Mair, Markus Egretzberger, Andreas Kugi, Technische Univ. Wien (Austria) [8066-35]
- 14.20: **Vibration energy harvester optimization using artificial intelligence**, Zdenek Hadas, Cestmir Ondrusek, Jiri Kurfurst, Vladislav Singule, Brno Univ. of Technology (Czech Republic) [8066-63]
- 14.40: **Modeling and analysis of a micromachined piezoelectric energy harvester stimulated by ambient random vibrations**, Ali Badar M. Alamin Dow, David Koo, Univ. of Toronto (Canada); Michael Schneider, Achim Bittner, Ulrich Schmid, Technische Univ. Wien (Austria); Nazir P. Kherani, Univ. of Toronto (Canada) [8066-38]
- 15.00: **Modeling of thermal response of bimorph electromechanical sensor**, Valeriy A. Fedirko, D. A. Zenyuk, E. A. Fetisov, Moscow Institute of Electronic Technology (Russian Federation) [8066-39]
- Coffee Break 15.20 to 15.50

SESSION 8

Room: 220 Wed. 15.50 to 17.50

Energy Scavengers

Session Chairs: **Christos Tsamis**, National Ctr. for Scientific Research Demokritos (Greece); **Erwin Peiner**, Technische Univ. Braunschweig (Germany)

- 15.50: **Modeling and characterization of a circular-shaped energy scavenger in MEMS surface micromachining technology**, Francesco Solazzi, Jacopo Iannacci, Alessandro Faes, Flavio Giacomozzi, Benno Margesin, Fondazione Bruno Kessler (Italy); Augusto Tazzoli, Gaudenzio Meneghesso, Univ. degli Studi di Padova (Italy) [8066-40]
- 16.10: **Issues in validation of performances of piezoelectric vibration-based energy harvesters**, David Blažević, Saša Zelenika, Univ. of Rijeka (Croatia) [8066-41]
- 16.30: **Plucked piezoelectric bimorphs for energy harvesting applications**, Michele Pozzi, Meiling Zhu, Cranfield Univ. (United Kingdom) [8066-42]
- 16.50: **A novel MEMS design of a piezoelectric generator for fluid-actuated energy conversion**, Ingo Kuehne, Matthias Schreiter, Siemens AG (Germany); Helmut Seidel, Univ. des Saarlandes (Germany); Alexander Frey, Siemens AG (Germany) [8066-43]
- 17.10: **Piezoelectric power generation for sensor applications: design of a battery-less wireless tire pressure sensor**, Noaman Makki, Univ. of Ontario Institute of Technology (Canada) [8066-44]
- 17.30: **Smart energy management and low-power design of sensor and actuator nodes on algorithmic level for self-powered sensorial materials and robotics**, Stefan Bosse, Thomas Behrmann, Univ. Bremen (Germany) . . . [8066-45]

VLSI Circuits and Systems

Conference Chair: **Teresa Riesgo**, Univ. Politécnica de Madrid (Spain)

Conference Co-Chairs: **Eduardo de la Torre-Arnanz**, Univ. Politécnica de Madrid (Spain); **Peter Langendörfer**, IHP GmbH (Germany)

Programme Committee: **Said Fares Al-Sarawi**, The Univ. of Adelaide (Australia); **Sebastián A. Bota**, Univ. de les Illes Balears (Spain); **João Canas Ferreira**, Univ. do Porto (Portugal); **Massimo Conti**, Univ. Politecnica delle Marche (Italy); **Angel de Castro**, Univ. Autónoma de Madrid (Spain); **Francisco V. Fernández**, Instituto de Microelectrónica de Sevilla (Spain); **Eby G. Friedman**, Univ. of Rochester (United States); **Eckhard Grass**, IHP GmbH (Germany); **Milos Krstic**, IHP GmbH (Germany); **Sebastián López Suárez**, Univ. de Las Palmas de Gran Canaria (Spain); **Celia López-Ongil**, Univ. Carlos III de Madrid (Spain); **Antonio López-Martín**, Univ. Pública de Navarra (Spain); **Gustavo Marrero Callico**, Univ. de Las Palmas de Gran Canaria (Spain); **Salvador Mir**, TIMA Lab. (France); **Pere Lluís Miribel-Català**, Univ. de Barcelona (Spain); **Félix Moreno**, Univ. Politécnica de Madrid (Spain); **Antonio Núñez Ordóñez**, Univ. de Las Palmas de Gran Canaria (Spain); **Belén Pérez-Verdú**, Ctr. Nacional de Microelectrónica (Spain); **Jorge Portilla**, Univ. Politécnica de Madrid (Spain); **Juan José Rodríguez Andina**, Univ. de Vigo (Spain); **Ángel B. Rodríguez-Vázquez**, Ctr. Nacional de Microelectrónica (Spain); **Marco Domenico Santambrogio**, Politecnico di Milano (Italy); **César Sanz**, Univ. Politécnica de Madrid (Spain); **Gilles Sassatelli**, Lab. d'Informatique de Robotique et de Microelectronique de Montpellier (France); **José Silva Matos**, Univ. do Porto (Portugal); **Dirk Stroobandt**, Univ. Gent (Belgium); **Walter Stechele**, Technische Univ. München (Germany); **Mladen Berekovic**, TUBS (Germany); **Ioannis Papafstathiou**, Technical University of Crete (Greece)

Monday 18 April

Opening Remarks

Room: 225 Mon. 10.30 to 10.40

Teresa Riesgo, Univ. Politécnica de Madrid (Spain)

SESSION 1

Room: 225 Mon. 10.40 to 12.30

Bio-inspired and Reconfigurable Systems

Session Chairs: **Eduardo de la Torre-Arnanz**, Univ. Politécnica de Madrid (Spain); **Roberto Sarmiento Rodríguez**, Univ. de Las Palmas de Gran Canaria (Spain)

10.40: **Evolutionary hardware design (Invited Paper)**, Lukás Sekanina, Brno Univ. of Technology (Czech Republic) [8067-01]

11.10: **3D design exploration of CNN algorithms**, Lambert Spaanenburg, Lund Univ. (Sweden) and RaviteQ (Sweden); Suleyman Malki, Lund Univ. (Sweden) and BASE AB (Sweden) [8067-02]

11.30: **Bio-inspired FPGA architecture for self-calibration of an image compression core based on wavelet transforms in embedded systems**, Ruben Salvador, Alberto Vidal, Felix Moreno, Teresa Riesgo, Univ. Politécnica de Madrid (Spain); Lukás Sekanina, Brno Univ. of Technology (Czech Republic) . . . [8067-03]

11.50: **Partial reconfiguration of a peripheral in an FPGA-based SoC to analyse performance-area behaviour**, Andrés Cardona Cardona, Yi Guo, Carles Ferrer, Univ. Autónoma de Barcelona (Spain) [8067-04]

12.10: **Cost and energy efficient reconfigurable embedded platform using Spartan-6 FPGAs**, Andrés Otero, Manuel Llinás, Eduardo de la Torre, Jorge Portilla, Teresa Riesgo, Univ. Politécnica de Madrid (Spain) [8067-05]

Lunch Break 12.30 to 14.00

SESSION 2

Room: 225 Mon. 14.00 to 16.00

Wireless Communication Systems

Session Chairs: **Sebastián López Suárez**, Univ. de Las Palmas de Gran Canaria (Spain); **Massimo Conti**, Univ. Politecnica delle Marche (Italy)

14.00: **Performance analysis of 802.15.4 wireless standard**, Massimo Conti, Emanuele Losavio, Simone Orcioni, Univ. Politecnica delle Marche (Italy) [8067-06]

14.20: **RFID-based wake-up system for wireless sensor networks**, Antonio Sanchez, Joan Aguilar, Sara Blanc, Juan José Serrano, ITACA Institute (Spain) and Univ. Politécnica de Valencia (Spain) [8067-07]

14.40: **Wireless video-surveillance over 802.15.4**, Massimo Conti, Manuele Telari, Simone Orcioni, Univ. Politecnica delle Marche (Italy) [8067-08]

15.00: **Simulation of impulse response for indoor wireless optical channels using 3D CAD models**, Silvestre Rodríguez Pérez, Beatriz Rodríguez Mendoza, Gara Miranda Valladares, Carlos Segura González, Rafael Pérez Jiménez, Univ. de La Laguna (Spain) [8067-09]

15.20: **A 55 µW programmable gain amplifier with constant bandwidth for a direct conversion receiver**, Jens Masuch, Manuel Delgado-Restituto, Instituto de Microelectrónica de Sevilla (Spain) [8067-10]

15.40: **Multi-user THSS system for indoor wireless optical communications with angle-diversity detection**, Silvestre Rodríguez Pérez, Beatriz Rodríguez Mendoza, José Ramón Álvarez Santos, Oswaldo B. González Hernández, Alejandro J. Ayala Alfonso, Univ. de La Laguna (Spain) [8067-11]

Coffee Break 16.00 to 16.15

Posters—Monday Mon. 16.15 to 17.30

Poster Session and Reception

Conference attendees are invited to attend the EMT Poster Session and Reception on Monday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Evaluation of MOBILE-based gate-level pipelining augmenting CMOS with RTDs, Juan Nuñez, IMSE-CNM (Spain) and Consejo Superior de Investigaciones Científicas (Spain); María J. Avedillo, José M. Quintana, Univ. de Sevilla (Spain) and IMSE-CNM (Spain) and Consejo Superior de Investigaciones Científicas (Spain) [8067-28]

Model for analyzing of multi-phase systems with variable configuration of inclusions, Vladimir V. Shchennikov, Institute of Metal Physics (Russian Federation); Sergey V. Ovsyannikov, Univ. Bayreuth (Germany); Igor V. Korobeynikov, Grigory V. Vorontsov, Institute of Metal Physics (Russian Federation); Vsevolod V. Shchennikov, Jr., Institute of Engineering Science (Russian Federation); Ivan A. Komarovskii, Institute of Metal Physics (Russian Federation) [8067-35]

Tuesday 19 April

SESSION 3

Room: 225 Tues. 10.00 to 12.00

Off-chip & On-chip Communications

Session Chairs: **Félix B. Tobajas Guerrero**, Univ. de Las Palmas de Gran Canaria (Spain); **Lambert Spaanenburg**, Lund Univ. (Sweden)

10.00: **Heterogeneous transmission and parallel computing platform (HTPCP) for remote sensing applications**, Yi Guo, Univ. Autónoma de Barcelona (Spain); Antonio Rius, Institut d'Estudis Espacials de Catalunya (Spain) and Consejo Superior de Investigaciones Científicas (Spain); Serni Ribó, Carles Ferrer, Univ. Autónoma de Barcelona (Spain) [8067-12]

10.20: **Low-power, high-speed FFT processor for MB-OFDM UWB application**, Guixuan Liang, Danping He, Eduardo de la Torre-Arnanz, Teresa Riesgo, Univ. Politécnica de Madrid (Spain) [8067-13]

10.40: **SystemC modelling of wireless communication channel**, Massimo Conti, Simone Orcioni, Univ. Politecnica delle Marche (Italy) [8067-14]

11.00: **Hardware-software-co-design of parallel and distributed systems using a unique behavioural programming and multi-process model with high-level synthesis**, Stefan Bosse, Univ. Bremen (Germany) [8067-15]

11.20: **Dynamically reconfigurable router for NoC congestion reduction**, Juan E. Rosales Rodríguez, Félix B. Tobajas Guerrero, Valentín De Armas Sosa, Roberto Sarmiento Rodríguez, Univ. de Las Palmas de Gran Canaria (Spain) . . . [8067-16]

11.40: **NoC emulation framework based on Arteris NoC solution for multiprocessor system-on-chip**, José A. Mori De Santiago, Félix B. Tobajas Guerrero, Valentín De Armas Sosa, Roberto Sarmiento Rodríguez, Univ. de Las Palmas de Gran Canaria (Spain) [8067-17]

Lunch/Exhibition Break 12.00 to 13.20

SESSION 4

Room: 225 **Tues. 13.20 to 15.20**

Multimedia and High Performance Architectures

Session Chairs: **Lukás Sekanina**, Brno Univ. of Technology (Czech Republic); **Gustavo Marrero Callicó**, Univ. de Las Palmas de Gran Canaria (Spain)

- 13.20: **Performance analysis of the scalable video coding (SVC) extension of H.264/AVC for constrained scenarios**, Néstor J. Suárez, Gustavo M. Callicó, Sebastián López, José Fco. López, Roberto Sarmiento, Univ. de Las Palmas de Gran Canaria (Spain) and Research Institute for Applied Microelectronics (IUMA) (Spain) [8067-18]
- 13.40: **Scalable 2D architecture for H.264 SVC deblocking filter with reconfiguration capabilities for on-demand adaptation**, Teresa G. Cervero García, Univ. de Las Palmas de Gran Canaria (Spain); Andrés Otero, Eduardo De la Torre, Univ. Politécnica de Madrid (Spain); Sebastián López, Gustavo M. Callicó, Univ. de Las Palmas de Gran Canaria (Spain); Teresa Riesgo, Univ. Politécnica de Madrid (Spain); Roberto Sarmiento, Univ. de Las Palmas de Gran Canaria (Spain) [8067-19]
- 14.00: **AAC decoder energy consumption estimate on an OMAP-based platform**, Rubén del Castillo, Eduardo Juarez, Fernando Pescador, Cesar Sanz, Univ. Politécnica de Madrid (Spain) [8067-20]
- 14.20: **Closing the gap between software and hardware super-resolution image reconstruction: provision of high-quality output**, Tomasz M. Szydzik, Gustavo M. Callicó, Antonio Núñez Ordóñez, Univ. de Las Palmas de Gran Canaria (Spain) and Institute for Applied Microelectronics (Spain) [8067-21]
- 14.40: **Area-delay trade-offs of texture decompressors for a graphics processing unit**, Emilio Novoa, Pablo Ituero, Marisa Lopez-Vallejo, Univ. Politécnica de Madrid (Spain) [8067-22]
- 15.00: **Evaluation of elementary functions without range reduction**, Filipe Meireles, Univ. do Porto (Portugal); António Araújo, INESC Porto (Portugal) and Univ. do Porto (Portugal) [8067-23]
- Coffee Break 15.20 to 15.50

SESSION 5

Room: 225 **Tues. 15.50 to 17.30**

IC Design

Session Chairs: **Antonio Núñez Ordóñez**, Univ. de Las Palmas de Gran Canaria (Spain); **Eduardo Juarez**, Univ. Politécnica de Madrid (Spain)

- 15.50: **Challenges facing academic research in commercializing event-detector implantable devices for an in-vivo biomedical subcutaneous device for biomedical analysis**, Jordi Colomer-Farrarons, Esteve Juanola-Feliu, Pere L. Miribel-Català, Josep Samitier Martí, Jaume Valls-Pasola, Univ. de Barcelona (Spain) [8067-24]
- 16.10: **Discrete to full custom ASIC solutions for bioelectronic applications**, Jaime Punter-Villagrana, Jordi Colomer-Farrarons, Pere L. Miribel-Català, Manel Puig-Vidal, Josep Samitier Martí, Univ. de Barcelona (Spain) [8067-25]
- 16.30: **VLSI design of low-leakage single-ended 6T SRAM cell**, Sohit Solanky, Fabio Frustaci, Pasquale Corsonello, Univ. della Calabria (Italy) [8067-26]
- 16.50: **A first approach to analogue memristive circuit modeling**, Torsten Schmidt, Ute Feldmann, Ronald Tetzlaff, Technische Univ. Dresden (Germany) [8067-27]
- 17.10: **Effect of separation and depth of N+ diffusions in the quality factor and tuning range of pn varactors**, Margarita Marrero-Martin, Javier A. Garcia, Benito Gonzalez, Antonio Hernández, Tomasz M. Szydzik, Univ. de Las Palmas de Gran Canaria (Spain) [8067-29]

Wednesday 20 April

SESSION 6

Room: 225 **Wed. 10.10 to 12.00**

Measuring, Detecting and Obscuring Defects and Effects
Session Chairs: **Sebastián A. Bota**, Univ. de les Illes Balears (Spain); **Torsten Schmidt**, Technische Univ. Dresden (Germany)

- 10.10: **Automatic vector generation guided by a functional metric (Invited Paper)**, Iñigo Ugarte, Pablo Sanchez, Univ. de Cantabria (Spain) [8067-30]
- 10.40: **Energy consumption estimation of an OMAP-based Android operating system**, Gabriel Gonzalez, Eduardo Juarez, Juan Jose Castro, Cesar Sanz, Univ. Politécnica de Madrid (Spain) [8067-31]
- 11.00: **SCA security verification on wireless sensor network node**, Wei He, Carlos Pizarro, Eduardo de la Torre, Jorge Portilla, Teresa Riesgo, Univ. Politécnica de Madrid (Spain) [8067-32]
- 11.20: **Self-Repairing SRAM architecture to mitigate the inter-die process variations at 65nm technology**, Sumit Kansal, Marco Lanuzza, Pasquale Corsonello, Univ. della Calabria (Italy) [8067-33]
- 11.40: **Analytical modeling of glitch propagation in nanometer ICs**, Xavier Gili, Salvador Barcelo, Sebastián A. Bota, Jaume Segura, Univ. de les Illes Balears (Spain) [8067-34]

Bioelectronics, Biomedical, and Bio-inspired Systems

Conference Chair: **Ángel B. Rodríguez-Vázquez**, Ctr. Nacional de Microelectrónica (Spain)

Conference Co-Chairs: **Ricardo A. Carmona-Galán**, Univ. de Sevilla (Spain); **Gustavo Liñán-Cembrano**, Ctr. Nacional de Microelectrónica (Spain)

Programme Committee: **Paolo Arena**, Univ. degli Studi di Catania (Italy); **Gert Cauwenberghs**, Univ. of California, San Diego (United States); **Antoine Dupret**, Institut d'Électronique Fondamentale (France); **Roman Genov**, Univ. of Toronto (Canada); **Giacomo Indiveri**, ETH Zurich (Switzerland); **Pedro Julian**, Univ. Nacional del Sur (Argentina); **Laura M. Lechuga**, Ctr. d'Investigacions en Nanociència i Nanotecnologia (Spain); **Ramón Ruiz-Merino**, Univ. Politécnica de Cartagena (Spain); **Maciej J. Ogorzalek**, Jagiellonian Univ. in Krakow (Poland); **Josep Samitier**, Univ. de Barcelona (Spain); **Luis Serrano**, Univ. Pública de Navarra (Spain); **Bertram Shi**, Hong Kong Univ. of Science and Technology (Hong Kong, China); **Ronald Tetzlaff**, Technische Univ. Dresden (Germany); **Fernando Vidal-Verdú**, Univ. de Malaga (Spain); **Akos Zarandy**, Computer and Automation Research Institute (Hungary)

Tuesday 19 April

Opening Remarks

Room: 223 Tues. 10.05 to 10.10

Ángel B. Rodríguez-Vázquez, Ctr. Nacional de Microelectrónica (Spain)

SESSION 1

Room: 223 Tues. 10.10 to 11.40

Biomolecular and Biophysical Systems

Session Chair: **Ángel B. Rodríguez-Vázquez**, Ctr. Nacional de Microelectrónica (Spain)

10.10: **Ultrasensitive nanosensors based on electronic effects in nanoscale structures** (*Invited Paper*), Wolfgang Fritzsche, Christian Leiterer, Steffen Berg, Thomas Schneider, Norbert Jahr, Ondrej Stranik, Gerald Broenstrup, Silke Christiansen, Andrea Csaki, Institut für Photonische Technologien e.V. (Germany) [8068A-01]

10.40: **Hybridisation mix synthesis in a spiral lab-on-chip device for fast-track microarray genotyping of human pathogens**, Johannes R. Peham, Lisa-Maria Rechnik, Austrian Institute of Technology (Austria); Walter Grienauer, Austrian Research Ctrs. GmbH (Austria); Michael J. Vellekoop, Technische Univ. Wien (Austria); Christa Nöhammer, Herbert Wiesinger-Mayr, Austrian Institute of Technology (Austria) [8068A-02]

11.00: **Finite element analysis of tactile sensors made with screen printing technology**, Julian Castellanos-Ramos, Rafael Navas-González, Univ. de Málaga (Spain); Estibalitz Ochoteco, CIDETEC (Spain); Fernando Vidal-Verdú, Univ. de Málaga (Spain) [8068A-13]

11.20: **Performance of a novel micro force vector sensor and outlook into its biomedical applications**, Thorsten Meiss, Tim Rossner, Carlos Minamisava Faria, Roland Werthschützky, Technische Univ. Darmstadt (Germany) [8068A-05]

Lunch/Exhibition Break 11.40 to 13.20

SESSION 2

Room: 223 Tues. 13.20 to 15.20

Bioinspired Vision Sensors

Session Chair: **Paolo Arena**, Univ. degli Studi di Catania (Italy)

13.20: **Multi-resolution low-power Gaussian filtering by reconfigurable focal-plane binning**, Jorge Fernández-Berni, Ricardo A. Carmona-Galán, Francisco Pozas-Flores, IMSE-CNM (Spain); Akos Zarandy, Computer and Automation Research Institute (Hungary); Ángel B. Rodríguez-Vázquez, IMSE-CNM (Spain) [8068A-06]

13.40: **High-dynamic range tone-mapping algorithm for focal plane processors**, Sonia Vargas, Gustavo Liñán-Cembrano, Ángel B. Rodríguez-Vázquez, Ctr. Nacional de Microelectrónica (Spain) [8068A-07]

14.00: **Design of a smart SiPM based on focal-plane processing elements for improved spatial resolution in PET**, Francisco Pozas-Flores, Ricardo Carmona-Galán, Jorge Fernández-Berni, Ángel B. Rodríguez-Vázquez, Instituto de Microelectrónica de Sevilla (Spain) and Consejo Superior de Investigaciones Científicas (Spain) [8068A-08]

14.20: **Visual learning in drosophila: application on a roving robot and comparisons**, Luca Patané, Paolo Arena, Sebastiano De Fiore, Pietro Savio Termini, Univ. degli Studi di Catania (Italy); Roland Strauss, Johannes Gutenberg Univ. Mainz (Germany); Luis Alba Soto, Anafocus (Spain) [8068A-09]

14.40: **Drosophila-inspired visual orientation model on the Eye-Ris platform: experiments on a roving robot**, Luca Patané, Paolo Arena, Sebastiano De Fiore, Univ. degli Studi di Catania (Italy); Roland Strauss, Johannes Gutenberg Univ. Mainz (Germany) [8068A-10]

15.00: **Embedding visual routines in AnaFocus' Eye-RIS Vision Systems for closing the perception to action loop in roving robots**, Amanda J. Marrufo, Daniel J. Caballero, Anafocus (Spain) [8068A-11]

Coffee Break 15.20 to 15.50

SESSION 3

Room: 223 Tues. 15.50 to 17.10

Biocompatible Sensors and Materials

Session Chair: **Ricardo A. Carmona-Galán**, IMSE-CNM (Spain)

15.50: **Mechanical properties of an artificial vascularized human skin**, Aurélie Passot, Gonzalo Cabodevila, FEMTO ST (France) [8068A-12]

16.10: **Porous silicon and diatoms micro-shells: an example of inverse biomimetic**, Luca De Stefano, Ilaria Rea, Edoardo De Tommasi, Ivo Rendina, Istituto per la Microelettronica e Microsistemi (Italy) [8068A-14]

16.30: **Laser microstructured 3D polymer scaffolds as biocompatible implants**, Mangirdas Malinauskas, Daiva Baltrikiene, Vilnius Univ. (Lithuania); Antanas Kraniuskas, Vilnius Univ. Hospital (Lithuania); Paulius Danilevicius, Evaldas Balciunas, Kristupas Tikuisis, Sima Rekstyte, Albertas Zukauskas, Vilnius Univ. (Lithuania); Raimondas Sirmenis, Vilnius Univ. Hospital (Lithuania); Virginija Bukelskiene, Roaldas Gadonas, Vilnius Univ. (Lithuania); Vytautas Sirvydis, Vilnius Univ. Hospital (Lithuania); Algis Piskarskas, Vilnius Univ. (Lithuania) ... [8068A-15]

16.50: **Design and fabrication of substrates with microstructures for bio-applications through the optical disc process**, Kuo-Chi Chiu, Sheng-Li Chang, Chu-Yu Huang, Yung-Sung Lan, Hann-Wen Guan, Industrial Technology Research Institute (Taiwan) [8068A-17]

Wednesday 20 April

SESSION 4

Room: 223 Wed. 10.10 to 12.00

Cognitive Hardware and Neural Networks

Session Chair: **Ronald Tetzlaff**, Technische Univ. Dresden (Germany)

10.10: **SPARKRS4CS: a software/hardware framework for cognitive architectures** (*Invited Paper*), Paolo Arena, Marco Cosentino, Luca Patané, Alessandra Vitanza, Univ. degli Studi di Catania (Italy) [8068A-18]

10.40: **A hardware experimental platform for neural circuits in the auditory cortex**, Victoria Rodellar-Biarge, Pablo Garcia-Dominguez, Yago Ruiz, Pedro Gomez-Vilda, Univ. Politécnica de Madrid (Spain) [8068A-19]

11.00: **Internal representation as a protocognitive scheme for robots in dynamic environments**, Jose A. Villacorta-Atienza, Valeri A. Makarov, Manuel G. Velarde, Univ. Complutense de Madrid (Spain) [8068A-20]

11.20: **FPGA implementation of a modified FitzHugh-Nagumo neuron-based causal neural network for compact internal representation of dynamic**, Luis Salas Paracuellos, Luis Alba Soto, Anafocus (Spain); Jose A. Villacorta-Atienza, Univ. Complutense de Madrid (Spain) [8068A-21]

11.40: **Synchronization phenomena in neural networks of hard oscillators**, Michele Bonnin, Valentina Lanza, Fernando Corinto, Marco Gilli, Politecnico di Torino (Italy) [8068A-22]

Lunch/Exhibition Break 12.00 to 13.20

SESSION 5

Room: 223 **Wed. 13.20 to 15.20**

Biosignal Sensing and Monitoring

Session Chair: Fernando Vidal-Verdú, Univ. de Málaga (Spain)

13.20: **Spatio-temporal coupling of EEG signals in epilepsy**, Vanessa Senger, Jens Müller, Ronald Tetzlaff, Technische Univ. Dresden (Germany) [8068A-23]

13.40: **A new cellular nonlinear network emulation on FPGA for EEG signal processing in epilepsy**, Jens Müller, Jan Müller, Ronald Tetzlaff, Technische Univ. Dresden (Germany) [8068A-24]

14.00: **An ultra low-power, low-voltage neural spike recording channel with feature extraction capabilities**, Alberto Rodríguez-Pérez, Institute de Microelectrónica de Seville (Spain); Jesús Ruiz-Amaya, Manuel Delgado-Restituto, Ángel B. Rodríguez-Vázquez, Instituto de Microelectrónica de Sevilla (Spain) [8068A-25]

14.20: **A flexible home monitoring platform for patients affected by chronic heart failure directly integrated with the remote hospital information system**, Tony Bacchillone, Massimiliano Donati, Sergio Saponara, Luca Fanucci, Univ. di Pisa (Italy) [8068A-26]

14.40: **Comparative study of heart sound localization algorithms**, Ali Moukadem, Alain Dieterlen, Univ. de Haute Alsace (France); Nicolas Hueber, Institut Franco-Allemand de Recherches de Saint-Louis (France); Christian Brandt, Civil Hospital of Strasbourg (France). [8068A-27]

15.00: **Use of efficient algorithms in the parameterization and sorting of action potentials signals**, Jose Nivaldo da Silva Sarinho Filho, Escola Politécnica da Univ. de São Paulo (Brazil); Marcio Eisencraft, Ricardo Suyama, Univ. Federal do ABC (Brazil); Maria D. Miranda, Escola Politécnica da Univ. de São Paulo (Brazil); Erich T. Fonoff, Univ. de São Paulo (Brazil). [8068A-28]

Coffee Break 15.20 to 15.50

SESSION 6

Room: 223 **Wed. 15.50 to 17.30**

Microfluidics and Bioimpedance Sensors

Session Chair: Gustavo Liñán-Cembrano, Ctr. Nacional de Microelectrónica (Spain)

15.50: **Front-end electronics for impedimetric microfluidic devices**, Jaan Ojarand, ELIKO (Estonia); Athanasios T. Giannitsis, Mart Min, Raul Land, Tallinn Univ. of Technology (Estonia) [8068A-29]

16.10: **Handheld 2-channel impedimetric cell counting system with embedded real-time processing**, Angelo Rottigni, Marco Carminati, Giorgio Ferrari, Politecnico di Milano (Italy); Michael Vahey, Joel Voldman, Massachusetts Institute of Technology (United States); Marco Sampietro, Politecnico di Milano (Italy) [8068A-30]

16.30: **Combined impedance and dielectrophoresis portable device for point-of-care analysis**, Beatriz del Moral Zamora, Jordi Colomer-Farrarons, Monica Mir-Llorente, Antonio Homs-Corbera, Pere L. Miribel-Català, Josep Samitier Martí, Univ. de Barcelona (Spain) [8068A-31]

16.50: **CMOS integrated cell adhesion sensor for lab-on-a-chip applications**, Andreas Mucha, Siemens AG (Germany) and Technische Univ. München (Germany); Meinrad Schienle, Siemens AG (Germany); Doris Schmitt-Landsiedel, Technische Univ. München (Germany) [8068A-32]

17.10: **Control performance improvement research of EWOD micro-fluidic actuating device using multi-physics simulation method**, Aruem Han, Hye-Jin Lee, Korea Institute of Industrial Technology (Korea, Republic of) [8068A-34]



Nanotechnology

Conference Chair: **Rainer Adelung**, Christian-Albrechts-Univ. zu Kiel (Germany)

Conference Co-Chairs: **Carsten Ronning**, Friedrich-Schiller-Univ. Jena (Germany); **Bernd Wagner**, Fraunhofer-Institut für Siliziumtechnologie (Germany)

Programme Committee: **Joerg K. N. Lindner**, Univ. Augsburg (Germany); **Harri K. Lipsanen**, Aalto Univ. School of Science and Technology (Finland); **Axel Lorke**, Univ. Duisburg-Essen (Germany); **Andreas Dirk Wieck**, Ruhr-Univ. Bochum (Germany)

Monday 18 April

Opening Remarks

Room: 223 Mon. 10.30 to 10.40

Rainer Adelung, Christian-Albrechts-Univ. zu Kiel (Germany)

SESSION 7

Room: 223 Mon. 10.40 to 12.30

Medical and Biological Sensors

Session Chair: **Rainer Adelung**,
Christian-Albrechts-Univ. zu Kiel (Germany)

10.40: **MicroNano integration of nanoscale objects for parallel biosensorics (Invited Paper)**, Wolfgang Fritzsche, Christian Leiterer, Steffen Berg, Norbert Jahr, Gerald Broenstrup, Silke Christiansen, Andrea Csaki, Institut für Photonische Technologien e.V. (Germany) [8068B-35]

11.10: **Plasmon resonances of hollow gold nanoparticles and their applications in imaging, sensing, biology and medicine**, Ludmila Raguin, Christian Hafner, Pascal Leuchtmann, David Bowler, ETH Zurich (Switzerland) [8068B-36]

11.30: **Covalent enzyme immobilization onto carbon nanotubes using a membrane reactor**, Stefan Ioan Voicu, Aurelia Cristina Nechifor, Ovidiu Gales, Gheorghe Nechifor, Polytechnical Univ. of Bucharest (Romania) [8068B-37]

11.50: **Optical sensor for room temperature hydrogen and hydrocarbon detection using GaN/InGaN nanowires**, Sumit Paul, Andreas Helwig, Gerhard Mueller, EADS Innovation Works (Germany); Pascal Becker, Justus-Liebig-Univ. Giessen (Germany); Florian Furtmayr, Technische Univ. München (Germany); Jörg Teubert, Martin H. Eickhoff, Justus-Liebig-Univ. Giessen (Germany) . . . [8068B-38]

12.10: **Highly sensitive and specific single nanowire-based sensors that detect gases and proteins**, Minhee Yun, Univ. of Pittsburgh (United States) [8068B-39]

Lunch Break 12.30 to 13.40

SESSION 8

Room: 223 Mon. 13.40 to 15.00

2D Type Films

Session Chair: **Rainer Adelung**,
Christian-Albrechts-Univ. zu Kiel (Germany)

13.40: **Reduced microwave attenuation in coplanar waveguides using deep level impurity doped Czochralski-silicon**, Kees de Groot, Univ. of Southampton (United Kingdom) [8068B-40]

14.00: **Polymer-based slot waveguides**, Marianne Hiltunen, Jarkko Tuominen, Jussi Hiltunen, Pentti Karioja, VTT (Finland) [8068B-41]

14.20: **Thickness control of a thin film after drying through thermal and evaporative management in drying process of a polymer solution coated on a flat substrate: application of the dynamical model of the drying process**, Hiroyuki Kagami, Nagoya College (Japan); Hiroshi Kubota, Kumamoto Univ. (Japan) [8068B-42]

14.40: **Ultra-thin semiconductor membrane nanotechnology based on surface charge lithography**, Ion M. Tiginyanu, Academy of Sciences of Moldova (Moldova); Veaceslav Popa, Technical Univ. of Moldova (Moldova); Marion A. Stevens-Kalceff, The Univ. of New South Wales (Australia) [8068B-43]

SESSION 9

Room: 223 Mon. 15.00 to 16.20

Wire/Rod Nanostructures

Session Chair: **Carsten Ronning**,
Friedrich-Schiller-Univ. Jena (Germany)

15.00: **Synthesis of patterned freestanding Nickel nanowires by using ion track-etched polyimide**, Thomas Walewyns, Gilles Scheen, Ester Tooten, Laurent A. Francis, Univ. Catholique de Louvain (Belgium) [8068B-44]

15.20: **ZnO core spike particles and nano-networks and their wide range of applications**, Sebastian Wille, Yogendra Kumar Mishra, Sören Kaps, Xin Jin, Rainer Adelung, Christian-Albrechts-Univ. zu Kiel (Germany) [8068B-45]

15.40: **Controlled Si nanowire arrays by self-assembled templates and catalytic etching for broadband and omnidirectional antireflection**, Hsin-Ping Wang, Kun-Tong Tsai, Kun-Yu Lai, Yi-Ruei Lin, Yuh-Lin Wang, Jr-Hau He, National Taiwan Univ. (Taiwan) [8068B-46]

16.00: **Catalytic free Indium nano-rods synthesis by oblique angle deposition (OAD) technique**, Aniruddha Mondal, P. Chinnamuthu, Rajeev Kumar, Vivek S. Bhadouria, National Institute of Technology Agartala (India) [8068B-47]

Coffee Break 16.00 to 16.15

Posters Mon. 16.15 to 17.30

Poster Session and Reception

Conference attendees are invited to attend the EMT Poster Session and Reception on Monday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Cleaning of templates for nanoparticle collection using PDMS, Stephan Merzsch, Hutomo Suryo Wasisto, Andreas Waag, Ina Kirsch, Erik Uhde, Tunga Salthammer, Erwin Peiner, Technische Univ. Braunschweig (Germany) . [8068B-48]

Electron beam lithography for nanofabrication of metal induced Bragg reflectors, Rossella Capasso, Univ. degli Studi di Napoli Federico II (Italy); Lucia L. Petti, Pasquale Mormile, Consiglio Nazionale delle Ricerche (Italy); Martina De Laurentis, Andrea Irace, Giovanni Breglio, Univ. degli Studi di Napoli Federico II (Italy) [8068B-49]

Optical characteristics of surface plasmon resonance based on Au photonic crystal structures, Seon Hoon Kim, Doo Gun Kim, Hyun Chul Ki, Tae Un Kim, Jung Woon Lim, Hwe Jong Kim, Korea Photonics Technology Institute (Korea, Republic of); Geum-Yoon Oh, Chung-Ang Univ. (Korea, Republic of); Byung-Teak Lee, Chonnam National Univ. (Korea, Republic of) [8068B-50]

Optical spin injection and spin detection in novel InAs quantum dot structures, Jan Beyer, Irina Buyanova, Linköping Univ. (Sweden); Suwaree Suraprapapich, Charles W. Tu, Univ. of California, San Diego (United States); Weimin M. Chen, Linköping Univ. (Sweden) [8068B-51]

Controlled self-formation of nanofibers and nanomembranes induced by femtosecond laser direct writing in photopolymers, Mangirdas Malinauskas, Vilnius Univ. (Lithuania); Alexandr Ovsianikov, Laser Zentrum Hannover e.V. (Germany); Gabija Bickauskaite, Vilnius Univ. (Lithuania); Shizhou Xiao, Boris Chichkov, Laser Zentrum Hannover e.V. (Germany); Roaldas Gadonas, Vilnius Univ. (Lithuania) [8068B-52]

Integrated Photonics: Materials, Devices and Applications

Conference Chair: **Ali Serpengüzel**, Koç Univ. (Turkey)

Conference Co-Chairs: **Giancarlo Cesare Righini**, Istituto di Fisica Applicata Nello Carrara (Italy); **Alfred Leipertz**, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany)

Programme Committee: **Michael J. Adams**, Univ. of Essex (United Kingdom); **Richard M. De La Rue**, Univ. of Glasgow (United Kingdom); **Patrice Féron**, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France); **Maurizio Ferrari**, Istituto di Fotonica e Nanotecnologie (Italy); **Gershon Kurizki**, Weizmann Institute of Science (Israel); **El-Hang Lee**, Inha Univ. (Korea, Republic of); **Eric D. Mazur**, Harvard Univ. (United States); **Ekmel Özbay**, Bilkent Univ. (Turkey); **Lorenzo Pavesi**, Univ. degli Studi di Trento (Italy); **Andrew W. Poon**, Hong Kong Univ. of Science and Technology (Hong Kong, China); **Valerio Pruneri**, ICFO - Instituto de Ciencias Fotónicas (Spain); **Manijeh Razeghi**, Northwestern Univ. (United States); **Ivo Rendina**, Istituto per la Microelettronica e Microsistemi (Italy); **Niyazi Serdar Sariciftci**, Johannes Kepler Univ. Linz (Austria); **Gustav Schweiger**, Ruhr-Univ. Bochum (Germany); **Hakan E. Tureci**, ETH Zurich (Switzerland)

Monday 18 April

Opening Remarks

Room: 2.1 Mon. 10.30 to 10.40

Ali Serpengüzel, Koç Univ. (Turkey); **Giancarlo Righini**, Istituto di Fisica Applicata Nello Carrara (Italy); **Alfred Leipertz**, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany)

SESSION 1

Room: 2.1 Mon. 10.40 to 12.20

VLSI Photonics

Session Chair: **Giancarlo Cesare Righini**, Istituto di Fisica Applicata Nello Carrara (Italy)

10.40: **Plasmonic wires and devices for VLSI photonic integrated circuit application** (*Invited Paper*), El-Hang Lee, Inha Univ. (Korea, Republic of). [8069-01]

11.10: **SU8 photoresist nanowires and nanotubes for full organic integrated photonics chip**, Nolwenn Huby, Bruno Bêche, Daphné Duval, David Pluchon, Institut de Physique de Rennes (France); Jean-Luc Duvail, Institut des Matériaux Jean Rouxel (France). [8069-02]

11.30: **Demonstration of ITU channel interleaver in SOI with large cross-section single-mode waveguides**, Gaurang R. Bhatt, Bijoy K. Das, Indian Institute of Technology Madras (India). [8069-03]

11.50: **Widely tunable, single-mode, high-power quantum cascade lasers** (*Invited Paper*), Manijeh Razeghi, Yanbo Bai, Burc Gokden, Neelanjan Bandyopadhyay, Steven Slivken, Northwestern Univ. (United States). [8069-10]

Lunch Break 12.20 to 14.10

SESSION 2

Room: 2.1 Mon. 14.10 to 16.00

Discrete Photonic Devices

Session Chair: **El-Hang Lee**, Inha Univ. (Korea, Republic of)

14.10: **Polarized optical injection in long-wavelength vertical-cavity surface emitting lasers** (*Invited Paper*), Antonio Hurtado, Kevin Schires, Nadir Khan, Rihab Al-Seyab, Ian D. Henning, Michael J. Adams, Univ. of Essex (United Kingdom). [8069-05]

14.40: **Development of a high-speed wideband wavelength tunable photonic light source for real time wind turbine array sensing applications**, Philip Mitchell, Adrian P. Janssen, Bahar Partov Poor, Oclaro, Inc. (United Kingdom). [8069-06]

15.00: **UV diamond power switches**, Paolo Calvani, Marco Girolami, Giuseppe Ricciotti, Gennaro Conte, Univ. degli Studi di Roma Tre (Italy). [8069-07]

15.20: **Effect of solar radiation on photovoltaic characteristics of Si-P3HT core-shell nanowire solar cells**, Shin-Hung Tsai, Hung-Chih Chang, Chin-An Lin, Hsin-Hua Wang, Jr-Hau He, National Taiwan Univ. (Taiwan). [8069-08]

15.40: **Thermal behavior of waveguide gratings**, Muhammad Rizwan Saleem, Univ. of Eastern Finland (Finland); Muhammad Bilal Khan, Zaffar M. Khan, National Univ. of Sciences and Technology (Pakistan); Petri A. Stenberg, Univ. of Eastern Finland (Finland); Tapani Alasaarela, Seppo K. Honkanen, Aalto Univ. School of Science and Technology (Finland); Benfeng Bai, Tsinghua Univ. (China); Jari Turunen, Pasi Vahimaa, Univ. of Eastern Finland (Finland). [8069-09]

Coffee Break 16.00 to 16.15

Posters Mon. 16.15 to 17.30

Poster Session and Reception

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Study of time-varying velocity measurement using self-mixing laser diode by polynomial phase parameter estimation method, Zhaoyun Zhang, Yang Gao, Chinese Academy of Engineering Physics (China). [8069-40]

Optical characteristics of triangular microresonator with long evanescent field on the total internal reflection mirror, Doo-Gun Kim, Seon Hoon Kim, Hyun Chul Ki, Won-Gun Jang, Dong-Kil Lee, Hyo Jin Kim, Tae Un Kim, Hwe-Jong Kim, Korea Photonics Technology Institute (Korea, Republic of); Geum-Yoon Oh, Young-Wan Choi, Chung-Ang Univ. (Korea, Republic of). [8069-42]

Measurement of various noises affecting the optical setup placed on the bread board, Mohammad Zabetian, Mohammad Behshad Shafii, Mohammad Hassan Saidi, Mohammad Said Saidi, Sharif Univ. of Technology (Iran, Islamic Republic of). [8069-43]

Design and fabrication of a Fourier transform spectrometer by means of thermally-actuated tunable grating and its potential for fabrication of a micro-spectrometer in waveguide structure, Mohammadreza Riahi, Shahid Beheshti Univ. (Iran, Islamic Republic of). [8069-44]

Tuning of microsphere optical resonances by liquid crystal, Hasan Yilmaz, Koç Univ. (Turkey); Mehmet S. Tamer, Oguzhan Gürlü, Istanbul Teknik Univ. (Turkey); Ali Serpengüzel, Koç Univ. (Turkey). [8069-45]

High refractive index microlens fabrication using laser direct writing in titanium film, Yongsheng Wang, The National Ctr. for Nanoscience and Technology of China (China). [8069-46]

Tuesday 19 April

SESSION 3

Room: 2.1 Tues. 10.20 to 11.50

Quantum Photonic Devices and Materials

Session Chair: **Antonio Hurtado**, Univ. of Essex (United Kingdom)

10.20: **Fabrication and evaluation of photorefractive waveguide in LiNbO₃:Fe**, Norbert Tarjány, Daniel Kacik, Univ. of Zilina (Slovakia). [8069-41]

10.40: **Dependence of the plasmon sensitivity on nanoparticle shape and material composition**, Ludmila Raguin, Christian Hafner, Pascal Leuchtmann, ETH Zurich (Switzerland). [8069-11]

11.00: **Dynamic response of CVD monocrystalline diamond to low-energy x-ray beam**, Gennaro Conte, Paolo Allegrini, Stefano Spadaro, Univ. degli Studi di Roma Tre (Italy); Daniele Maria Trucchi, Istituto dei Sistemi Complessi (Italy). [8069-12]

11.20: **Quantum state transfer among crystallographic groups of N-V centers in diamond** (*Invited Paper*), Ozgur E. Mustecaplioglu, Koç Univ. (Turkey). [8069-13]

Lunch/Exhibition Break 11.50 to 13.30

SESSION 4

Room: 2.1 Tues. 13.30 to 15.10

Photonic Atom and Crystals

Session Chair: **Ozgun E. Mustecaplioglu**, Koç Univ. (Turkey)

13.30: **Silicon-based monolithic whispering-gallery mode resonators with integrated bus-coupled waveguides** (*Invited Paper*), Mher Ghulinyan, Fondazione Bruno Kessler (Italy); Romain Guider, Univ. degli Studi di Trento (Italy); Georg Pucker, Fondazione Bruno Kessler (Italy); Lorenzo Pavesi, Univ. degli Studi di Trento (Italy). [8069-14]

14.00: **Super-directive beam from metamaterials using Fourier optics**, Vito Mocella, Giuseppe Coppola, Principia Dardano, Ivo Rendina, Giuseppe Di Caprio, Istituto per la Microelettronica e Microsistemi (Italy); Stefano Cabrini, Lawrence Berkeley National Lab. (United States) [8069-15]

14.20: **Diffractively structured bandgap materials based on resonance domain surface relief structures**, Michael A. Golub, Tel Aviv Univ. (Israel). [8069-16]

14.40: **Hybrid colloidal crystals for photonic application** (*Invited Paper*), Andrea Chiappini, Consiglio Nazionale Delle Ricerche (Italy); Cristina Armellini, Alessandro Carpentiero, Maurizio Ferrari, Univ. degli Studi di Trento (Italy); Giancarlo C. Righini, Istituto di Fisica Applicata Nello Carrara (Italy). [8069-17]

Coffee Break 15.10 to 15.40

SESSION 5

Room: 2.1 Tues. 15.40 to 17.10

Photonic Atom and Waveguides

Session Chair: **Mher Ghulinyan**, Fondazione Bruno Kessler (Italy)

15.40: **Coupled active microresonator slow-light structures: characterization and applications** (*Invited Paper*), Yannick Dumeige, Stéphane Trebaol, Patrice Féron, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France) [8069-18]

16.10: **Development and optical characterization of vertical tapers in SION waveguides using gray-scale lithography**, Bing Han, Fondazione Bruno Kessler (Italy); Romain Guider, Eveline Rigo, Silvia Larcheri, Univ. degli Studi di Trento (Italy); Gualtiero Nunzi Conti, Istituto di Fisica Applicata Nello Carrara (Italy); Manga Rao Vanacharla, Alessandro Chiasera, Univ. degli Studi di Trento (Italy); Maurizio Ferrari, Istituto di Fotonica e Nanotecnologie (Italy); Lorenzo Pavesi, Univ. degli Studi di Trento (Italy); Georg Pucker, Fondazione Bruno Kessler (Italy); Giancarlo C. Righini, Istituto di Fisica Applicata Nello Carrara (Italy); Mher Ghulinyan, Fondazione Bruno Kessler (Italy). [8069-19]

16.30: **Electro-optical modulation with a silica microsphere in a liquid crystal**, Huzeyfe Yilmaz, Ali Serpengüzel, Koç Univ. (Turkey) [8069-20]

16.50: **Design and simulation of Y-branch power splitter using S-bend on SOI platform and study the variation of transmitted power with branch angle**, P. Nagaraju, Kad Banu, G. Srinivas Reddy, Chunduru P. Vardhani, Osmania Univ. (India); G. Ramadevudu, Vasavi College of Engineering (India); C. P. Rao, Ctr. for Engineering and Technology (India) [8069-21]

Wednesday 20 April

SESSION 6

Room: 2.1 Wed. 10.10 to 12.10

Materials

Session Chair: **Patrice Féron**, Ecole Nationale Supérieure des Sciences Appliquées et de Technologie (France)

10.10: **Down-converter layers based on rare earth doped fluoride glass and silica-hafnia glass ceramic to improve Si-based solar cell efficiency**, Guillaume Alombert-Goget, Alessandro Chiasera, Maurizio Ferrari, Stefano Varas, Istituto di Fotonica e Nanotecnologie (Italy); Giancarlo C. Righini, Istituto di Fisica Applicata Nello Carrara (Italy); Belto Dieudonné, Brigitte Boulard, Univ. du Maine (France) [8069-23]

10.30: **SiGe alloy in Si photonics**, Shuji Kita, The Univ. of Tokyo (Japan) [8069-24]

10.50: **Characterisation of thin LPCVD silicon-rich oxide films**, Davor Ristic, Istituto di Fotonica e Nanotecnologie (Italy); Mile Ivanda, Marijan Marcus, Institut Ruder Boskovic (Croatia); Vaclav Holy, Charles Univ. in Prague (Czech Republic); Zdravko Siketic, Ivancica Bogdanovic-Rakovic, Milko Jaksic, Institut Ruder Boskovic (Croatia); Ozren Gamulin, Univ. of Zagreb (Croatia); Kresimir Furic, Mira Ristic, Svetozar Music, Maja Buljan, Institut Ruder Boskovic (Croatia); Maurizio Ferrari, Alessandro Chiasera, Maurizio Mazzola, Istituto di Fotonica e Nanotecnologie (Italy); Giancarlo C. Righini, Istituto di Fisica Applicata Nello Carrara (Italy) [8069-25]

11.10: **Alternating current excitation of silicon-nanocluster-sensitized erbium**, Oleksiy Anopchenko, Alessandro Marconi, Nikola Prtjaga, Nicola Daldosso, Univ. degli Studi di Trento (Italy); Olivier Jambois, Joan Manel Ramirez, Daniel Navarro-Urrios, Blas Garrido, Univ. de Barcelona (Spain); Jean-Philippe Colonna, Frédéric Milesi, Jean-Marc Fedeli, Commissariat à l'Énergie Atomique (France); Lorenzo Pavesi, Univ. degli Studi di Trento (Italy) [8069-26]

11.30: **Impact of the layer composition on the Er³⁺ PL dynamics in silicon-rich silicon oxide**, Sébastien Cuffe, Christophe Labbé, Jean-Louis Doualan, Richard Rizk, ENSICAEN (France) [8069-27]

11.50: **PECVD deposition and characterization of silicon oxynitride for optical applications**, Ali Badar M. Alamin Dow, Keith Leong, Adel B. Gougam, Hossein Alizadeh, Nazir P. Kherani, Univ. of Toronto (Canada) [8069-28]

Lunch/Exhibition Break 12.10 to 13.20

SESSION 7

Room: 2.1 Wed. 13.20 to 15.20

Fabrication

Session Chair: **Ozgun E. Mustecaplioglu**, Koç Univ. (Turkey)

13.20: **Femtosecond laser polymerization of hybrid and integrated microoptical elements and their characterization**, Mangirdas Malinauskas, Albertas Zukauskas, Roaldas Gadonas, Vilnius Univ. (Lithuania) [8069-29]

13.40: **UV-imprinting of single-mode polymeric waveguides**, Jussi Hiltunen, VTT Technical Research Ctr. of Finland (Finland); Meng Wang, Jarkko Puustinen, Jyrki Lappalainen, Univ. of Oulu (Finland); Stuart J. Pearce, Martin D. Charlton, Univ. of Southampton (United Kingdom); Pentti Karioja, VTT Technical Research Ctr. of Finland (Finland) [8069-30]

14.00: **Assembly of a photonic wavelength-division multiplexing device using laser-based soldering**, Thomas Burkhardt, Marcel Hornaff, Andreas Kamm, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Matthias Rütz, Torsten Possner, Grintech GmbH (Germany); Erik Beckert, Ramona Eberhardt, Andreas Tünnermann, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany) [8069-31]

14.20: **TBA**

14.40: **Process optimization to design Ti-indiffused Lithium Niobate channel waveguides for Mach-Zehnder interferometer switch**, Ghanshyam Singh, Shubham Gupta, Sudhir Bothra, Vijay Janyani, R. P. Yadav, Malaviya National Institute of Technology (India) [8069-33]

15.00: **The effect of laser fluence in gold-silicon nanoparticles aggregate produced by femtosecond laser radiation under ambient conditions**, Abdul Salam N. Mahmood, Ryerson Univ. (Canada) [8069-34]

Coffee Break 15.20 to 15.50

SESSION 8

Room: 2.1 Wed. 15.50 to 17.40

Applications

Session Chair: **Alfred Leipertz**, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany)

15.50: **Gas-phase diagnostic by time-resolved rotational coherent anti-Stokes Raman spectroscopy** (*Invited Paper*), Thomas Seeger, Univ. Siegen (Germany); Alfred Leipertz, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) [8069-35]

16.20: **A speckle-based CMOS sensor array for arbitrary surface movement detection**, Chao Wang, Steve Tanner, Pierre-André Farine, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [8069-36]

16.40: **Polarization gratings allow for real-time and artifact-free circular dichroism measurements**, Pasquale Pagliusi, Clementina Provenzano, Alfredo Mazzulla, Gabriella Cipparrone, Univ. della Calabria (Italy) [8069-37]

17.00: **Elastic light scattering from a glass microsphere on a glass optical fiber and coated by nematic liquid crystal**, Ulas S. Gokay, Huzeyfe Yilmaz, Ali Serpengüzel, Koç Univ. (Turkey) [8069-38]

17.20: **Application of an optical element to increase the power density of laser beam**, Mohammad Zabetian, Mohammad Hassan Saidi, Mohammad Said Saidi, Mohammad Behshad Shafiq, Sharif Univ. of Technology (Iran, Islamic Republic of) [8069-39]

A

Ababneh, Abdallah 8066 ProgComm, [8066-14]SPS, [8066-52]SPS, [8066-54]SPS
 Adams, Michael J. 8069 ProgComm, [8069-05]S2
 Adelson, Rainer 8068 Chr, 8068B S7 SessChr, 8068B S8 SessChr, 8068B Chr, [8068B-45]S9
 Aguilar, Joan [8067-07]S2
 Alamin Dow, Ali Badar M. [8066-38]S7, [8069-28]S6
 Alasaarela, Tapani [8069-09]S2
 Alba Soto, Luis [8068A-09]S2, [8068A-21]S4
 Alexis, Joël [8066-08]S2
 Alizadeh, Hossein [8069-28]S6
 Allegrini, Paolo [8069-12]S3
 Allerdisen, Merle [8066-16]S3, [8066-89]SPS
 Alombert-Goget, Guillaume [8069-23]S6
 Al-Sarawi, Said F. 8067 ProgComm
 Al-Seyab, Rihab [8069-05]S2
 Álvarez Santos, José Ramón [8067-11]S2
 Andersson, Mike [8066-17]S4
 Anopchenko, Oleksiy [8069-26]S6
 Antlinger, Hannes [8066-73]SPS, [8066-90]SPS
 Arapoyanni, Aggeliki [8066-53]SPS
 Araújo, António [8067-23]S4
 Arena, Paolo 8068A S2 SessChr, 8068A ProgComm, [8068A-09]S2, [8068A-10]S2, [8068A-18]S4
 Armellini, Cristina [8069-17]S4
 Arzt, Eduard 8066 ProgComm
 Avedillo, Maria J. [8067-28]SPS
 Ayala Alfonso, Alejandro J. [8067-11]S2

B

Bacchillone, Tony [8068A-26]S5
 Bagratashvili, Victor N. [8069-32]S7
 Bai, Benfeng [8069-09]S2
Bai, Yanbo [8069-10]S3
 Bakardjiev, Petko [8066-81]SPS
 Balciunas, Evaldas [8068A-15]S3
 Baltrikiene, Daiva [8068A-15]S3
 Bandyopadhyay, Neelanjana [8069-10]S3
 Banu, Kad [8069-21]S5
 Barcelo, Salvador [8067-34]S6
 Barlow, Fred 8066 ProgComm
 Bársony, István [8066-64]SPS
 Bartali, Ruben [8066-48]SPS
 Battistig, Gábor [8066-64]SPS
 Bausells, Joan 8066 ProgComm
 Bêche, Bruno [8069-02]S1
 Becker, Pascal [8068B-38]S7
 Becker, Thomas SympChair
 Beckert, Erik [8069-31]S7
 Behrmann, Thomas [8066-45]S8
 Beigelbeck, Roman [8066-10]S2, [8066-55]SPS, [8066-73]SPS, [8066-90]SPS
 Bellutti, Florian [8068A-04]S1
 Bensaada, Nadira [8066-48]SPS
 Bercelli, Tibor [8066-64]SPS
 Berg, Steffen [8068A-01]S1, [8068B-35]S7
 Bernhardt, George P. [8066-05]S1
 Berthillier, Marc [8066-59]SPS
 Beutel, Tobias T. [8066-67]SPS
 Beyer, Jan [8068B-51]SPS
 Bhadouria, Vivek S. [8068B-47]S9
 Bhatt, Gaurang R. [8069-03]S1
 Bickaускаite, Gabija [8068B-52]SPS
 Bittner, Achim 8066 S2 SessChr, [8066-38]S7, [8066-55]SPS, [8066-56]SPS, [8066-69]SPS
 Blanc, Sara [8067-07]S2
 Blard, Francois [8066-96]SPS
 Blažević, David [8066-41]S8
 Bleuler, Hannes [8066-26]S5
 Bogdanovic-Rakovic, Ivancica [8069-25]S6
 Bohnenberger, Timo [8066-11]S2
 Bohm, Ulrich [8068A-32]S6
 Bolzmacher, Christian H. 8066 ProgComm, [8066-66]SPS
 Bonnin, Michele [8068A-22]S4
 Bosse, Stefan [8066-45]S8, [8067-15]S3
 Bota, Sebastián A. 8067 S6 SessChr, 8067 ProgComm, [8067-34]S6
 Bothra, Sudhir [8069-33]S7
 Boulard, Brigitte [8069-23]S6
 Bounouh, Alexandre [8066-96]SPS
Bourrier, David [8066-96]SPS
 Bowler, David [8068B-36]S7
 Brand, Uwe [8066-82]SPS
 Brandt, Christian [8068A-27]S5

Breglio, Giovanni [8068B-49]SPS
 Broenstrup, Gerald [8068A-01]S1, [8068B-35]S7
 Brückl, Hubert [8068A-04]S1
 Brusa, Eugenio G. M. [8066-31]S6
 Bukelskiene, Virginija [8068A-15]S3
 Buljan, Maja [8069-25]S6
 Bur, Christian [8066-17]S4
 Burger, Jürgen [8066-70]SPS
 Burggraf, Jürgen [8066-77]SPS
 Burkhardt, Thomas [8069-31]S7
 Büttgenbach, Stephanus [8066-09]S2, [8066-12]S3, [8066-67]SPS, [8066-75]SPS
 Buyanova, Irina [8068B-51]SPS

C

Caballero, Daniel J. [8068A-11]S2
 Cabañero, Germán [8066-84]SPS
 Cabodevila, Gonzalo [8068A-12]S3
Cabrini, Stefano [8069-15]S4
 Cahill, Brian P. [8066-76]S3
 Calaza, Carlos A. [8066-83]SPS
 Callico, Gustavo M. 8067 ProgComm, 8067 S4 SessChr, [8067-18]S4, [8067-19]S4, [8067-21]S4
 Calvani, Paolo [8069-07]S2
 Camon, Henri [8066-96]SPS
 Canas Ferreira, João 8067 ProgComm
 Cané, Carlos 8066 ProgComm, [8066-83]SPS
 Capasso, Rossella [8068B-49]SPS
 Cardona Cardona, Andrés [8067-04]S1
 Carminati, Marco [8068A-30]S6
 Carmona-Galan, Ricardo [8068A-08]S2, 8068 CoChr, 8068A S3 SessChr, 8068A CoChr, [8068A-06]S2
 Carpentier, Alessandro [8069-17]S4
 Castellanos-Ramos, Julian [8068A-13]S1, [8066-97]SPS
 Castro, Juan Jose [8067-31]S6
 Cauwenberghs, Gert 8068A ProgComm
 Cerimovic, Samir [8066-10]S2, [8066-73]SPS, [8066-90]SPS
 Cervero García, Teresa G. [8067-19]S4
 Chang, Hung-Chih [8069-08]S2
 Chang, Sheng-Li [8068A-17]S3
 Changeon, Gwënaël [8066-66]SPS
 Charlot, Samuel [8066-96]SPS
 Charlton, Martin D. [8069-30]S7
 Charwat, Verena [8068A-04]S1
 Chekalin, Sergey V. [8069-32]S7
 Chen, Weimin M. [8068B-51]SPS
 Chen, Zhang [8066-47]SPS
 Chiappini, Andrea [8069-17]S4
 Chiasera, Alessandro [8069-19]S5, [8069-23]S6, [8069-25]S6
 Chichkov, Boris [8068B-52]SPS
 Chinnamuthu, P. [8068B-47]S9
 Chiu, Kuo-Chi [8068A-17]S3
 Cho, Yo Han [8066-91]SPS
 Choi, Pyung [8066-91]SPS
 Choi, Young-Wan [8069-42]SPS
 Christiansen, Silke [8068A-01]S1, [8068B-35]S7
 Chutko, Ekaterina A. [8069-32]S7
 Cimalla, Volker [8066-50]SPS
 Cipparrone, Gabriella [8069-37]S8
 Clara, Stefan [8066-80]SPS
 Clavel, Reymond [8066-26]S5
 Cola, Adriano [8066-30]S6
 Colomer-Farrarons, Jordi [8067-24]S5, [8067-25]S5, [8068A-31]S6
 Colonna, Jean-Philippe [8069-26]S6
 Colpo, Sabrina [8066-48]SPS, [8066-95]SPS
 Conte, Gennaro [8069-07]S2, [8069-12]S3
 Conti, Massimo 8067 ProgComm, 8067 S2 SessChr, [8067-06]S2, [8067-08]S2, [8067-14]S3
 Coppola, Giuseppe [8069-15]S4
 Corinto, Fernando [8068A-22]S4
 Corsonello, Pasquale [8067-26]S5, [8067-33]S6
 Cosentino, Marco [8068A-18]S4
 Creti, Pasquale [8066-93]SPS
 Csaki, Andrea [8068A-01]S1, [8068B-35]S7
Cueff, Sébastien [8069-27]S6

D

da Silva Sarinho Filho, Jose Nivaldo [8068A-28]S5
 Daldosso, Nicola [8069-26]S6
 Dalverny, Olivier [8066-08]S2

Danilevicius, Paulius [8068A-15]S3
 Dardano, Principia [8069-15]S4
 Das, Bijoy K. [8069-03]S1
 De Angelis, Giorgio [8066-30]S6
 De Armas Sosa, Valentin [8067-16]S3, [8067-17]S3
 de Castro, Angel 8067 ProgComm
 De Fiore, Sebastiano [8068A-09]S2, [8068A-10]S2
 de Groot, Kees [8068B-40]S8
De La Rue, Richard M. 8069 ProgComm
 de la Torre, Eduardo [8067-05]S1, [8067-19]S4, [8067-32]S6, 8067 S1 SessChr, 8067 CoChr, [8067-13]S3
 De Laurentis, Martina [8068B-49]SPS
 De Pascali, Chiara [8066-93]SPS
 De Stefano, Luca [8068A-14]S3
 De Tommasi, Edoardo [8068A-14]S3
 Decotignie, Jean-Dominique MeetingVIP
 del Castillo, Rubén [8067-20]S4
 del Moral Zamora, Beatriz [8068A-31]S6
 Delgado-Restituto, Manuel [8067-10]S2, [8068A-25]S5
 Demming, Stefanie [8066-12]S3
 Desmarres, Jean-Michel [8066-08]S2
 Di Caprio, Giuseppe [8069-15]S4
 Dieterlen, Alain [8068A-27]S5
 Dieudonné, Belto [8069-23]S6
 Djinnov, Zoran V. [8066-28]S5
 Donati, Massimiliano [8068A-26]S5
 Döring, Lutz [8066-02]S1
 Dörr, Nicole [8066-88]SPS
 Doualan, Jean-Louis [8069-27]S6
Dragoi, Viorel 8066 ProgComm, [8066-77]SPS
 Dumeige, Yannick [8069-18]S5
 Dupret, Antoine 8068A ProgComm
 Dupuis, Pascal [8066-18]S4
 Duvail, Jean-Luc [8069-02]S1
 Duval, Daphné [8069-02]S1

E

Eberhardt, Andre [8066-25]S5
 Eberhardt, Ramona [8069-31]S7
 Eggeling, Moritz [8068A-04]S1
 Egrezberger, Markus [8066-35]S7
 Eickhoff, Martin H. [8068B-38]S7
 Eisencraft, Marcio [8068A-28]S5
 El Fissi, Lamia [8066-18]S4
 Elmazria, Omar [8066-01]S1
 Engl, Wolfgang [8066-65]SPS
 Ernst, Andreas [8066-74]SPS
 Ertl, Peter [8068A-04]S1

F

Faes, Alessandro [8066-34]S7, [8066-40]S8
 Faglia, Guido 8066 ProgComm
 Fantner, Georg E. 8066 ProgComm
 Fanucci, Luca [8068A-26]S5
 Farella, Isabella [8066-93]SPS
 Farine, Pierre-André [8069-36]S8
 Farmakis, Filippos V. [8066-21]S4
 Fecht, Hans-Jörg [8066-03]S1
 Fedeli, Jean-Marc [8069-26]S6
 Fedirko, Valeriy A. [8066-39]S7
 Feiertag, Gregor [8066-81]SPS
 Feldmann, Ute [8067-27]S5
 Fernández, Francisco V. 8067 ProgComm
 Fernández, Iván [8066-84]SPS
 Fernandez-Berni, Jorge [8068A-08]S2, [8068A-06]S2
 Fernández-Rosas, Elisabet [8066-12]S3
 Féron, Patrice 8069 ProgComm, 8069 S6 SessChr, [8069-18]S5
 Ferrari, Giorgio [8068A-30]S6
 Ferrari, Maurizio 8069 ProgComm, [8069-17]S4, [8069-19]S5, [8069-23]S6, [8069-25]S6
 Ferreira, Nelson J. [8066-67]SPS
 Ferrer, Carles [8067-04]S1, [8067-12]S3, 8066 ProgComm
 Fetisov, E. A. [8066-39]S7
 Fiala, Pavel J. 8066 ProgComm, 8066 S5 SessChr, [8066-46]SPS
 Fleischer, Maximilian 8066 ProgComm
 Focke, Maximilian [8066-15]S3
 Fonoff, Erich T. [8068A-28]S5
 Fonseca, Luis [8066-83]SPS
 Fourcade, Thibaut [8066-08]S2
Fraga, Mariana A. [8066-92]SPS
 Francioso, Luca [8066-93]SPS

Francis, Laurent A. [8066-18]S4, [8068B-44]S9
 Franek, Friedrich 8066 ProgComm
 Frank, Albert [8066-23]S5
 Frank, Thomas [8066-86]SPS
 Frankel, David J. [8066-05]S1
 Frey, Alexander [8066-43]S8, [8066-61]SPS
 Fricke, Sören 8066 ProgComm
 Friedberger, Alois 8066 ProgComm, 8066 S4
 SessChr, [8066-03]S1
 Friedman, Eby G. 8067 ProgComm
 Fritz, Claudia [8066-53]SPS
 Fritze, Holger [8066-04]S1
 Fritzsche, Wolfgang [8068A-01]S1, [8068B-35]S7
 Frustaci, Fabio [8067-26]S5
 Furic, Kresimir [8069-25]S6
 Fürjes, Péter [8066-64]SPS
 Furlan, Humber [8066-92]SPS
 Furtmayr, Florian [8068B-38]S7

G

Gadonas, Roaldas [8068A-15]S3, [8068B-52]SPS,
 [8069-29]S7
 Gales, Ovidiu [8068B-37]S7
 Gamulin, Ozren [8069-25]S6
 Gao, Sai [8066-82]SPS
 Gao, Yang [8066-47]SPS
 Gao, Yang [8069-40]SPS
 Garcia, Javier A. [8067-29]S5
 Garcia-Dominguez, Pablo [8068A-19]S4
 Garrido, Blas [8069-26]S6
 Gebeshuber, Ille C. [8066-60]SPS
 Genov, Roman 8068A ProgComm
 Gerasimova, Vasilisa [8069-32]S7
 Gerlach, Gerald [8066-86]SPS
 Ghulinyan, Mher 8069 S5 SessChr, [8069-14]S4,
 [8069-19]S5
 Giacomozzi, Flavio [8066-40]S8, [8066-95]SPS
 Giannitsis, Athanasios T. [8068A-29]S6
 Gil Barba, Marta [8066-54]SPS
 Gilli, Xavier [8067-34]S6
 Gilli, Marco [8068A-22]S4
 Gimzewski, James K. [8066-52]SPS
 Girolami, Marco [8069-07]S2
Gokay, Ulas S. [8069-38]S8
Gokden, Burc [8069-10]S3
 Golub, Michael A. [8069-16]S4
 Gomez-Vilda, Pedro [8068A-19]S4
 Gonzalez, Benito [8067-29]S5
 Gonzalez, Gabriel [8067-31]S6
 González Hernández, Oswaldo B. [8067-11]S2
 Gougam, Adel B. [8069-28]S6
 Grande, Hans [8066-84]SPS
 Grass, Eckhard 8067 ProgComm
 Greiner, Rinaldo [8066-16]S3, [8066-89]SPS
 Grenier, Katia M. 8066 ProgComm
 Griener, Walter [8068A-02]S1
 Gross, André [8066-70]SPS
Guan, Hann-Wen [8068A-17]S3
 Guider, Romain [8069-14]S4, [8069-19]S5
 Guo, Yi [8067-04]S1, [8067-12]S3
 Gupta, Shubham [8069-33]S7
 Gürlü, Oguzhan [8069-45]SPS

H

Haas, Thomas [8066-69]SPS
 Haas, Willy [8066-89]SPS
 Hadas, Zdenek [8066-63]S7
 Haenen, Ken [8066-14]SPS
 Hafez, Moustapha 8066 ProgComm, [8066-66]SPS
 Hafner, Christian [8068B-36]S7, [8069-11]S3
 Hahn, Susann [8066-82]SPS
 Haiden, Christoph [8066-13]S3
 Hampl, Stefan [8066-50]SPS
 Han, Aruem [8068A-34]S6
 Han, Bing [8069-19]S5
 He, Danping [8067-13]S3
He, Jr-Hau [8068B-46]S9, [8069-08]S2
 He, Wei [8067-32]S6
 Heinisch, Martin [8066-85]SPS
 Helwig, Andreas [8068B-38]S7
 Henning, Ian D. [8069-05]S2
 Hernández, Antonio [8067-29]S5
 Hernandez-Garcia, Jorge [8066-54]SPS, [8066-14]SPS,
 [8066-52]SPS
 Herrán, Jaime [8066-84]SPS
 Herrmann, Konrad [8066-82]SPS

Herzog, Thomas [8066-06]S2
 Heuer, Henning [8066-06]S2
 Hilber, Wolfgang [8066-80]SPS
 Hiller, Karla [8066-82]SPS
 Hiltunen, Jussi [8068B-41]S8, [8069-30]S7
 Hiltunen, Marianne [8068B-41]S8
 Hoffmann, Martin [8066-49]SPS, [8066-50]SPS,
 [8066-51]SPS, [8066-68]SPS
 Hol?, Vaclav [8069-25]S6
 Homs-Corbera, Antonio [8068A-31]S6
 Honkanen, Seppo K. [8069-09]S2
 Hoogerwerf, Arno C. 8066 ProgComm
 Hornaff, Marcel [8069-31]S7
 Hortschitz, Wilfried F. [8066-24]S5, [8066-79]SPS
 Huang, Chu-Yu [8068A-17]S3
 Huby, Nolwenn [8069-02]S1
 Huber, Nicolas [8068A-27]S5
 Hurtado, Antonio 8069 S3 SessChr, [8069-05]S2

I

Iannacci, Jacopo 8066 ProgComm, 8066 S5 SessChr,
 [8066-32]S6, [8066-33]S6, [8066-40]S8, [8066-48]
 SPS
 Ibarlucea, Bergoi [8066-12]S3
 Iborra, Enrique 8066 ProgComm, [8066-14]SPS
 Indiveri, Giacomo 8068A ProgComm
 Itrace, Andrea [8068B-49]SPS
Irmer, Bernd [8066-65]SPS
 Iskra, Peter [8066-81]SPS
 Ituero, Pablo [8067-22]S4
 Ivanda, Mile [8069-25]S6

J

Jachimowicz, Artur [8066-24]S5, [8066-79]SPS
 Jahr, Norbert [8068A-01]S1, [8068B-35]S7
 Jakoby, Bernhard 8066 ProgComm, 8066 S6
 SessChr, [8066-19]S4, [8066-73]SPS, [8066-80]
 SPS, [8066-85]SPS, [8066-90]SPS
 Jaksic, Milko [8069-25]S6
 Jambois, Olivier [8069-26]S6
 Jang, Won-Gun [8069-42]SPS
 Janssen, Adrian P. [8069-06]S2
Janyani, Vijay [8069-33]S7
 Jedrasik, Piotr T. [8066-21]S4
 Jin, Xin [8068B-45]S9
 Joh, Cheeyoung [8066-91]SPS
 Jordan, Alexa [8066-09]S2
 Juanola-Feliu, Esteve [8067-24]S5
 Juarez, Eduardo 8067 S5 SessChr, [8067-20]S4,
 [8067-31]S6
 Julian, Pedro 8068A ProgComm

K

Kacik, Daniel [8069-41]SPS
 Kagami, Hiroyuki [8068B-42]S8
 Kähler, Julian [8066-02]S1, [8066-94]SPS
 Kamm, Andreas [8069-31]S7
 Kansal, Sumit [8067-33]S6
 Kaps, Sören [8068B-45]S9
 Kapser, Konrad 8066 ProgComm
 Karioja, Pentti [8068B-41]S8, [8069-30]S7
 Károlyi, Gergely [8066-64]SPS
 Kazmierski, Tom 8066 ProgComm
 Kelaidis, Nikolaos [8066-21]S4
 Keller, Alexandra [8068A-04]S1
 Kenda, Andreas [8066-23]S5
 Keplinger, Franz [8066-10]S2, [8066-24]S5, [8066-73]
 SPS, [8066-90]SPS
 Khan, Muhammad Bilal [8069-09]S2
 Khan, Nadir [8069-05]S2
 Khan, Zaffar M. [8069-09]S2
 Kherani, Nazir P. [8066-38]S7, [8069-28]S6
 Ki, Hyun Chul [8068B-50]SPS, [8069-42]SPS
 Kim, Chi Yeon [8066-91]SPS
 Kim, Doo Gun [8068B-50]SPS, [8069-42]SPS
 Kim, Hwe Jong [8068B-50]SPS, [8069-42]SPS
 Kim, Hyo Jin [8069-42]SPS
 Kim, Seon Hoon [8068B-50]SPS, [8069-42]SPS
 Kim, Tae Un [8068B-50]SPS, [8069-42]SPS
 Kirsch, Ina [8066-78]SPS, [8068B-48]SPS
 Kita, Shuji [8069-24]S6
 Klatt, Stephan [8066-89]SPS
 Knechtel, Roy 8066 ProgComm

Kohl, Franz [8066-10]S2, [8066-24]S5, [8066-79]SPS
 Koltay, Peter [8066-74]SPS
 Komarovskii, Ivan A. [8067-35]SPS
 Kompanets, Victor O. [8069-32]S7
 Kompitsas, Michalis G. [8066-21]S4
 Koo, David [8066-38]S7
 Korobeynikov, Igor V. [8067-35]SPS
 Krahs, Thomas [8066-75]SPS
 Král, Miroslav [8066-26]S5
 Kraniauskas, Antanas [8068A-15]S3
 Krause, Oliver [8066-65]SPS
 Krötz, Gerhard SympChair
 Krstic, Milos 8067 ProgComm
 Krutzler, Christian [8066-19]S4
 Kubota, Hiroshi [8068B-42]S8
 Kuehne, Ingo [8066-43]S8, [8066-61]SPS
 Kugi, Andreas 8066 ProgComm, [8066-35]S7
 Kumar, Rajeev [8068B-47]S9
 Kurfurst, Jiri [8066-63]S7
 Kurizki, Gershon 8069 ProgComm

L

Labbé, Christophe [8069-27]S6
 Lad, Robert J. 8066 ProgComm, 8066 S4 SessChr,
 [8066-05]S1
 Lafontan, Xavier [8066-08]S2
 Lagutin, Alexandr [8066-22]S4
 Lai, Kun-Yu [8068B-46]S9
 Lan, Yung-Sung [8068A-17]S3
 Land, Raul [8068A-29]S6
 Lang, Klaus-Dieter [8066-07]S2
 Langendörfer, Peter 8067 CoChr
 Lanuzza, Marco [8067-33]S6
 Lanza, Valentina [8068A-22]S4
 Lappalainen, Jyrki [8069-30]S7
 Larcher, Silvia [8069-19]S5
 Lardies, Joseph [8066-59]SPS
 László, Endre [8066-64]SPS
 Lechuga, Laura M. 8068A ProgComm
 Lederer, Thomas [8066-80]SPS
 Lee, Byung-Teak [8068B-50]SPS
 Lee, Dong-Kil [8069-42]SPS
Lee, El-Hang 8069 ProgComm, 8069 S2 SessChr,
 [8069-01]S1
 Lee, Hye-Jin [8068A-34]S6
 Lee, Hyun Sup [8066-91]SPS
 Lee, Jeong-Bong 8066 ProgComm, 8066 S3 SessChr
 Leester-Schädel, Monika [8066-67]SPS, 8066 CoChr,
 8066 S6 SessChr
 Legner, Wolfgang [8066-03]S1
 Leipertz, Alfred 8069 CoChr, 8069 S8 SessChr, [8069-
 35]S8
 Leiterer, Christian [8068A-01]S1, [8068B-35]S7
 Leong, Keith [8069-28]S6
 Leopold, Steffen [8066-51]SPS
 Lesche, Claudia [8066-75]SPS
 Leuchtmann, Pascal [8068B-36]S7, [8069-11]S3
 Liang, Guixuan [8067-13]S3
 Lim, Jung Woon [8068B-50]SPS
 Lin, Chin-An [8069-08]S2
 Lin, Yi-Ruei [8068B-46]S9
 Liñán-Cembrano, Gustavo 8068 CoChr, 8068A S6
 SessChr, 8068A CoChr, [8068A-07]S2
 Lindner, Joerg K. N. 8068B ProgComm
 Lipilin, Alexandr [8066-22]S4
 Lipsanen, Harri K. 8068B ProgComm
 Llinás, Manuel [8067-05]S1
 Llobera, Andreu [8066-12]S3
 Lloyd Spetz, Anita 8066 ProgComm, [8066-17]S4
 Look, Achim MeetingVIP
 López, José Fco. [8067-18]S4
 López, Sebastián [8067-18]S4, [8067-19]S4
 López Feliciano, José SympChair
 López Suárez, Sebastián 8067 ProgComm, 8067 S2
 SessChr
 López-Martín, Antonio 8067 ProgComm
 López-Ongil, Celia 8067 ProgComm
 Lopez-Vallejo, Marisa [8067-22]S4
 Lorke, Axel 8068B ProgComm
 Losavio, Emanuele [8067-06]S2
 Lozada, Jose [8066-66]SPS

M

Macqueen, Mark O. [8066-60]SPS
 Mahmood, Abdul Salam N. [8069-34]S7
 Mair, Florian [8066-35]S7
 Makarczuk, Teresa [8066-60]SPS
 Makarona, Eleni [8066-21]S4, [8066-53]SPS
 Makarov, Valeri A. [8068A-20]S4
Makki, Noaman [8066-44]S8
 Malinauskas, Mangirdas [8068A-15]S3, [8068B-52] SPS, [8069-29]S7
 Malki, Suleyman [8067-02]S1
 Manzaneeque, Tomas [8066-54]SPS
 Marcelli, Romolo [8066-30]S6
 Marcuiu?, Marijan [8069-25]S6
 Marconi, Alessandro [8069-26]S6
 Margesin, Benno [8066-34]S7, [8066-40]S8, [8066-48] SPS, [8066-95]SPS
 Mark, Daniel [8066-15]S3, [8066-70]SPS
 Markweg, Eric [8066-49]SPS
 Marrero-Martin, Margarita [8067-29]S5
 Marrufo, Amanda J. [8068A-11]S2
 Martegoutte, Julien [8066-08]S2
 Martucci, Concetta [8066-93]SPS
 Masotti, Diego [8066-32]S6
 Masri, Talal [8066-08]S2
 Masuch, Jens [8067-10]S2
 Matin, Tina R. [8066-60]SPS
 Matos, José S. 8067 ProgComm
 Matovic, Jovan [8066-11]S2
 Matyi, Gábor [8066-64]SPS
 Mayrwöger, Johann [8066-19]S4
Mazur, Eric D. 8069 ProgComm
 Mazzola, Maurizio [8069-25]S6
 Mazzulla, Alfredo [8069-37]S8
Mehner, Jan [8066-82]SPS
 Meireles, Filipe [8067-23]S4
 Meiss, Thorsten [8068A-05]S1
 Meneghesso, Gaudenzio [8066-40]S8
 Merzsch, Stephan [8066-02]S1, [8066-78]SPS, [8068B-48]SPS
 Mescheder, Ulrich [8066-62]SPS
 Mikami, Osamu [8069-04]S1
 Milesi, Frédéric [8069-26]S6
 Milnera, Marcus [8068A-04]S1
 Min, Mart [8068A-29]S6
 Minaev, Nikita [8069-32]S7
 Minamisava Faria, Carlos [8068A-05]S1
 Mir, Salvador 8067 ProgComm
 Miranda, Maria D. [8068A-28]S5
 Miranda Valladares, Gara [8067-09]S2
 Miribel-Català, Pere L. 8067 ProgComm, [8067-24]S5, [8067-25]S5, [8068A-31]S6
 Mir-Llorente, Monica [8068A-31]S6
 Mishra, Yogendra Kumar [8068B-45]S9
 Mitchell, Philip [8069-06]S2
 Mittendorfer, Gerald [8066-77]SPS
 Miyakawa, Natsuki [8066-03]S1
 Moccella, Vito [8069-15]S4
 Mondal, Aniruddha [8068B-47]S9
 Moreno, Felix [8067-03]S1, 8067 ProgComm
 Mori De Santiago, José A. [8067-17]S3
 Moulzolf, Scott C. [8066-05]S1
 Mucha, Andreas [8068A-32]S6
 Mueller, Gerhard [8068B-38]S7
 Müller, Bernhard [8066-62]SPS
 Müller, Jan [8068A-24]S5
 Müller, Jens [8068A-23]S5, [8068A-24]S5
 Müller, Martina [8066-15]S3
 Mulloni, Viviana [8066-48]SPS
 Munteanu, Mircea G. [8066-31]S6
 Music, Svetozar [8069-25]S6
Mustecaplioglu, Ozgur E. 8069 S7 SessChr, [8069-13]S3, [8069-22]S5

N

Nagaraju, P. [8069-21]S5
 Nakama, Kenichi 8069 S4 SessChr, [8069-04]S1
 Navarro-Urrios, Daniel [8069-26]S6
 Navas-González, Rafael [8068A-13]S1
 Nechifor, Aurelia Cristina [8068B-37]S7
 Nechifor, Gheorghe [8068B-37]S7
 Neikirk, Dean P. 8066 S3 SessChr, 8066 ProgComm, [8066-57]SPS

Ngo, Ha-Duong [8066-07]S2
 Niarchos, Georgios [8066-53]SPS
 Niessner, Martin [8066-33]S6
 Nimo, Antwi [8066-62]SPS
 Nöhhammer, Christa [8068A-02]S1
 Novoa, Emilio [8067-22]S4
 Nugent, Bryn [8066-05]S1
 Nuñez, Juan [8067-28]SPS
 Núñez Ordóñez, Antonio 8067 S5 SessChr, 8067 ProgComm, [8067-21]S4
Nunzi Conti, Gualtiero [8069-19]S5

O

Oballe-Peinado, Óscar [8066-97]SPS
 Obermeier, Ernst [8066-07]S2
 Ochoteco, Estibalitz [8066-84]SPS, [8068A-13]S1
 Ogorzalek, Maciej J. 8068A ProgComm, 8068A ProgComm
Oh, Geum-Yoon [8068B-50]SPS, [8069-42]SPS
 Ojarand, Jaan [8068A-29]S6
 Olivares, Jimena [8066-14]SPS
 Oliver-Gomez, Maria Jesús [8066-14]SPS
 Ondrusek, Cestmir SympChair, [8066-63]S7
 Orcioni, Simone [8067-06]S2, [8067-08]S2, [8067-14] S3
 Ortiz, Pedro [8066-12]S3
 Otero, Andrés [8067-05]S1, [8067-19]S4
 Ovsianikov, Alexandr [8068B-52]SPS
 Qvysannikov, Sergey V. [8067-35]SPS
Özbay, Ekmel 8069 ProgComm

P

Pabo, Eric [8066-77]SPS
 Pabst, Oliver [8066-07]S2
 Pacheco, Sergio P. 8066 ProgComm
 Pagel, Natalie [8066-56]SPS
 Pagliusi, Pasquale [8069-37]S8
 Park, Seong Jin [8066-91]SPS
 Partov Poor, Bahar [8069-06]S2
 Paschew, Georgi [8066-89]SPS
 Passot, Aurélie [8068A-12]S3
 Pasupathy, Praveenkumar [8066-57]SPS
 Patané, Luca [8068A-09]S2, [8068A-10]S2, [8068A-18]S4
 Paul, Sumit [8068B-38]S7
Pavesi, Lorenzo 8069 ProgComm, [8069-14]S4, [8069-19]S5, [8069-26]S6
 Pearce, Stuart J. [8069-30]S7
 Peham, Johannes R. [8068A-02]S1
 Peiner, Erwin 8066 ProgComm, 8066 S8 SessChr, [8066-02]S1, [8066-78]SPS, [8066-94]SPS, [8068B-48]SPS
 Pelik, Fatih [8069-22]S5
 Penzkofer, Christian [8066-65]SPS
 Pérez Jiménez, Rafael [8067-09]S2
 Pérez Suárez, Ricardo [8066-26]S5
 Pérez-Verdú, Belén 8067 ProgComm
 Persano, Anna [8066-30]S6
 Pescador, Fernando [8067-20]S4
 Pessoa, Rodrigo S. [8066-92]SPS
 Peter, Carolin [8066-20]S4, [8066-72]SPS
 Petti, Lucia L. [8068B-49]SPS
 Pflaum, Alexander MeetingVIP
 Piskarskas, Algis [8068A-15]S3
 Pislakov, Alexandr [8066-22]S4
 Pizarro, Carlos [8067-32]S6
 Plaud, Virginie [8066-66]SPS
 Pluchon, David [8069-02]S1
 Pobedinskas, Paulius [8066-14]SPS
 Polster, Tobias [8066-49]SPS, [8066-50]SPS, [8066-51]SPS
 Pons, José Luis [8066-84]SPS
Poon, Andrew W. 8069 ProgComm
 Popa, Veaceslav [8068B-43]S8
 Portilla, Jorge 8067 ProgComm, [8067-05]S1, [8067-32]S6
 Possner, Torsten [8069-31]S7
 Pozas-Flores, Francisco [8068A-06]S2, [8068A-08]S2
 Pozzi, Michele [8066-42]S8
 Provenzano, Clementina [8069-37]S8
 Prtljaga, Nikola [8069-26]S6
Pruneri, Valerio 8069 ProgComm
 Pucker, Georg [8069-14]S4, [8069-19]S5
 Puig-Vidal, Manel [8067-25]S5
 Punter-Villagrana, Jaime [8067-25]S5

Purtscher, Michaela [8068A-04]S1
 Puustinen, Jarkko [8069-30]S7

Q

Quaranta, Fabio [8066-30]S6
 Quintana, José M. [8067-28]SPS
Qureshi, Abdul Qader Ahsan [8066-95]SPS

R

Rademacher, Sven [8066-25]S5
 Raguin, Ludmila [8068B-36]S7, [8069-11]S3
 Ramadevudu, G. [8069-21]S5
 Ramirez, Joan Manel [8069-26]S6
 Rao, C. P. [8069-21]S5
Razeghi, Manijeh 8069 ProgComm, [8069-10]S3
 Rea, Ilaria [8068A-14]S3
 Recnik, Lisa-Maria [8068A-02]S1
 Reichel, Erwin K. [8066-85]SPS
 Reichl, Wolfgang [8066-19]S4
 Reimann, Peter [8066-17]S4
 Rekstyte, Sima [8068A-15]S3
 Rendina, Ivo [8068A-14]S3, 8069 ProgComm, [8069-15]S4
 Repchankova, Alena [8066-34]S7
 Riahi, Mohammadreza [8069-44]SPS
 Ribó, Serni [8067-12]S3
 Ricciotti, Giuseppe [8069-07]S2
 Richter, Andeas [8066-16]S3, [8066-89]SPS
 Richter, Christoph [8066-65]SPS
 Richter, Denny [8066-04]S1
 Riesgo, Teresa 8067 Chr, [8067-03]S1, [8067-05]S1, [8067-13]S3, [8067-19]S4, [8067-32]S6
Righini, Giancarlo C. 8069 CoChr, 8069 S1 SessChr, [8069-17]S4, [8069-19]S5, [8069-23]S6, [8069-25] S6
 Rigo, Eveline [8069-19]S5
 Rist, Jonas [8066-72]SPS
 Ristic, Davor [8069-25]S6
 Ristic, Mira [8069-25]S6
 Rius, Antonio [8067-12]S3
 Rizk, Richard [8069-27]S6
 Roberson, C. [8066-27]S5
 Rodellar-Biarge, Victoria [8068A-19]S4
 Rodríguez Andina, Juan José 8067 ProgComm
 Rodríguez Mendoza, Beatriz [8067-09]S2, [8067-11] S2
 Rodríguez Pérez, Silvestre [8067-09]S2, [8067-11]S2
 Rodríguez-Pérez, Alberto [8068A-25]S5
 Rodríguez-Vazquez, Ángel B. [8068A-07]S2, 8067 ProgComm, 8068 Chr, 8068A S1 SessChr, 8068A Chr, [8068A-06]S2, [8068A-08]S2, [8068A-25]S5
 Ronchin, Sabina [8066-95]SPS
 Ronning, Carsten 8068 CoChr, 8068B S9 SessChr, 8068B CoChr
 Rosales Rodríguez, Juan E. [8067-16]S3
 Roselier, Samuel [8066-66]SPS
 Rossner, Tim [8068A-05]S1
 Roth, Günter [8066-15]S3, [8066-70]SPS
 Rottigni, Angelo [8068A-30]S6
 Ruiz, Víctor [8066-52]SPS
 Ruiz, Yago [8068A-19]S4
 Ruiz-Amaya, Jesús [8068A-25]S5
 Ruiz-Merino, Ramón 8068A ProgComm
 Rütz, Matthias [8069-31]S7

S

Saad, Awad [8066-62]SPS
 Sabaté, Neus [8066-83]SPS
 Sachse, Matthias [8066-24]S5, [8066-79]SPS
 Saidi, Mohammad Hassan [8069-39]S8, [8069-43]SPS
 Saidi, Mohammad Said [8069-39]S8, [8069-43]SPS
 Salas Paracuellos, Luis [8068A-21]S4
 Saleem, Muhammad Rizwan [8069-09]S2
 Salleras, Marc [8066-83]SPS
 Salthammer, Tunga [8066-78]SPS, [8068B-48]SPS
 Salvador, Ruben [8067-03]S1
 Samitier, Josep 8068A ProgComm, [8067-24]S5, [8067-25]S5, [8068A-31]S6
 Samotaev, Nikolay [8066-22]S4
 Sampietro, Marco [8068A-30]S6
 Santambrogio, Marco D. 8067 ProgComm
 Sanchez, Antonio [8067-07]S2
 Sanchez, Pablo [8067-30]S6

Sánchez de Rojas Aldavero, José Luis 8066 S2
SessChr, [8066-52]SPS, [8066-54]SPS
Sánchez-Durán, José Antonio [8066-97]SPS
Sánchez-Rojas, José Luis 8066 CoChr, [8066-14]SPS
Sandner, Thilo [8066-23]S5
Santander, Joaquin [8066-83]SPS
Sanz, Cesar [8067-20]S4, [8067-31]S6, 8067
ProgComm
Saponara, Sergio [8068A-26]S5
Sariciftci, Niyazi S. 8069 ProgComm
Sarmiento, Roberto [8067-18]S4, [8067-19]S4, 8067
S1 SessChr, [8067-16]S3, [8067-17]S3
Sassatelli, Gilles 8067 ProgComm
Sauerwald, Jan [8066-04]S1
Schade, Sebastian [8066-65]SPS
Schalko, Johannes [8066-24]S5, [8066-55]SPS,
[8066-79]SPS, [8066-90]SPS
Scheen, Gilles [8066-18]S4, [8068B-44]S9
Scheerer, Michael [8066-28]S5
Schiel, Martin [8066-20]S4
Schienle, Meinrad [8068A-32]S6
Schiffer, Michael [8066-07]S2
Schires, Kevin [8069-05]S2
Schlaak, Helmut F. [8066-87]SPS
Schmid, Ulrich 8066 Chr, 8066 S1 SessChr, [8066-11]
S2, [8066-14]SPS, [8066-38]S7, [8066-52]SPS,
[8066-55]SPS, [8066-56]SPS, [8066-60]SPS,
[8066-69]SPS
Schmidt, Torsten 8067 S6 SessChr, [8067-27]S5
Schmidtchen, Silja [8066-04]S1
Schmitt, Katrin [8066-20]S4, [8066-72]SPS
Schmitt-Landsiedel, Doris [8068A-32]S6
Schneider, Michael [8066-38]S7, [8066-55]SPS
Schneider, Mike [8066-68]SPS
Schneider, Thomas [8068A-01]S1
Schneidhofer, Christoph [8066-88]SPS
Schotter, Jörg [8068A-04]S1
Schrag, Gabriele 8066 ProgComm, 8066 S7 SessChr,
[8066-33]S6
Schreiter, Matthias [8066-43]S8, [8066-61]SPS
Schroeder, Elmar [8066-81]SPS
Schroeder, Philipp [8068A-04]S1
Schuetze, Andreas [8066-17]S4, 8066 ProgComm
Schweiger, Gustav 8069 ProgComm
Seeger, Thomas [8069-35]S8
Seguineau, Cedric [8066-08]S2
Segura, Jaume [8067-34]S6
Segura González, Carlos [8067-09]S2
Seidel, Helmut [8066-14]SPS, [8066-43]S8, [8066-52]
SPS, [8066-54]SPS, [8066-56]SPS
Seidel, Julian [8066-61]SPS
Sekanina, Luká? 8067 S4 SessChr, [8067-01]S1,
[8067-03]S1
Sen, Sedat [8066-88]SPS
Senger, Vanessa [8068A-23]S5
Sennaroglu, Alphan [8069-22]S5
Serpengüzel, Ali 8069 Chr, [8069-20]S5, [8069-38]
S8, [8069-45]SPS
Serrano, Juan José [8067-07]S2
Serrano, Luis 8068A ProgComm
Shafii, Mohammad Behshad [8069-39]S8, [8069-43]
SPS
Shchennikov, Vladimir V. [8067-35]SPS
Shchennikov, Vsevolod V. [8067-35]SPS
Shi, Bertram 8068A ProgComm
Shi, Zhigui [8066-47]SPS
Shoshi, Astrit I. [8068A-04]S1
Shved, Yuliya A. [8068A-16]S3
Siciliano, Pietro 8066 S1 SessChr, 8066 ProgComm,
[8066-30]S6, [8066-93]SPS
Siegel, Christian [8066-81]SPS
Siketic, Zdravko [8069-25]S6
Singh, Ghanshyam [8069-33]S7
Singule, Vladislav [8066-63]S7
Sirmenis, Raimondas [8068A-15]S3
Sirvydis, Vytautas [8068A-15]S3
Slivken, Steven [8069-10]S3
Sokolov, Andrey [8066-22]S4
Solanky, Sohlt [8067-26]S5
Solazzi, Francesco [8066-34]S7, [8066-40]S8
Sorger, Alexander [8066-82]SPS
Spaenenburg, Lambert 8067 S3 SessChr, [8067-02]
S1
Spadaro, Stefano [8069-12]S3
Speliotis, Thanassis [8066-21]S4, [8066-53]SPS
Srinivas Reddy, G. [8069-21]S5
Stechele, Walter 8067 ProgComm
Steiner, Harald [8066-24]S5, [8066-79]SPS

Steinke, Arndt [8066-86]SPS
Stenberg, Petri A. [8069-09]S2
Stevens-Kalceff, Marion A. [8068B-43]S8
Stifter, Michael [8066-24]S5, [8066-55]SPS
Stranik, Ondrej [8068A-01]S1
Stranz, Andrej [8066-02]S1, [8066-78]SPS, [8066-94]
SPS
Strauss, Roland [8068A-09]S2, [8068A-10]S2
Stroobandt, Dirk 8067 ProgComm
Stumpf, Fabian [8066-15]S3
Suárez, Néstor J. [8067-18]S4
Sulzbach, Thomas [8066-65]SPS
Suraprapapich, Suwaree [8068B-51]SPS
Suyama, Ricardo [8068A-28]S5
Sverre Lande, Tor 8068A ProgComm
Szentpáli, Béla [8066-64]SPS
Szydzik, Tomasz M. [8067-21]S4, [8067-29]S5

T

Talic, Almir [8066-10]S2
Tamer, Mehmet S. [8069-45]SPS
Tanner, Steve [8069-36]S8
Tarjányi, Norbert [8069-41]SPS
Tazzoli, Augusto [8066-40]S8
Tekin, Tolga [8066-07]S2
Telari, Manuele [8067-08]S2
Telitschkin, Dimitri [8066-03]S1
Termini, Pietro Savio [8068A-09]S2
Tetzlaff, Ronald [8067-27]S5, 8068A S4 SessChr,
8068A ProgComm, [8068A-23]S5, [8068A-24]S5
Teubert, Jörg [8068B-38]S7
Tiginyanu, Ion M. [8068B-43]S8
Tikusis, Kristupas [8068A-15]S3
Tobajas Guerrero, Félix B. 8067 S3 SessChr, [8067-
16]S3, [8067-17]S3
Tomic, Milos C. [8066-28]S5
Tooten, Ester [8066-18]S4, [8068B-44]S9
Tortschanoff, Andreas [8066-23]S5
Trebaol, Stéphane [8069-18]S5
Trucchi, Daniele Maria [8069-12]S3
Tsai, Kun-Tong [8068B-46]S9
Tsai, Shin-Hung [8069-08]S2
Tsamis, Christos 8066 ProgComm, 8066 S8
SessChr, [8066-21]S4, [8066-53]SPS
Tu, Charles W. [8068B-51]SPS
Tünnermann, Andreas [8069-31]S7
Tuominen, Jarkko [8068B-41]S8
Tureci, Hakan E. 8069 ProgComm
Turunen, Jari [8069-09]S2

U

Ugarte, Iñigo [8067-30]S6
Uhde, Erik [8066-78]SPS, [8068B-48]SPS

V

Vahey, Michael [8068A-30]S6
Vahimaa, Pasi [8069-09]S2
Valls-Pasola, Jaume [8067-24]S5
van den Driesche, Sander [8066-13]S3, [8066-58]SPS
van Wyk, Albertus J. [8066-27]S5
Vanacharla, Manga Rao [8069-19]S5
Varas, Stefano [8069-23]S6
Vardhani, Chunduru P. [8069-21]S5
Vargas, Sonia [8068A-07]S2
Vasilache, Dan [8066-95]SPS
Vasiliev, Alexey A. [8066-22]S4
Velarde, Manuel G. [8068A-20]S4
Vellekoop, Michael J. 8066 ProgComm, [8066-13]S3,
[8066-58]SPS, [8066-88]SPS, [8068A-02]S1
Vidal, Alberto [8067-03]S1
Vidal-Verdú, Fernando [8066-97]SPS, 8068A
ProgComm, 8068A S5 SessChr, [8068A-13]S1
Vila-Planas, Jordi [8066-12]S3
Villacorta-Atienza, Jose A. [8068A-20]S4, [8068A-21]
S4
Vitanza, Alessandra [8068A-18]S4
Voicu, Stefan Ioan [8068B-37]S7
Voldman, Joel [8068A-30]S6
von Stetten, Felix [8066-15]S3, [8066-70]SPS
Vondenbusch, Bernhard [8066-74]SPS
Vorontsov, Grigory V. [8067-35]SPS

W

Waag, Andreas [8066-02]S1, [8066-78]SPS, [8066-94]
SPS, [8068B-48]SPS
Wagner, Bernd 8068 CoChr, 8068B CoChr
Walewyns, Thomas H. [8066-18]S4, [8068B-44]S9
Walter, Susan [8066-06]S2
Wang, Chao [8069-36]S8
Wang, Hsin-Hua [8069-08]S2
Wang, Hsin-Ping [8068B-46]S9
Wang, Meng [8069-30]S7
Wang, Yajun [8066-47]SPS
Wang, Yongsheng [8069-46]SPS
Wang, Yuh-Lin [8068B-46]S9
Wasisto, Hutomo Suryo [8066-78]SPS, [8068B-48]
SPS
Wehrheim, Frank [8066-87]SPS
Weinberger, Stefan [8066-49]SPS
Weinzierl, Philipp [8066-65]SPS
Werthschützky, Roland [8068A-05]S1
Widmann, Matthias [8066-21]S4
Wieck, Andreas D. 8068B ProgComm
Wiesinger-Mayr, Herbert [8068A-02]S1
Wildenhain, Michael [8066-23]S5
Wille, Sebastian [8068B-45]S9
Wingqvist, Gunilla [8066-29]S6
Winter, Matthias [8066-81]SPS
Witarski, Wojciech [8066-13]S3, [8066-58]SPS
Wöllenstein, Jürgen 8066 ProgComm, 8066 S7
SessChr, [8066-20]S4, [8066-25]S5, [8066-72]SPS

X

Xiao, Shizhou [8068B-52]SPS

Y

Yadav, R. P. [8069-33]S7
Yilmaz, Hasan [8069-45]SPS
Yilmaz, Huzeyfe [8069-20]S5, [8069-38]S8
Yun, Minhee [8068B-39]S7
Yusufi, Mustafa [8066-81]SPS

Z

Zabetian, Mohammad [8069-39]S8, [8069-43]SPS
Zarandy, Akos 8068A ProgComm, [8068A-06]S2
Zeilmann, Christian [8066-69]SPS
Zelenika, Sa?a [8066-41]S8
Zengerle, Roland 8066 ProgComm, [8066-15]S3,
[8066-70]SPS, [8066-74]SPS
Zenyuk, D. A. [8066-39]S7
Zhang, Sheng P. [8066-57]SPS
Zhang, Zhaoyun [8069-40]SPS
Zhu, Meiling [8066-42]S8
Ziemann, Thomas [8066-03]S1

SPIE Optics+ Optoelectronics

Conferences: 18–21 April 2011

Exhibition: 19–20 April 2011

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Technical Conferences

8070	Metamaterials	33
8071	Nonlinear Optics and its Applications	35
8072A	Photon Counting Applications	38
8072B	Quantum Optics and Quantum Information Transfer and Processing	40
8073A	Optical Sensors	41
8073B	Photonic Crystal Fibres	44
8074	Holography: Advances and Modern Trends	46
8075	Harnessing Relativistic Plasma Waves as Novel Radiation Sources from Terahertz to X-rays and Beyond	48
8076	EUV and X-ray Optics: Synergy between Laboratory and Space	50
8077	Damage to VUV, EUV, and X-ray Optics (XDam3)	52
8078	Advances in X-ray Free-Electron Lasers: Radiation Schemes, X-ray Optics and Instrumentation	55
8079A	Laser Acceleration of Electrons, Protons and Ions	57
8079B	Medical Applications of Laser-Generated Secondary Sources of Radiation and Particles	60
8080A	Diode-Pumped High Energy and High Power Lasers	62
8080B	ELI: Ultrarelativistic Laser-Matter Interactions and Petawatt Photonics	64

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HiPER: the European Pathway to Laser Energy

HiPER is a European collaboration of 26 partners from ten nations designed to develop the route to commercially viable power production from Laser Energy. The current Preparatory Phase is a five-year collaborative project that will define the technical options and strategic basis for progression into the next phase, known as the Technology Development Phase, contingent on ignition at NIF.

The HiPER workshop at the SPIE Optics and Optoelectronics Symposium will consist of dedicated sessions that focus on the main elements of the technology and physics required for Laser Energy. Representatives from the HiPER project will present the highlights of their work undertaken over the course of the past three years. See www.hiper.org for further information.

Wednesday 20 April

Open Remarks 9.00

Session Chair: Bedrich Rus,
Institute of Physics of the ASCR, v.v.i. (Czech Republic)

Introduction to HiPER Workshop 9.00 to 9.10

Vlastimil Ruzicka,
Institute of Physics of the ASCR, v.v.i. (Czech Republic)

Keynote Session 9.10 to 10.00

Session Chair: Bedrich Rus,
Institute of Physics of the ASCR, v.v.i. (Czech Republic)

9.10: **HiPER: Preparing for the next phase**, John L. Collier, Rutherford Appleton Lab. (United Kingdom)

Coffee Break 10.00 to 10.30

Laser Design 10.30 to 12.40

Session Chair: Manolo Perlado, Univ. Politécnica de Madrid (Spain)

10.30: **HiPER laser reference design**, Bruno Le Garrec, Commissariat à l'Énergie Atomique (France); Mike Tyldesley, Rutherford Appleton Lab. (United Kingdom); Chris Edwards, Science and Technology Facilities Council (United Kingdom); John L. Collier, Rutherford Appleton Lab. (United Kingdom)

11.10: **Overview of the LULI diode-pumped laser chain proposal for HiPER kJ beamlines**, Jean-Christophe F. Chanteloup, Antonio Lucianetti, Daniel Albach, Thierry Novo, Ecole Polytechnique (France)

11.40: **Optimised design for a 1 kJ diode-pumped solid-state laser system**, Paul D. Mason, Klaus Ertel, S. Banerjee, Paul J. Phillips, Cristina Hernandez-Gomez, John L. Collier, Rutherford Appleton Lab. (United Kingdom)

12.10: **Overview of the FSU diode concept for HiPER and the Polaris facility**, Joachim Hein, Friedrich-Schiller-Univ. Jena (Germany)

Lunch/Exhibition Break 12.40 to 13.50

Target Area & Fusion Technology. 13.50 to 15.30

Session Chair: Bruno Le Garrec,
Commissariat à l'Énergie Atomique (France)

13.50: **Overview of fusion reactor design and fusion technology**, Manolo Perlado, Univ. Politécnica de Madrid (Spain)

14.30: **Target and repetition rate fusion chamber systems**, Bedrich Rus, Institute of Physics of the ASCR, v.v.i. (Czech Republic)

15.00: **Recent progress made in the SBS PCM approach to self-navigation of lasers on direct drive IFE targets**, Milan Kalal, Ondrej Slezak, Czech Technical Univ. in Prague (Czech Republic); Hong Jin Kong, KAIST (Korea, Republic of); Elena R. Koresheva, P.N. Lebedev Physical Institute (Russian Federation); Sangwoo Park, KAIST (Korea, Republic of); Sergey A. Startsev, P.N. Lebedev Physical Institute (Russian Federation)

Coffee Break 15.30 to 16.00

HiPER Forum (Closed Meeting)

16.00 to 17.00

HiPER Workshop Poster Presentations . 17.40 to 19.15

Conference attendees are invited to attend the Optics and Optoelectronics and HiPER Workshop Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

A novel single-shot, spectrally resolved X-ray imaging technique of ICF relevant plasmas, Luca Labate, C. A. Cecchetti, O. Ciricosta, Petra Koester, T. Levato, Leonida A. Gizzi, Intense Laser Irradiation Lab., INO/CNR (Italy)

High resolution Xray spectroscopy in fast electron transport studies, Petra Koester, Intense Laser Irradiation Lab./INO-CNR (Italy); Nicola Booth, The Univ. of York (United Kingdom); C. A. Cecchetti, Intense Laser Irradiation Lab./INO-CNR (Italy); Hui Chen, Lawrence Livermore National Lab. (United States); R. G. Evans, Imperial College London (United Kingdom); Gianluca Gregori, Univ. of Oxford (United Kingdom); Luca Labate, T. Levato, Intense Laser Irradiation Lab./INO-CNR (Italy); Y. B. Li, Imperial College London (United Kingdom); M. Makita, Queen's Univ. Belfast (United Kingdom); J. Mithen, Univ. of Oxford (United Kingdom); C. Murphy, Imperial College London (United Kingdom); M. M. Notley, Rajeev P. Pattathil, Rutherford Appleton Lab. (United Kingdom); David Riley, Queen's Univ. Belfast (United Kingdom); N. C. Woolsey, The Univ. of York (United Kingdom); Leonida A. Gizzi, Intense Laser Irradiation Lab./INO-CNR (Italy)

Can proton radiography be used to image imploding target in ICF experiments?, Luca Volpe, Dimitri Batani, Univ. degli Studi di Milano-Bicocca (Italy); Benjamin Vauzour, Phillippe Nicolai, Joao J. Santos, Fabien Dorchies, Claude Fourment, Sébastien Hulin, C. Regan, Univ. Bordeaux 1 (France); Frederic Perez, Sophie D. Baton, Michel Koenig, Ecole Polytechnique (France); Kate L. Lancaster, Marco Galimberti, Robert Heathcote, Martin K. Tolley, Chris Spindloe, Rutherford Appleton Lab. (United Kingdom); Petra Koester, Luca Labate, Leonida A. Gizzi, Intense Laser Irradiation Lab./INO-CNR (Italy); C. Benedetti, Andrea Sgattoni, Univ. degli Studi di Bologna (Italy); Maria Richetta, Univ. degli Studi di Roma Tor Vergata (Italy)

Effects of target design on reactor vessel and optics

Synergy between inertial fusion and magnetic fusion reactor

Target area configurations and shielding requirements for the fundamental science programme of HiPER

Laser specifications required for the fundamental science programme of HiPER

Active mirror amplifying laser chain for HiPER laser driver, Antonio Lucianetti, Ecole Polytechnique (France)

Overview of STFC diode concept, Paul D. Mason, Rutherford Appleton Lab. (United Kingdom)

FST- technologies for high rep-rate production of HiPER scale cryogenic targets, Elena R. Koresheva, P.N. Lebedev Physical Institute (Russian Federation)

HiPER target mass production, Martin K. Tolley, Rutherford Appleton Lab. (United Kingdom)

Thursday 21 April

Target Design 9.00 to 12.10

Session Chair: Dimitri Batani, Univ. degli Studi di Milano-Bicocca (Italy)

9.00: **HiPER target studies: first steps towards the design of high gain, robust, scalable direct-drive targets with advanced ignition schemes**, Stefano Atzeni, Univ. degli Studi di Roma La Sapienza (Italy); G. Schurtz, Univ. Bordeaux 1 (France)

9.40: **HiPER targetry: production and strategy**, Martin K. Tolley, Rutherford Appleton Lab. (United Kingdom)

Coffee Break 10.20 to 10.50

10.50: **Overview of injector, cryogenic and tritium considerations of target fabrication**, Didier Guillaume, Commissariat à l'Énergie Atomique (France)

11.40: **Shock-ignition targets: symmetry, stability, robustness**, Stefano Atzeni, A. Schiavi, A. Marocchino, A. Giannini, Univ. degli Studi di Roma La Sapienza (Italy)

Lunch Break 12.10 to 13.30

Experimental Validation 13.30 to 16.30

Session Chair: Stefano Atzeni,
Univ. degli Studi di Roma La Sapienza (Italy)

13.30: **Experimental results performed in the framework of the HiPER European Project**, Dimitri Batani, Univ. degli Studi di Milano-Bicocca (Italy); Michel Koenig, Sophie D. Baton, Ecole Polytechnique (France); Leonida A. Gizzi, Petra Koester, Luca Labate, INO, Consiglio Nazionale delle Ricerche (Italy); J. J. Honrubia, Univ. Politécnica de Madrid (Spain); Joao J. Santos, G. Schurtz, Sébastien Hulin, Xavier Ribeyre, Claude Fourment, Phillipe Nicolai, Univ. Bordeaux 1 (France); L. Gremillet, Ecole Polytechnique (France); Wigen Nazarov, Univ. of St. Andrews (United Kingdom); J. Pasley, The Univ. of York (United Kingdom); Maria Richetta, Univ. degli Studi di Roma Tor Vergata (Italy); Kate L. Lancaster, Chris Spindloe, Rutherford Appleton Lab. (United Kingdom); Michaela Kozlova, Jaroslav Nejdil, Bedrich Rus, Institute of Physics of the ASCR, v.v.i. (Czech Republic); L. Antonelli, A. Morace, L. Volpe, Ecole Polytechnique (France)

14.10: **Results of recent Shock ignition experiments on the Omega facility**, G. Schurtz, Univ. Bordeaux 1 (France)

14.40: **Computer simulations of the experiments at RAL, LULI, and PALS carried out under HiPER, including those performed at ILE, Japan. Numerical comparison of high density plasmas of HiPER experiments**, Yongjoo Rhee, Korea Atomic Energy Research Institute (Korea, Republic of)

Coffee Break 15.00 to 15.30

15.30: **Laser-plasma coupling studies in shock ignition relevant regime**, C. A. Cecchetti, O. Ciricosta, Antonio Giulietti, Danilo Giulietti, Petra Koester, Luca Labate, T. Levato, Leonida A. Gizzi, Intense Laser Irradiation Laboratory, INO-CNR (Italy); L. Antonelli, A. Patria, Dimitri Batani, Univ. degli Studi di Milano-Bicocca (Italy); Michaela Kozlova, Daniele Margarone, Jaroslav Nejdil, Institute of Physics of the ASCR, v.v.i. (Czech Republic); G. Schurtz, Univ. Bordeaux 1 (France)

15.50: **Results of recent PALS experiment (TBA)**, Jaroslav Nejdil, Institute of Physics of the ASCR, v.v.i. (Czech Republic)

Fundamental Science 16.10 to 16.30

16.10: **On the HiPER fundamental science programme**, E. L. Clark, AWE (United Kingdom); Christos Kamperidis, Nektarios Papadogiannis, Michael Tatarakis, Technological Education Institute of Crete (Greece)

Adjourn 16.30**Closing Remarks**

Metamaterials

Conference Chairs: **Vladimir Kuzmiak**, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); **Peter Markos**, Slovak Univ. of Technology (Slovakia); **Tomasz Szoplik**, Univ. of Warsaw (Poland)

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Wednesday 20 April

Opening Remarks

Room: Terrace 2 Wed. 08.25 to 08.30

Vladimir Kuzmiak, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); **Peter Markos**, Slovak Univ. of Technology (Slovakia); **Tomasz Szoplik**, Univ. of Warsaw (Poland)

SESSION 1

Room: Terrace 2 Wed. 08.30 to 10.00

Plasmonics I

Session Chair: **Vladimir Kuzmiak**, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic)

08.30: **Plasmon-mediated emission of THz light by metallic nanoparticles** (*Invited Paper*), William L. Barnes, The Univ. of Exeter (United Kingdom) [8070-01]

09.00: **Photonic waveguiding structures with loss and gain**, Jiri Ctyroky, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) [8070-02]

09.20: **Plasmon-mediated resonance energy transfer near metal nanostructures**, Tigran V. Shahbazyan, Jackson State Univ. (United States) [8070-03]

09.40: **The diablo nanoantenna as a plasmonic element of metamaterials**, Ulrich C. Fischer, Westfälische Wilhelms-Univ. Münster (Germany); Mathieu Mivelle, Fadi I. Baida, Idriss Abdoukader Ibrahim, Institut FEMTO-ST (France) and Univ. Franche-Compté (France); Geoffrey W. Burr, IBM Almaden Research Ctr. (United States); Thierry Grosjean, Institut FEMTO-ST (France) and Univ. Franche-Compté (France) [8070-04]

Coffee Break 10.00 to 10.30

SESSION 2

Room: Terrace 2 Wed. 10.30 to 12.30

Metamaterials I

Session Chair: **Ekmel Ozbay**, Bilkent Univ. (Turkey)

10.30: **Bloch modes of optical fishnets** (*Invited Paper*), Philippe Lalanne, Lab. Charles Fabry (France) [8070-05]

11.00: **Nonlinear and tunable metamaterials** (*Invited Paper*), Yuri S. Kivshar, The Australian National Univ. (Australia) [8070-46]

11.30: **Unified approach for retrieval of effective parameters of metamaterials**, Andrei V. Lavrinenko, Andrei Andryeuskii, Technical Univ. of Denmark (Denmark); Sangwoo Ha, Andrey A. Sukhorukov, Yuri S. Kivshar, The Australian National Univ. (Australia) [8070-06]

11.50: **Complex Fourier factorization techniques in calculation of modes of discontinuous optical structures with an arbitrary cross-section**, Roman Antos, Martin Veis, Charles Univ. in Prague (Czech Republic) [8070-07]

12.10: **The development of metamaterials basing on the model of multi-phase systems**, Vladimir V. Shchennikov, Institute of Metal Physics (Russian Federation); Sergey V. Ovsyannikov, Univ. Bayreuth (Germany); Igor V. Korobeynikov, Grigory V. Vorontsov, Institute of Metal Physics (Russian Federation); Vsevolod V. Shchennikov, Jr., Institute of Engineering Science (Russian Federation); Ivan A. Komarovskii, Institute of Metal Physics (Russian Federation) [8070-08]

Lunch/Exhibition Break 12.30 to 14.00

SESSION 3

Room: Terrace 2 Wed. 14.00 to 15.30

Plasmonics II: Advanced Experimental Techniques

Session Chair: **William L. Barnes**, The Univ. of Exeter (United Kingdom)

14.00: **Plasmonic nano-bubble cavity probed by cathodoluminescence** (*Invited Paper*), Nicholas X. Fang, Massachusetts Institute of Technology (United States) and Univ. of Illinois at Urbana-Champaign (United States) [8070-09]

14.30: **Gold nanostructures using tobacco mosaic viruses for optical metamaterials**, Mime Kobayashi, Japanese Foundation for Cancer Research (Japan); Ichiro Yamashita, Yukiharu Uraoka, Nara Institute of Science and Technology (Japan); Kiyotaka Shiba, Japanese Foundation for Cancer Research (Japan); Satoshi Tomita, Nara Institute of Science and Technology (Japan) [8070-10]

14.50: **Vacuum Rabi splitting and strong coupling dynamics for surface plasmon polaritons and Rhodamine 6G molecules**, Robert J. Moerland, Aalto Univ. School of Science and Technology (Finland); Tommi Hakala, Univ. of Jyväskylä (Finland); Gaurav Sharma, Aaro Vakevainen, Aalto Univ. School of Science and Technology (Finland); Jussi Toppari, Univ. of Jyväskylä (Finland); Anton Kuzyk, Aalto Univ. School of Science and Technology (Finland); Mika Pettersson, Henrik Kunttu, Univ. of Jyväskylä (Finland); Päivi Törmä, Aalto Univ. School of Science and Technology (Finland) [8070-11]

15.10: **Magnetic probe for material characterization at optical frequencies**, Tomasz J. Antosiewicz, Piotr Wróbel, Tomasz Szoplik, Univ. of Warsaw (Poland) [8070-16]

Coffee Break 15.30 to 16.00

SESSION 4

Room: Terrace 2 Wed. 16.00 to 17.50

Light Concentrators

Session Chair: **Philippe Lalanne**, Lab. Charles Fabry (France)

16.00: **Ultrafast and nonlocal effects in plasmonic metamaterials** (*Invited Paper*), Anatoly V. Zayats, King's College London (United Kingdom) [8070-32]

16.30: **Optimization of transmission and focusing properties of plasmonic nanolenses**, Piotr Wróbel, Univ. of Warsaw (Poland); Tomasz J. Antosiewicz, Interdisciplinary Ctr. for Mathematical and Computational Modelling (Poland); Tomasz Szoplik, Univ. of Warsaw (Poland) [8070-33]

16.50: **Generation of nondiffracting subwavelength-beams in finite metal-dielectric structures**, Carlos J. Zapata-Rodriguez, David Pastor, Univ. de València (Spain); Juan J. Miret Marí, Maria T. Caballero Caballero, Vicent Camps Sanchis, Univ. de Alicante (Spain) [8070-34]

17.10: **Fabrication of corrugated probes for scanning near-field optical microscopy**, Piotr Wróbel, Univ. of Warsaw (Poland); Tomasz J. Antosiewicz, Interdisciplinary Ctr. for Mathematical and Computational Modelling (Poland); Adam Libura, Grzegorz Nowak, Institute of High Pressure Physics (Poland); Tomasz Wejrzanowski, Robert Slesinski, Kazimierz Jedrzejewski, Warsaw Univ. of Technology (Poland); Tomasz Szoplik, Univ. of Warsaw (Poland) [8070-17]

17.30: **Slowing light in all dielectric tapered left-handed waveguide**, Tsung-Yu Huang, Ta-Jen Yen, National Tsing Hua Univ. (Taiwan) [8070-18]

Posters Wed. 17.40 to 19.15

Conference attendees are invited to attend the EOO Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

- Angle-dependent excitation of surface plasmon polaritons in gold nanowires embedded in alumina**, Oleg Yeshchenko, Igor Dmitruk, National Taras Shevchenko Univ. of Kyiv (Ukraine); Yuri Barnakov, Norfolk State Univ. (United States) [8070-37]
- Flat photonic lattices for near-field imaging with enhanced depth of field**, Carlos J. Zapata-Rodriguez, David Pastor, Univ. de València (Spain); Juan J. Miret, Univ. de Alicante (Spain) [8070-39]
- Modeling of metamaterials: a globular protein as a metamaterial prototype for electromagnetic-acoustic energy conversion at low temperatures**, Anatoly V. Stepanov, Belarusian State Univ. (Belarus) [8070-40]
- Metamaterial coatings for subwavelength-resolution imaging**, Carlos J. Zapata-Rodriguez, David Pastor, Univ. de València (Spain); Juan J. Miret, Univ. de Alicante (Spain) [8070-41]
- Capabilities of NSOM lithography using metal coated fiber tip for 2D photonic structures fabrication**, Ivana Kubicova, Dusan Pudis, Lubos Suslik, Univ. of Zilina (Slovakia); Jaroslava Skriniarova, Slovak Univ. of Technology (Slovakia); Sofia Slabeyciusova, Univ. of Zilina (Slovakia) [8070-42]
- Electrical and optical properties of GaAs/AlGaAs photodiodes with integrated 2D pattern in the surface**, Dusan Pudis, Univ. of Zilina (Slovakia); Jaroslav Kovac, Slovak Univ. of Technology (Slovakia); Lubos Suslik, Univ. of Zilina (Slovakia); Jaroslava Skriniarova, Slovak Univ. of Technology (Slovakia); Ivana Kubicova, Ivan Martincek, Univ. of Zilina (Slovakia); Jozef Novak, Institute of Electrical Engineering (Slovakia) [8070-43]
- GaAs/AlGaAs light emitting diode with 2D photonic structure in the surface**, Lubos Suslik, Dusan Pudis, Univ. of Zilina (Slovakia); Jaroslava Skriniarova, Jaroslav Kovac, Slovak Univ. of Technology (Slovakia); Ivana Kubicova, Ivan Martincek, Univ. of Zilina (Slovakia); Jozef Novak, Stefan Hascik, Institute of Electrical Engineering (Slovakia) [8070-44]
- Model for the effective medium approximation of nanostructured layers with the account of interparticle interactions**, Eugene G. Bortchagovsky, V. Lashkaryov Institute of Semiconductor Physics (Ukraine); Valeri Z. Lozovski, National Taras Shevchenko Univ. of Kyiv (Ukraine) and Institute of Semiconductor Physics of NAS of Ukraine (Ukraine); Tetiana O. Mishakova, National Taras Shevchenko Univ. of Kyiv (Ukraine) [8070-45]
- Optical study of nanoporous C-Pd thin films**, Radoslaw Belka, Malgorzata Suchanska, Kielce Univ. of Technology (Poland); Elzbieta Czerwosz, Akademia Swietokrzyska (Poland); Maurizio Ferrari, Istituto di Fotonica e Nanotecnologie (Italy) [8070-47]

Thursday 21 April

SESSION 5

Room: Terrace 2 Thurs. 08.30 to 10.00

Fabrication of Metamaterials

Session Chair: Arkadi Chipouline, Friedrich-Schiller-Univ. Jena (Germany)

- 08.30: Metamaterial based enhanced transmission from deep subwavelength apertures (Invited Paper)**, Ekmel Ozbay, Bilkent Univ. (Turkey) [8070-19]
- 09.00: Nanoscale double asymmetric split ring resonators**, Basudev Lahiri, Univ. of Glasgow (United Kingdom); Ce Zhang, City Univ. of Hong Kong (Hong Kong, China); Richard M. De La Rue, Nigel P. Johnson, Univ. of Glasgow (United Kingdom) [8070-20]
- 09.20: Fabrication and characterisation of metallised woodpile structures**, Maksim Zalkovskij, Radu I. Malureanu, Andrei Andryieuski, Andrei Lavrinenko, Technical Univ. of Denmark (Denmark) [8070-21]
- 09.40: Analysis of subwavelength-patterned plasmonic structures**, Jan Fiala, Pavel Kwiecien, Ivan Richter, Czech Technical Univ. in Prague (Czech Republic); Jiri Ctyroky, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Milan Sinor, Czech Technical Univ. in Prague (Czech Republic) [8070-22]
- Coffee Break 10.00 to 10.30

SESSION 6

Room: Terrace 2 Thurs. 10.30 to 12.20

Metamaterials II

Session Chair: Andrei V. Lavrinenko, Technical Univ. of Denmark (Denmark)

- 10.30: Multipole model for metamaterials with gain: from nano-laser to quantum metamaterial (Invited Paper)**, Arkadi Chipouline, Friedrich-Schiller-Univ. Jena (Germany) [8070-23]
- 11.00: Optical properties of metamaterials based on asymmetric double-wire structures**, Ekaterina Pshenay-Severin, Arkadi Chipouline, Jörg Petschulat, Friedrich-Schiller-Univ. Jena (Germany); Uwe Hübner, Institute of Photonic Technology (Germany); Thomas Pertsch, Andreas Tünnermann, Friedrich-Schiller-Univ. Jena (Germany) [8070-24]
- 11.20: Monte Carlo study of cloaking effects in nanosphere-doped liquid crystal metamaterial**, Grzegorz Pawlik, Wiktor Walasik, Antoni C. Mitus, Wroclaw Univ. of Technology (Poland); Iam-Choon Khoo, Pennsylvania State Univ. (United States) [8070-25]
- 11.40: Equivalent circuit model of single circular open-ring resonators**, Amna Elhawil, Al-Fateh Univ. (Libyan Arab Jamahiriya); Johan Stiens, Cathleen De Tandt, Willy Ranson, Roger Vounckx, Vrije Univ. Brussels (Belgium) [8070-26]
- 12.00: Invisibility cloaks, superlenses and optical remote scattering**, André Nicolet, Frederic Zolla, Institut Fresnel (France) [8070-27]
- Lunch Break 12.20 to 13.40

SESSION 7

Room: Terrace 2 Thurs. 13.40 to 15.10

Plasmonics III: Applications

Session Chair: Tomasz Szoplík, Univ. of Warsaw (Poland)

- 13.40: Passive and active plasmonic nanoarray devices (Invited Paper)**, Petter Holmstrom, Jun Yuan, Min Qiu, Lars H. Thylén, Royal Institute of Technology (Sweden); Alexandre M. Bratkovsky, Hewlett-Packard Labs. (United States) [8070-28]
- 14.10: Effects of shape, size and orientation on plasmonic coupling in an asymmetric nanoparticle dimer**, Christian Hafner, Pascal Leuchtman, Ludmila Raguin, ETH Zurich (Switzerland) [8070-29]
- 14.30: A high-transmission dualband terahertz bandpass filter by exciting multiresonance of metamaterials**, Yi-Ju Chiang, Ta-Jen Yen, National Tsing Hua Univ. (Taiwan) [8070-30]
- 14.50: Metamaterial film for solar cells**, Amarachukwu Enemuo, David Crouse, The City College of New York (United States); Michael M. Crouse, Phoebus Optoelectronics (United States) [8070-31]
- Coffee Break 15.10 to 15.40

SESSION 8

Room: Terrace 2 Thurs. 15.40 to 17.10

Nanophotonics and Magnetoplasmonic Structures

Session Chair: Peter Markos, Slovak Univ. of Technology (Slovakia)

- 15.40: Extraordinary non-reciprocal and unidirectional effects in integrated nanophotonic magnetoplasmonic structures (Invited Paper)**, Mathias Vanwolleghem, Institut d'Électronique Fondamentale (France); Vladimir I. Belotelov, Lomonosov Moscow State Univ. (Russian Federation); Lukas Halagacka, Technical Univ. of Ostrava (Czech Republic) and Institut d'Électronique Fondamentale (France); Sergey L. Eyderman, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Kamil Postava, Technical Univ. of Ostrava (Czech Republic); Vladimir Kuzmiak, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Beatrice Dagens, Institut d'Électronique Fondamentale (France) [8070-14]
- 16.10: Modified nonreciprocal waveguide formed at the interface between plasmonic metal and uniformly magnetized 2D photonic crystal fabricated from magneto-optic material**, Sergey Eyderman, Vladimir Kuzmiak, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Mathias Vanwolleghem, Institut d'Électronique Fondamentale (France) [8070-15]
- 16.30: Bi-metal coated aperture SNOM probes**, Tomasz J. Antosiewicz, Interdisciplinary Ctr. for Mathematical and Computational Modelling (Poland); Piotr Wróbel, Tomasz Szoplík, Univ. of Warsaw (Poland) [8070-35]
- 16.50: Effect of surface roughness on subwavelength imaging with layered metamaterial optical elements**, Tomasz Stefaniuk, Rafal Kotynski, Univ. of Warsaw (Poland) [8070-36]

Nonlinear Optics and its Applications

Conference Chair: **Mario Bertolotti**, Univ. degli Studi di Roma La Sapienza (Italy)

Conference Co-Chairs: **Joseph W. Haus**, Univ. of Dayton (United States); **Alexei M. Zheltikov**, Lomonosov Moscow State Univ. (Russian Federation)

Programme Committee: **Kiyoshi Asakawa**, National Institute for Materials Science (Japan); **Bruno Crosignani**, Univ. dell'Aquila (Italy); **Reinhard Kienberger**, Max-Planck-Institut für Quantenoptik (Germany); **Yuri S. Kivshar**, The Australian National Univ. (Australia); **Geoffrey H. C. New**, Imperial College London (United Kingdom); **Jan Perina, Sr.**, Univ. Palackého V Olomouci (Czech Republic); **Fabrice Raineri**, Ctr. National de la Recherche Scientifique (France); **Mark I. Stockman**, Georgia State Univ. (United States)

Tuesday 19 April

Opening Remarks

Room: Club E Tues. 13.25 to 13.30

Mario Bertolotti, Univ. degli Studi di Roma La Sapienza (Italy)

SESSION 1

Room: Club E Tues. 13.30 to 15.00

Nanophotonics I

Session Chair: **Mario Bertolotti**,
Univ. degli Studi di Roma La Sapienza (Italy)

13.30: **Nanophotonics (Invited Paper)**, Joseph W. Haus, Univ. of Dayton (United States) [8071-01]

14.20: **Electro-optical effects in 2D macroporous silicon structures with nanocoatings**, Liudmyla A. Karachevtseva, Yuriy V. Goltviansky, Oleg A. Lytvynenko, Konstantin A. Parshyn, Fedir F. Sizov, Olena J. Stronska, V. Lashkaryov Institute of Semiconductor Physics (Ukraine) [8071-02]

14.40: **Resonance measurements techniques of optical Calcium Fluoride and fused silica whispering gallery mode mini-disk resonators for microwave photonics applications**, Patrice Salzenstein, Ctr. National de la Recherche Scientifique (France); Michal Jelínek, Czech Technical Univ. in Prague (Czech Republic); Yanne K. Chombo, Ctr. National de la Recherche Scientifique (France); Maxim Pogurmiskiy, Saint-Petersburg State Univ. of Information Technologies, Mechanics and Optics (Russian Federation); Laurent Larger, Univ. de Franche-Comté (France); Václav Kubecek, Czech Technical Univ. in Prague (Czech Republic) [8071-03]

Coffee Break 15.00 to 15.30

SESSION 2

Room: Club E Tues. 15.30 to 17.10

Nanophotonics II

Session Chair: **Mario Bertolotti**,
Univ. degli Studi di Roma La Sapienza (Italy)

15.30: **Intense emission of photon pairs from randomly poled nonlinear crystals**, Jiri Svozilik, Jan Perina, Jr., Univ. Palackého V Olomouci (Czech Republic) [8071-04]

15.50: **Up- and down-conversion at three-waves interaction in medium with combined nonlinear response**, Vyacheslav A. Trofimov, Vladislav V. Trofimov, Lomonosov Moscow State Univ. (Russian Federation) [8071-05]

16.10: **Cross phase modulation in photonic crystals**, Karolina Slowik, Nicolaus Copernicus Univ. (Poland); Maurizio Artoni, Univ. degli Studi di Brescia (Italy); Giuseppe C. La Rocca, Scuola Normale Superiore di Pisa (Italy); Andrzej Raczyński, Jaroslaw Zaremba, Sylwia Zielinska-Kaniasty, Nicolaus Copernicus Univ. (Poland) [8071-06]

16.30: **Two telescopes ABCD electro-optic beam combiner based on Lithium Niobate for near infrared stellar interferometry**, Guillermo Martin, Samuel Heidmann, Olga Caballero, Axelle Nollot, Thibaut Moulin, Alain Delboulbé, Laurent Jocou, Jean-Baptiste Le Bouquin, Jean-Philippe Berger, Lab. d'Astrophysique de l'Observatoire de Grenoble (France) [8071-07]

16.50: **Strong modification of density of optical states in biotemplated photonic crystals**, Matthew R. Jorgensen, Michael H. Bartl, The Univ. of Utah (United States) [8071-08]

Wednesday 20 April

SESSION 3

Room: Club D Wed. 08.30 to 10.00

Nonlinear Plasmonics I

Session Chair: **Anatoly V. Zayats**,
King's College London (United Kingdom)

08.30: **Nonlinear plasmonics (Invited Paper)**, Mark I. Stockman, Georgia State Univ. (United States) [8071-09]

09.20: **Enhancement of second harmonic generation in coupled chains of Ag rods**, Marco Centini, Alessio Benedetti, Concita Sibilia, Univ. degli Studi di Roma La Sapienza (Italy) [8071-10]

09.40: **Nonlinear circular dichroism from self-organized metal nanowires arrays**, Alessandro Belardini, Maria Cristina C. Larciprete, Marco Centini, Eugenio Fazio, Concita Sibilia, Univ. degli Studi di Roma La Sapienza (Italy); Daniele Chiappe, Christian Martella, Andrea Toma, Francesco Buatier de Mongeot, Univ. degli Studi di Genova (Italy) [8071-11]

Coffee Break 10.00 to 10.30

SESSION 4

Room: Club D Wed. 10.30 to 12.00

Nonlinear Plasmonics II

Session Chair: **Mark I. Stockman**, Georgia State Univ. (United States)

10.30: **Nonlinear and active plasmonics (Invited Paper)**, Anatoly V. Zayats, King's College London (United Kingdom) [8071-12]

11.20: **Nonlinear optical properties of silver nanoparticles synthesized in ORMOCER by ion implantation**, Andrey L. Stepanov, E.K. Zavoisky Physical-Technical Institute (Russian Federation); Roman Kiyan, Laser Zentrum Hannover e.V. (Germany); Vladimir Nuzhdin, Valery Valeev, E.K. Zavoisky Physical-Technical Institute (Russian Federation); Boris N. Chichkov, Laser Zentrum Hannover e.V. (Germany) [8071-13]

11.40: **Light up-conversion and single photon directional emission beaming from quantum dots embedded in subwavelength metallic nano-slit arrays**, Ronen Rapaport, The Hebrew Univ. of Jerusalem (Israel) [8071-14]

Lunch/Exhibitor Break 12.00 to 13.30

SESSION 5

Room: Club D Wed. 13.30 to 15.30

Ultrafast Phenomena I

Session Chair: **Mario Bertolotti**,
Univ. degli Studi di Roma La Sapienza (Italy)

13.30: **Attosecond production (Invited Paper)**, Reinhard Kienberger, Max-Planck-Institut für Quantenoptik (Germany) [8071-15]

14.20: **Isolated attosecond pulses: generation and application to molecular science (Invited Paper)**, Mauro Nisoli, Politecnico di Milano (Italy) [8071-16]

15.10: **Optimization and characterization of a femtosecond tunable light source based on the soliton self-frequency shift in photonic crystal fiber**, Charles-Henri Hage, Bertrand Kibler, Univ. de Bourgogne (France); Eric Mottay, Amplitude Systemes (France); Hervé Rigneault, Institut Fresnel (France); John M. Dudley, Univ. de Franche-Comté (France); Guy Millot, Christophe Finot, Univ. de Bourgogne (France) [8071-17]

Coffee Break 15.30 to 16.00

SESSION 6

Room: Club D. Wed. 16.00 to 17.40

Ultrafast Phenomena II

Session Chair: Reinhard Kienberger,
Max-Planck-Institut für Quantenoptik (Germany)

16.00: **Ultrafast quantum and nonlinear optics with optical antennas**, Xue-Wen Chen, Amir Baradaran Ghasemi, Vahid Sandoghdar, Mario Agio, ETH Zurich (Switzerland) [8071-18]

16.20: **Deep UV generation and fs pulses characterization using strontium tetraborate**, Aleksandr S. Aleksandrovsky, Kirensky Institute of Physics (Russian Federation); Andrey M. Vyunishev, Siberian Federal Univ. (Russian Federation); Aleksandre I. Zaitsev, Kirensky Institute of Physics (Russian Federation); Anton A. Ikonnikov, Gennadiy I. Pospelov, Vladimir E. Rovsky, Vitaliy Slabko, Anastasiya A. Zhokhova, Siberian Federal Univ. (Russian Federation) [8071-19]

16.40: **Control of group velocity of a light pulses propagating through four-level atomic system**, Paulina A. Grochowska, Andrzej Raczyński, Jarosław Zaremba, Nicolaus Copernicus Univ. (Poland); Sylwia Zielinska-Kaniasty, Univ. of Technology and Life Sciences in Bydgoszcz (Poland) [8071-20]

17.00: **Permanent waveguides in glassy As₄Ge₃₀S₆₆ induced by femtosecond filaments**, Viktor M. Kadan, Ivan V. Blonsky, Institute of Physics (Ukraine); Oleh I. Shpotyuk, Lviv Scientific Research Institute of Materials (Ukraine) and J. Dlugosz Univ. de Czestochowa (Poland); Mihail S. Iovu, Institute of Applied Physics (Moldova); Petro Korenyuk, Institute of Physics (Ukraine) [8071-21]

17.20: **Frequency doubling of picosecond pulses generated by a monolithic DFB tapered MOPA in a ppMgO:LN channel waveguide**, Daniel Jedrzejczyk, Ferdinand-Braun-Institut (Germany); Sina Riecke, PicoQuant GmbH (Germany); Reiner Güther, Ferdinand-Braun-Institut (Germany); Kristian Lauritsen, PicoQuant GmbH (Germany); Katrin Paschke, Ferdinand-Braun-Institut (Germany) . . [8071-22]

Posters Wed. 17.40 to 19.15

Conference attendees are invited to attend the EOO Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Experimental study of second harmonic generation in PPKTP crystals using high-power ytterbium fiber laser, Petr Navratil, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic); Pavel Peterka, Pavel Honzátko, Petar Gladkov, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Václav Kubeček, Czech Technical Univ. in Prague (Czech Republic) [8071-36]

Optoelectronic phase noise system designed for microwave photonics sources measurements in metrology application, Patrice Salzenstein, Ctr. National de la Recherche Scientifique (France) and LNE-LTFB (France) and FEMTO ST (France); Nathalie Chollet, Ctr. National de la Recherche Scientifique (France) and LNE-LTFB (France); Mikhail Zarubin, Ekaterina Pavlyuchenko, Abdelhamid Hmima, Ctr. National de la Recherche Scientifique (France); Yanne K. Chembo, FEMTO-ST (France); Laurent Larger, Univ. de Franche-Comté (France) . . [8071-37]

Numeric investigations in attophysics: the stabilization phenomenon, Jacek Matulewski, Tomasz Dziubak, Nicolaus Copernicus Univ. (Poland) [8071-38]

Ultrafast photonic switching based on the protein bacteriorhodopsin, László Fábrián, Zsuzsanna Heiner, Biological Research Ctr. (Hungary); Mark Mero, Miklós Kiss, Univ. of Szeged (Hungary); Elmar K. Wolff, Univ. Witten/Herdecke GmbH (Germany); Pál Ormos, Biological Research Ctr. (Hungary); Károly Osvay, Univ. of Szeged (Hungary); Andras Der, Biological Research Ctr. (Hungary) [8071-39]

Obtaining ZnO/CuInSe₂ heterostructures, Irena Mihailova, Vjacheslavs Gerbreders, Edmunds Tamanis, Eriks Sledevskis, Andrejs Ogurcovs, Velga Akmene, Daugavpils Univ. (Latvia) [8071-40]

Multi-threaded parallel simulation of non-local non-linear problems in ultrashort laser pulse propagation in the presence of plasma, Mandana Baregheh, Aston Univ. (United Kingdom); Holger Schmitz, Imperial College London (United Kingdom); Vladimir K. Mezentsev, Aston Univ. (United Kingdom) . [8071-41]

Stability analysis of second order pulsed Raman laser in dispersion managed systems, Salih K. Kalyoncu, Shiming Gao, En-Kuang Tien, Univ. of California, Irvine (United States); Stefano Wabnitz, Univ. degli Studi di Brescia (Italy); Ozdal Boyraz, Univ. of California, Irvine (United States) [8071-42]

Effects of nonlinear gain and thermal carrier escape on dynamic characterizations of GaAs/InGaAs self-assembled quantum dot lasers, Hadi Arabshahi, Ferdowsi Univ. of Mashhad (Iran, Islamic Republic of); Mitra Rahbar, Islamic Azad Univ. (Iran, Islamic Republic of) [8071-43]

Large picosecond nonlinearity in gold nanoparticles synthesized using Coriandrum sativum extract, Soma Venugopal Rao, Univ. of Hyderabad (India) [8071-44]

Observation of the slow light propagation in saturable erbium doped fiber by side monitoring of fluorescence, Anna Shlyagina, Univ. Autónoma de Baja California (Mexico); Marcos Plata Sanchez, Serguei Stepanov, Ctr. de Investigación Científica y de Educación Superior de Ensenada (Mexico) [8071-46]

Optical and nonlinear optical studies of Ba_{0.5}Sr_{0.5}TiO₃ thin films, K. Venkata Saravanan, K. C. James Raju, M. Ghanashyam Krishna, Surya Prakash Tewari, Soma Venugopal Rao, Univ. of Hyderabad (India) [8071-47]

Investigation of the proton exchange phenomenon in Lithium Niobate crystal by means of investigation of the diffraction efficiency of a proton exchanged grating, Mohammadreza Riahi, Shahid Beheshti Univ. (Iran, Islamic Republic of); Marzieh Rajabpour Niknam, Arman Soltani, Amir Khodabakhsh, Noorafarin idea co. (Iran, Islamic Republic of) [8071-49]

Thursday 21 April

SESSION 7

Room: Club D. Thurs. 08.30 to 10.10

Solitons I

Session Chair: Eugenio Del Re, Univ. degli Studi dell'Aquila (Italy)

08.30: **Recent advances in the physics of spatial optical solitons** (*Invited Paper*), Yuri S. Kivshar, The Australian National Univ. (Australia) [8071-23]

09.20: **Self-trapped beams: a fabrication technique for tri-dimensional integrated optics** (*Invited Paper*), Mathieu Chauvet, Institut FEMTO-ST (France) [8071-24]

Coffee Break 10.10 to 10.40

SESSION 8

Room: Club D. Thurs. 10.40 to 12.30

Solitons II

Session Chair: Yuri S. Kivshar, The Australian National Univ. (Australia)

10.40: **Scale-free optics and diffractionless waves in nanodisordered ferroelectrics** (*Invited Paper*), Eugenio Del Re, Univ. degli Studi dell'Aquila (Italy) and Univ. degli Studi di Roma La Sapienza (Italy); Aharon J. Agranat, The Hebrew Univ. of Jerusalem (Israel); Claudio Conti, Univ. degli Studi di Roma La Sapienza (Italy) [8071-25]

11.30: **Photorefractivity of zirconium-doped lithium niobate crystals** (*Invited Paper*), Vittorio Degiorgio, Paolo Minziona, Giovanni Nava, Ilaria Cristiani, Wenbo Yan, Univ. degli Studi di Pavia (Italy); Nicola Argiolas, Marco Bazzan, Maria Vittoria Ciampolillo, Anna Maria Zaltron, Cinzia Sada, Univ. degli Studi di Padova (Italy) [8071-26]

12.10: **Observation of the optical peregrine soliton**, Bertrand Kibler, Kamal Hammani, Julien Fatome, Christophe Finot, Guy Millot, Univ. de Bourgogne (France); Frederic Dias, Ecole Normale Supérieure de Cachan (France) and Univ. College Dublin (Ireland); Goery Genty, Tampere Univ. of Technology (Finland); Nail Akhmediev, The Australian National Univ. (Australia); John M. Dudley, Univ. de Franche-Comté (France) [8071-27]

Lunch Break 12.30 to 13.50

SESSION 9

Room: Club D. Thurs. 13.50 to 15.10

Nonlinear Effects I

Session Chair: Joseph W. Haus, Univ. of Dayton (United States)

13.50: **Second-harmonic generation and electro-optic modulation in thermally poled and unpoled twin-hole silica-glass optical fiber**, Toru Mizunami, Kyouhei Okazaki, Hidetoshi Sato, Ryusuke Kawamoto, Kyushu Institute of Technology (Japan) [8071-28]

14.10: **Biphoton compression in standard optical fiber**, Alice Meda, Istituto Nazionale di Ricerca Metrologica (Italy) [8071-29]

14.30: **Quasi-phase-matched third harmonic generation in optical fibers using refractive-index gratings**, Karol Tarnowski, Wrocław Univ. of Technology (Poland); Bertrand Kibler, Christophe Finot, Univ. de Bourgogne (France); Waclaw Urbanczyk, Wrocław Univ. of Technology (Poland) [8071-30]

14.50: **Rapid prototyping of color structures using 3D laser lithography**, Pirmin Proier, Volker Schmidt, Ma R. Belegatis, Barbara Stadlober, Paul Hartmann, JOANNEUM RESEARCH Forschungsgesellschaft mbH (Austria); Joachim Krenn, Karl-Franzens-Univ. Graz (Austria) [8071-32]

Coffee Break 15.10 to 15.40

SESSION 10

Room: Club D. Thurs. 15.40 to 16.40

Nonlinear Effects II

Session Chair: Joseph W. Haus, Univ. of Dayton (United States)

15.40: **Finite element modelling of induced gratings in nonlinear optics**, Pierre Godard, Frederic Zolla, André Nicolet, Institut Fresnel (France) [8071-33]

16.00: **Surface SHG as the method of remote control of dielectric mirrors quality**, Ivan V. Yakovlev, Ivan B. Mukhin, Victor V. Zelenogorsky, Oleg V. Palashov, Efim A. Khazanov, Institute of Applied Physics (Russian Federation); David Reitze, Univ. of Florida (United States) [8071-34]

16.20: **PhoXonic architectures for tailoring the acousto-optic interaction**, Nikos Papanikolaou, Ioannis E. Psarobas, Giorgos Gantzounis, Evangelos Almpanis, National Ctr. for Scientific Research Demokritos (Greece); Nikos Stefanou, Univ. of Athens (Greece); Bahram Djafari-Rouhani, Institute d' Electronique, de Microelectronique et de Nanotechnologie (France); Bernard Bonello, Institut des NanoSciences de Paris (France); Vincent Laude, Univ. de Franche-Comté (France); Alejandro Martinez, Univ. Politécnica de Valencia (Spain) [8071-35]

Photon Counting Applications

Conference Chair: **Ivan Prochazka**, Czech Technical Univ. in Prague (Czech Republic)

Conference Co-Chair: **Roman Sobolewski**, Univ. of Rochester (United States)

Programme Committee: **Wolfgang Becker**, Becker & Hickl GmbH (Germany); **Josef Blazej**, Czech Technical Univ in Prague (Czech Republic); **Sergio D. Cova**, Politecnico di Milano (Italy); **Ulrich Schreiber**, Technische Univ. München (Germany); **Wojciech Slys**, Instytut Technologii Elektronowej (Poland)

Tuesday 19 April

Opening Remarks

Room: Club B. Tues. 08.25 to 08.30

Ivan Prochazka, Czech Technical Univ. in Prague (Czech Republic),
Roman Sobolewski, Univ. of Rochester (USA)

SESSION 1

Room: Club B. Tues. 08.30 to 10.10

Superconducting Photon Counters

Session Chair: **Roman Sobolewski**, Univ. of Rochester (United States)

08.30: **Recent advances in superconducting NbN single-photon detector developments** (*Invited Paper*), Gregory Goltsman, Alexander Korneev, Michael Tarkhov, Irina Florya, Yulia Korneeva, Michael Elezov, Nadezhda Manova, Pavel An, Anna Kardakova, Anastasiya Isupova, Moscow State Pedagogical Univ. (Russian Federation); Alexander Divochiy, Yuri Vachtomin, Konstantin Smirnov, SCONTEL (Russian Federation); Natalya Kaurova, Vitaliy Seleznev, Boris Voronov, Moscow State Pedagogical Univ. (Russian Federation) [8072A-01]

09.00: **Superconducting single photon detectors based on parallel NbN nanowires** (*Invited Paper*), Mikkel Ejmaes, Istituto di Cibernetica Eduardo Caianiello (Italy); Alessandro Casaburi, Sergio Pagano, Univ. degli Studi di Salerno (Italy); Francesco Mattioli, Alessandro Gaggero, Roberto Leoni, Istituto di Fotonica e Nanotecnologie (Italy); Roberto Cristiano, Istituto di Cibernetica Eduardo Caianiello (Italy) [8072A-02]

09.30: **The performance of a versatile setup for superconducting nanowire single photon detectors**, Mohsen Keshavarz Akhlaghi, Amir Hamed Majedi, Univ. of Waterloo (Canada) [8072A-03]

09.50: **Superconducting single photon detectors based on multiple cascade switches of parallel NbN nanowires**, Roberto Cristiano, Mikkel Ejmaes, Istituto di Cibernetica Eduardo Caianiello (Italy); Alessandro Casaburi, Sergio Pagano, Univ. degli Studi di Salerno (Italy); Francesco Mattioli, Alessandro Gaggero, Roberto Leoni, Istituto di Fotonica e Nanotecnologie (Italy) [8072A-04]

Coffee Break 10.10 to 10.40

SESSION 2

Room: Club B. Tues. 10.40 to 11.50

Semiconducting Photon Counters

Session Chair: **Ivan Rech**, Politecnico di Milano (Italy)

10.40: **Silicon SPAD with near-infrared enhanced spectral response** (*Invited Paper*), Francesco Panzeri, Angelo Gulinatti, Ivan Rech, Massimo Ghioni, Sergio Cova, Politecnico di Milano (Italy) [8072A-05]

11.10: **t-SPAD: a new red sensitive single photon counting module**, Gerald Kell, Fachhochschule Brandenburg (Germany); Rainer Erdmann, Andreas Bültner, Guillaume Delpont, PicoQuant GmbH (Germany) [8072A-06]

11.30: **Floating field ring technique applied to enhance fill factor of silicon photomultiplier elementary cell**, Luca Maresca, Martina De Laurentis, Michele Riccio, Andrea Itrace, Giovanni Breglio, Univ. degli Studi di Napoli Federico II (Italy) [8072A-08]

Lunch/Exhibition Break 11.50 to 13.30

SESSION 3

Room: Club B. Tues. 13.10 to 15.00

Photon Counting Applications I

Session Chair: **Ulrich Schreiber**, Technische Univ. München (Germany)

13.10: **Development and construction of the photon counting receiver for the European laser time transfer space mission** (*Invited Paper*), Ivan Prochazka, Josef Blazej, Jan Kodet, Czech Technical Univ. in Prague (Czech Republic); Jan Brinek, Czech Space Research Ctr. (Czech Republic) [8072A-09]

13.40: **Photon counting receiver for the laser time transfer, optical design, and construction**, Jan Kodet, Michael Vacek, Petr Fort, Ivan Prochazka, Josef Blazej, Czech Technical Univ. in Prague (Czech Republic) [8072A-10]

14.00: **Photon counting altimeter and Lidar for air and spaceborne applications**, Marek Peca, VZLÚ, a.s. (Czech Republic); Vojtech Michalek, Czech Technical Univ. in Prague (Czech Republic) and VZLÚ, a.s. (Czech Republic); Ivan Prochazka, Czech Technical Univ. in Prague (Czech Republic); Michael Vacek, Czech Technical Univ. in Prague (Czech Republic) and VZLÚ, a.s. (Czech Republic); Josef Blazej, Jan Kodet, Czech Technical Univ. in Prague (Czech Republic) [8072A-11]

14.20: **Using pulse position modulation in SLR stations to transmit data to satellites**, Georg Kirchner, Franz Koidl, Daniel Kucharski, Space Research Institute (Austria) [8072A-12]

14.40: **Fully integrated time-to-amplitude converter for multidimensional TCSPC applications**, Matteo Crotti, Ivan Rech, Massimo Ghioni, Ivan Labanca, Politecnico di Milano (Italy) [8072A-13]

Coffee Break 15.00 to 15.50

SESSION 4

Room: Club B. Tues. 15.30 to 17.40

Photon Counting Applications II

Session Chair: **Wojciech Slys**, Instytut Technologii Elektronowej (Poland)

15.30: **Quantum optoelectronics by NbN superconducting nanowire single photon detector** (*Invited Paper*), A. Hamed Majedi, Univ. of Waterloo (Canada) [8072A-14]

16.00: **Integrated superconducting nanowire detectors for quantum plasmonics** (*Invited Paper*), Valery Zwiller, Sander Dorenbos, Esteban Bermudez-Urena, Reinier Heeres, Maaike Witteveen, Hatim Azzouz, Pol Forn-Diaz, Tomoko Fuse, Tony Zijlstra, Teun Klapwijk, Technische Univ. Delft (Netherlands) [8072A-15]

16.30: **Analysing non-classical photon statistics of quantum emitters with a single superconducting detector**, Gesine Steudle, Stefan Schietinger, David Höckel, Humboldt-Univ. zu Berlin (Germany); Sander Dorenbos, Val Zwiller, Delft Univ. of Technology (Netherlands); Oliver Benson, Humboldt-Univ. zu Berlin (Germany) [8072A-16]

16.50: **Spectral sensitivity of narrow strip NbN superconducting single-photon detector**, Alexander Korneev, Yulia Korneeva, Irina Florya, Gregory Goltsman, Moscow State Pedagogical Univ. (Russian Federation) [8072A-17]

17.10: **Ferromagnet/superconductor bilayer nanostripes for optical-photon detection applications** (*Invited Paper*), Giovanni P. Pepe, CNR-SPIN UOS Napoli (Italy) and Univ. degli Studi di Napoli Federico II (Italy); Loredana Parlato, Antonio Capretti, Vito Pagliarulo, Corrado De Lisis, Univ. degli Studi di Napoli Federico II (Italy) and CNR-SPIN UOS Napoli (Italy); Carmine Attanasio, Carla Cirillo, Univ. degli Studi di Salerno (Italy) and CNR-SPIN (Italy); Roberto Cristiano, Mikkel Ejmaes, Istituto di Cibernetica Eduardo Caianiello (Italy); Hyroaki Myoren, Taino Toru, Saitama Univ. (Japan); Roman Sobolewski, Univ. of Rochester (United States) [8072A-18]

Optics+Optoelectronics

Wednesday 20 April

Posters Wed. 17.40 to 19.15

Conference attendees are invited to attend the EOO Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Collection optimization of a tile shape radiation detector, Alon Osovizky, Rotem Industries Ltd. (Israel); Arie Beck, Yeshayhu Levin, Irad Brandys, Eli Dolev, Nuclear Research Ctr. Negev (Israel); Vitaly Pushkarsky, Rotem Industries Ltd. (Israel); Or Chen, Nuclear Research Ctr. Negev (Israel); Ilan Cohen-Zada, Rotem Industries Ltd. (Israel); Itamar Israelashvili, Nuclear Research Ctr. Negev (Israel); Dmitry Ginzburg, Rotem Industries Ltd. (Israel); El'ad Caspi, Tzachi Mazor, Yossi Cohen, Nuclear Research Ctr. Negev (Israel) [8072A-07]

A versatile all-digital time interval measuring system, David Vyhldal, Miroslav Cech, Czech Technical Univ. in Prague (Czech Republic) [8072A-19]

Ultrathin NbN films designed for superconducting single-photon detectors, Wojciech Slys, The Institute of Electron Technology (Poland) [8072A-20]

Quantum Optics and Quantum Information Transfer and Processing

Conference Chair: **Jaromír Fiurásek**, Palacky Univ. Olomouc (Czech Republic)

Programme Committee: **Ulrik Andersen**, Technical Univ. of Denmark (Denmark); **Marco Bellini**, Istituto Nazionale di Ottica Applicata (Italy); **Nicolas J. Cerf**, Univ. Libre de Bruxelles (Belgium); **Miloslav Dusek**, Palacky Univ. Olomouc (Czech Republic); **Jens Eisert**, Univ. Potsdam (Germany); **Jeremy L. O'Brien**, Univ. of Bristol (United Kingdom); **Alexander I. Lvovsky**, Univ. of Calgary (Canada); **Andreas Poppe**, Austrian Institute of Technology (Austria); **Geoff J. Pryde**, Griffith Univ. (Australia); **Fabio Sciarrino**, Univ. degli Studi di Roma La Sapienza (Italy); **Andrew J. Shields**, Toshiba Research Europe Ltd. (United Kingdom); **Juan P. Torres**, ICFO - Instituto de Ciencias Fotónicas (Spain)

Monday 18 April

Opening Remarks

Room: Club B Mon. 10.30 to 10.40
Jaromír Fiurásek, Palacky Univ. Olomouc (Czech Republic)

SESSION 5

Room: Club B Mon. 10.40 to 12.10

Quantum Optics and Quantum Metrology

Session Chair: **Jaromír Fiurásek**,
Palacky Univ. Olomouc (Czech Republic)

10.40: **Quantum information science with integrated photonics** (*Invited Paper*), Alberto Politi, Jonathan C. F. Matthews, Anthony Laing, Alberto Peruzzo, Kostantinos Poullos, Mirko Lobino, Pruet Kalasuwan, Xiao-Qi Zhou, Maria Rodas Verde, Damien Bonneau, Pete Shadbolt, Jasmin Meinecke, Pisu Jiang, J. P. Hadden, Luca Marseglia, Joanne P. Harrison, Antony Stanley-Clarke, Brian R. Patton, John G. Rarity, Mark G. Thompson, Jeremy L. O'Brien, Univ. of Bristol (United Kingdom) [8072B-21]

11.10: **Enhanced resolution in lossy phase estimation by optical parametric amplification**, Nicolò Spagnolo, Chiara Vitelli, Univ. degli Studi di Roma La Sapienza (Italy) and Consorzio Nazionale Interuniversitario per le Scienze Fisiche della Materia (Italy); Lorenzo Toffoli, Univ. degli Studi di Roma La Sapienza (Italy); Francesco De Martini, Univ. degli Studi di Roma La Sapienza (Italy) and Accademia Nazionale dei Lincei (Italy); Fabio Sciarrino, Univ. degli Studi di Roma La Sapienza (Italy) and Istituto Nazionale di Ottica (Italy) [8072B-22]

11.30: **Semiconductor Bragg reflection waveguides as source of entangled photon pairs: theory and experiments**, Jiri Svozilik, Martin Hendrych, Juan P. Torres, ICFO - Instituto de Ciencias Fotónicas (Spain) [8072B-23]

11.50: **QED in cavities containing bounded inhomogeneous dielectric domains**, Robin Tucker, Shin-itiro Goto, Timothy Walton, Lancaster Univ. (United Kingdom) [8072B-24]

Lunch Break 12.10 to 13.40

SESSION 6

Room: Club B Mon. 13.40 to 15.10

Quantum Information Processing

Session Chair: **Alberto Politi**, Univ. of Bristol (United Kingdom)

13.40: **High-fidelity noiseless amplification by photon addition and subtraction** (*Invited Paper*), Alessandro Zavatta, Istituto Nazionale di Ottica Applicata (Italy) and Univ. degli Studi di Firenze (Italy); Massimiliano Locatelli, Constantina Polycarpou, Univ. degli Studi di Firenze (Italy); Jaromir Fiurasek, Palacky Univ. Olomouc (Czech Republic); Marco Bellini, Istituto Nazionale di Ottica Applicata (Italy) and Univ. degli Studi di Firenze (Italy) [8072B-25]

14.10: **Polarization entangled state measurement on a chip**, Linda Sansoni, Univ. degli Studi di Roma La Sapienza (Italy); Fabio Sciarrino, Univ. degli Studi di Roma La Sapienza (Italy) and Istituto Nazionale Ottica, Consiglio Nazionale delle Ricerche (Italy); Giuseppe Vallone, Univ. degli Studi di Roma La Sapienza (Italy); Paolo Mataloni, Univ. degli Studi di Roma La Sapienza (Italy) and Istituto Nazionale Ottica, Consiglio Nazionale delle Ricerche (Italy); Andrea Crespi, Roberta Ramponi, Roberto Osellame, Politecnico di Milano (Italy) [8072B-26]

14.30: **Prime number decomposition: the hyperbolic function, Gauss sums and multi-path interference**, Vincenzo Tamma, Carroll O. Alley, Univ. of Maryland, Baltimore County (United States); Augusto Garuccio, Univ. degli Studi di Bari (Italy); Wolfgang P. Schleich, Univ. Ulm (Germany); Yanhua Shih, Univ. of Maryland, Baltimore County (United States) [8072B-27]

14.50: **Quantum interference from a three-level ensemble of radiators dressed in the standing wave of cavity field**, Nellu Ciobanu, Pontificia Univ. Católica de Chile (Chile); Nicolae A. Enaki, Academy of Sciences of Moldova [8072B-29]

Wednesday 20 April

Posters Wed. 17.40 to 19.15

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Locality and causality in quantum optical entanglement, Han Geurdes, Consultant (Netherlands) [8072B-30]

The role of measurement and random coins in the recurrence property of discrete timed quantum walks, Tamás Kiss, László Kecskés, Research Institute for Solid State Physics and Optics (Hungary); Martin Stefanak, Igor Jex, Czech Technical Univ. in Prague (Czech Republic) [8072B-33]

Propagation of light in optically modified atomic media, Jakub Korocinski, Nicolaus Copernicus Univ. (Poland) [8072B-34]

SROP and DROP spectra with alkali atomic vapor cell and applications, Junmin Wang, Qiangbing Liang, Jing Gao, Baodong Yang, Tiancai Zhang, Kunchi Peng, Shanxi Univ. (China) [8072B-35]

Analysis of dynamic and static characteristics of InGaAs/GaAs self-assembled quantum dot lasers, Hadi Arabshahi, Ferdowsi Univ. of Mashhad (Iran, Islamic Republic of); S. M. Mahdi Ghajdooz, Consultant (Iran, Islamic Republic of) [8072B-36]

Quantum public-key cryptosystem with two indistinguishable quantum states, Li Yang, Jiangyou Pan, Graduate Univ. of the Chinese Academy of Sciences (China) [8072B-37]

Optical Sensors

Conference Chairs: **Francesco Baldini**, Istituto di Fisica Applicata Nello Carrara (Italy); **Jiri Homola**, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); **Robert A. Lieberman**, Intelligent Optical Systems, Inc. (United States)

Programme Committee: **Loïc J. Blum**, Univ. Claude Bernard-Lyon 1 (France); **Artur Dybko**, Warsaw Univ. of Technology (Poland); **Martin Hof**, J. Heyrovsk? Institute of Physical Chemistry of the ASCR, v.v.i. (Czech Republic); **Bo Liedberg**, Linköping Univ. (Sweden); **Aleksandra Lobnik**, Univ. of Maribor (Slovenia); **Gerhard J. Mohr**, Fraunhofer IZM (Germany); **Ramaier Narayanaswamy**, The Univ. of Manchester (United Kingdom); **Guillermo Orellana**, Univ. Complutense de Madrid (Spain); **Claudia Preininger**, Austrian Institute of Technology (Austria); **Reinhardt Willsch**, IPHT Jena (Germany)

Monday 18 April

Opening Remarks

Room: Terrace 1 **Mon. 09.00 to 09.10**

Jiri Homola, Institute of Photonics and Electronics of the ASCR, v.v.i.

SESSION 1

Room: Terrace 1 **Mon. 09.10 to 11.40**

Components and Subsystems

09.10: **EUV detectors based on AlGaIn-on-Si Schottky photodiodes**, Pawel E. Malinowski, IMEC (Belgium) and Katholieke Univ. Leuven (Belgium); Jean-Yves Duboz, Ctr. de Recherche sur l'Hétéro-Epitaxie et ses Applications (France); Piet De Moor, Kyriaki Minoglou, Joachim John, IMEC (Belgium); Puneet Srivastava, IMEC (Belgium) and Katholieke Univ. Leuven (Belgium); Fabrice Semond, Eric Frayssinet, Ctr. de Recherche sur l'Hétéro-Epitaxie et ses Applications (France); Ali BenMoussa, Boris Giordanengo, Royal Observatory of Belgium (Belgium); Chris Van Hoof, Robert Mertens, IMEC (Belgium) and Katholieke Univ. Leuven (Belgium) [8073A-01]

09.30: **2D CMOS image sensors for the rapid acquisition of optically modulated and multi-parametric images**, Nicholas S. Johnston, Roger A. Light, Mike Somekh, Jing Zhang, Mark Pitter, The Univ. of Nottingham (United Kingdom) [8073A-02]

09.50: **CMOS lock-in optical sensor for parallel detection in pump-probe systems**, Roger A. Light, Richard J. Smith, Nicholas S. Johnston, Michael G. Somekh, Mark C. Pitter, The Univ. of Nottingham (United Kingdom) [8073A-03]

Coffee Break 10.10 to 10.40

10.40: **Challenging design and development of Ma_Miss, a miniaturised spectrometric instrument for Mars sub-soil analysis**, Enrico Battistelli, SELEX Galileo S.p.A. (Italy); Angioletta Coradini, Istituto di Fisica dello Spazio Interplanetario (Italy); Raffaele Mugnuolo, Agenzia Spaziale Italiana (Italy); Annalisa Capanni, Riccardo Paolinetti, Piergiorgio Magnani, Edoardo Re, SELEX Galileo S.p.A. (Italy) [8073A-05]

11.00: **Preliminary tests of commercial imagers for nano-satellite attitude determination**, Vladimir Tichy, Czech Technical Univ. in Prague (Czech Republic); Rees Fullmer, Utah State Univ. (United States); Martin Hromcik, Czech Technical Univ. in Prague (Czech Republic) [8073A-06]

11.20: **Study on infrared small target detection technology under complex background**, Lei Liu, Xin Wang, Jilu Chen, Nanjing Univ. of Science & Technology (China) [8073A-07]

Lunch Break 11.40 to 13.30

SESSION 2

Room: Terrace 1 **Mon. 13.30 to 15.40**

Fiber Optic Sensors

13.30: **Novel optical fibre based architectures for chemical and biological sensing (Invited Paper)**, Tanya M. Monro, The Univ. of Adelaide (Australia) [8073A-08]

14.00: **Cascaded optical fibre long period and Bragg gratings for strain and temperature cross-sensitivities compensation in refractive index measurements**, Cosimo Trono, Francesco Baldini, Massimo Brenci, Istituto di Fisica Applicata Nello Carrara (Italy); Francesco Chiavaioli, Univ. degli Studi di Siena (Italy); Riccardo Falciai, Ambra Giannetti, Istituto di Fisica Applicata Nello Carrara (Italy) [8073A-09]

14.20: **Multiple fiber Bragg grating sensor network with a rapid response and wide spectral dynamic range using code division multiple access**, Youngbok Kim, Sie-Wook Jeon, Chang-Soo Park, Gwangju Institute of Science and Technology (Korea, Republic of) [8073A-10]

14.40: **Fiber laser FBG sensor system by using a spectrometer demodulation**, Hyunjin Kim, Minh Song, Chonbuk National Univ. (Korea, Republic of) [8073A-11]

15.00: **Detection of biochemical reaction and DNA hybridization using a planar Bragg grating sensor**, Manuel Rosenberger, Stefan Belle, Ralf Hellmann, Univ. of Applied Sciences Aschaffenburg (Germany) [8073A-12]

15.20: **Optical fibers with conductive polymers like novel sensor structures**, Vladimir Vasinek, Jiri Bocheza, Jan Látal, Petr Koudelka, Petr Siska, Jan Vitasek, Technical Univ. of Ostrava (Czech Republic) [8073A-13]

Tuesday 19 April

SESSION 3

Room: Terrace 1 **Tues. 08.30 to 11.40**

Plasmonic Sensors

08.30: **Designing plasmonic nanostructures for SERS-based biosensing (Invited Paper)**, Qiuming Yu, Univ. of Washington (United States) [8073A-14]

09.00: **Waveguide-integrated SPR sensing on an all-organic platform**, Joachim R. Krenn, Nicole Galler, Harald Dittlbacher, Karl-Franzens-Univ. Graz (Austria); Elke Kraker, Bernd Lamprecht, JOANNEUM RESEARCH Forschungsgesellschaft mbH (Austria) [8073A-15]

09.20: **SPRi biochip: impact of new immobilization chemistry**, Céline Mandon, Marie Fatoux, Sylvie Ricard-Blum, Loic Blum, Christophe A. Marquette, Univ. Claude Bernard Lyon 1 (France) [8073A-16]

09.40: **Analytical study on sensitivity enhancement of the angularly integrated long range surface plasmon sensor**, Mustafa M. Aslan, TÜBITAK Marmara Research Ctr. (Turkey) [8073A-17]

Coffee Break 10.00 to 10.30

10.30: **Plasmon nanoparticles for optical biosensing (Invited Paper)**, Andrea Csaki, Reinhardt Willsch, Hartmut Bartelt, Wolfgang Fritzsche, Institut für Photonische Technologien e.V. (Germany) [8073A-18]

11.00: **Optical biosensor based on localized surface plasmons on a nanoparticle array**, Marek Piliarik, Hana Sipova, Marketa Bockova, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Nicole Galler, Joachim Krenn, Karl-Franzens-Univ. Graz (Austria); Jiri Homola, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) [8073A-19]

11.20: **Enhanced sensitivity of localized surface plasmon resonance biosensor by phase interrogation**, Chung Tien Li, National Tsing Hua Univ. (Taiwan); How Foo Chen, National Yang Ming Univ. (Taiwan); Ta Jen Yen, National Tsing Hua Univ. (Taiwan) [8073A-20]

SESSION 4

Room: Terrace 1 **Tues. 11.40 to 12.20**

Nanosensors, Microsensors, and Integrated Optical Sensors I

11.40: **New optical reference standard in the field of biology: interrogation of micro-resonator based biosensor with a phase sensitive-optical low coherence interferometer**, Anne-Francoise Obaton, Jimmy Dubard, Lab. National de Métrologie et d'Essais (France) [8073A-21]

12.00: **Single-mode integrated optical waveguides for spectroscopy of molecular sub-monolayers**, Rodrigo S. Wiederkehr, Univ. of Louisville (United States); Geoffrey C. Hoops, Butler Univ. (United States); Sergio B. Mendes, Univ. of Louisville (United States) [8073A-22]

Lunch/Exhibition Break 12.20 to 13.40

SESSION 5

Room: Terrace 1 **Tues. 13.40 to 15.30**

Nanosensors, Microsensors, and Integrated Optical Sensors II

13.40: **Nanosensors and nanoprobes: from cell exploration to medical diagnostics (Invited Paper)**, Tuan Vo-Dinh, Duke Univ. (United States) [8073A-23]

- 14.10: **Raman microspectroscopy based sensor of algal lipid unsaturation**, Ota Samek, Zdenek Pilát, Alexandr Jonás, Pavel Zemánek, Mojmir Sery, Institute of Scientific Instruments of the ASCR, v.v.i. (Czech Republic); Ladislav Nedbal, Institute of Systems Biology and Ecology of the Academy of Sciences of the Czech Republic, v.v.i. (Czech Republic); Martin Trtílek, Photon Systems Instruments (Czech Republic) [8073A-24]
- 14.30: **Optical pH nanosensing with modified carbon nanotubes**, Francesco Baldini, Claudio Bianchini, Giacomo Ghini, Giuliano Giambastiani, Ambra Giannetti, Lapo Luconi, Cosimo Trono, Istituto di Fisica Applicata Nello Carrara (Italy) [8073A-25]
- 14.50: **A porous silicon based microfluidic array for the optical monitoring of biomolecular interactions**, Luca De Stefano III, Ivo Rendina, Ilaria Rea, Emanuele Orabona, Istituto per la Microelettronica e Microsistemi (Italy) [8073A-26]
- 15.10: **Gamma-ray sensor based on microdisk whispering gallery modes**, Mohammad Sabaean, Shahid Chamran Univ. of Ahvaz (Iran, Islamic Republic of); Hamid Nadgaran, Zohreh Kargar, Samira Sheikhi, Marzie Afkhami-Garaei, Shiraz Univ. (Iran, Islamic Republic of) [8073A-27]
- Coffee Break 15.30 to 16.00

SESSION 7

Room: Terrace 1 Tues. 16.00 to 17.00

Biosensors and Biomedical Sensors

- 16.00: **Routine optical resting heart rate sensing with a mobile phone video unit**, Enock Jonathan, Martin J. Leahy, Univ. of Limerick (Ireland) [8073A-28]
- 16.20: **Optical biosensor based on His6-OPH for organophosphate detection**, Nina Francic, Univ. of Maribor (Slovenia); Ilya V. Lyagin, Elena N. Efremenko, M. V. Lomonosov Moscow State Univ. (Russian Federation); Aljosa Kosak, Aleksandra Lobnik, Univ. of Maribor (Slovenia) [8073A-36]
- 16.40: **Measurement of dynamic variations of polarized light in processed meat due to aging**, Pavel Tománek, Hamed Mohamed Abubaker, Lubomír Gmela, Brno Univ. of Technology (Czech Republic) [8073A-31]

Wednesday 20 April

SESSION 8

Room: Terrace 1 Wed. 13.40 to 15.20

Chemical Sensing

- 13.40: **Sol-gel based optical chemical sensors**, Aleksandra Lobnik, Matejka Turel, Univ. of Maribor (Slovenia); Spela Korent Urek, Institute for Environmental Protection and Sensors, Ltd. (Slovenia) [8073A-32]
- 14.00: **Novel optical sensors for detection of nitroaromatics based on supported thin flexible poly(methylhydrosiloxane) permeable films functionalised with silole groups**, William E. Douglas, Kassem Amro, Sébastien Clément, Institut Charles Gerhardt Montpellier, UMI (France); Philippe Déjardin, Univ. Montpellier II (France); Philippe Gerbier, Institut Charles Gerhardt Montpellier, UMI (France); Jean-Marc Janot, Thierry Thami, Univ. Montpellier II (France) [8073A-33]
- 14.20: **Sensitivity of silica microspheres modified by xerogel layers to toluene and ethanol**, Vlastimil Matejcek, Filip Todorov, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Michal Jelinek, Martin Fibrich, Czech Technical Univ. in Prague (Czech Republic); Miroslav Chomat, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Vaclav Kubecek, Czech Technical Univ. in Prague (Czech Republic); Daniela Berkova, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) [8073A-34]
- 14.40: **Fluorescent-based chemical sensor for organophosphate detection**, Spela Korent Urek, Institute for Environmental Protection and Sensors, Ltd. (Slovenia); Aleksandra Lobnik, Univ. of Maribor (Slovenia) [8073A-29]
- 15.00: **Photoacoustic detection of volatile organic compounds**, Marcus Wolff, Henry Bruhns, Wenyi Zhang, Hochschule für Angewandte Wissenschaften Hamburg (Germany) [8073A-37]
- Coffee Break 15.20 to 15.50

SESSION 9

Room: Terrace 1 Wed. 15.50 to 17.10

Gas Sensing

- 15.50: **Infrared semiconductor laser-based trace gas sensor technologies: recent advances and applications**, Frank K. Tittel, Robert Curl, Rafal Lewicki, Lei Dong, Rice Univ. (United States) [8073A-38]
- 16.10: **Spectroscopy gas sensing based on hollow waveguides**, Alberto Rodrigues, Volker Lange, Dietrich Kühlke, Hochschule Furtwangen Univ. (Germany) [8073A-39]
- 16.30: **Visual gas sensors based on dye thin films and resonant waveguide gratings**, Laurent Davoine, Marc Schnieper, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland); Angel Barranco, Francisco J. Aparicio, Consejo Superior de Investigaciones Científicas (Spain) [8073A-40]
- 16.50: **Modulation cancellation method in laser spectroscopy**, Vincenzo Spagnolo, Rice Univ. (United States) and Politecnico di Bari (Italy) and CNR-IFN U.O.S. di Bari (Italy); Lei Dong, Anatoly A. Kosterev, David Thomazy, James H. Doty III, Frank K. Tittel, Rice Univ. (United States) [8073A-41]

Posters Wed. 17.40 to 19.15

Conference attendees are invited to attend the EOO Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Lanthanide chelates sol-gel based optical sensor, Matejka Turel, Univ. of Maribor (Slovenia); Spela Korent Urek, Institute for Environmental Protection and Sensors, Ltd. (Slovenia); Aleksandra Lobnik, Eva Rajh, Univ. of Maribor (Slovenia) [8073A-35]

Color stabilizes textbook visual processing, Roberts Paeglis, Biomechanics and Physical Research Institute (Latvia); Madara Orlovskā, Univ. of Latvia (Latvia); Kristaps Bluss, Biomechanics and Physical Research Institute (Latvia) [8073A-42]

Agarose coated single mode optical fiber bend for monitoring humidity, Jinesh Mathew, Yuliya Semenova, Ginu Rajan, Gerald Farrell, Dublin Institute of Technology (Ireland) [8073A-43]

Preparation and characterization of sensing layers for pH detection in living plant cells, Jan Mrazek, Ivan Kasik, Josef Nekola, Tomas Martan, Ondrej Podrazky, Marie Pospisilova, Vlastimil Matejcek, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) [8073A-44]

Simulation of the response of the optical sensor based on the local plasmons in the layer of nanoparticles, Tetiana Mishakova, Taras Shevchenko National Univ. of Kyiv (Ukraine); Eugene Bortchagovsky, V. Lashkaryov Institute of Semiconductor Physics (Ukraine); Valery Lozovski, Taras Shevchenko National Univ. of Kyiv (Ukraine) [8073A-45]

3 5 photodiode temperature sensors for low-temperature pyrometers, Galina Y. Sotnikova, Sergey E. Aleksandrov, Gennadiy A. Gavrilov, Alexander A. Kapralov, Ioffe Physical-Technical Institute (Russian Federation) [8073A-46]

A speckle-photometry method of measurement of thermal diffusion coefficient of porous anodic alumina structures intended for optical sensing, Nikolai I. Mukhurov, Alexander G. Maschenko, Nikolai A. Khilo, Piotr I. Ropot, B.I. Stepanov Institute of Physics (Belarus) [8073A-47]

Dependence of detected intensity of fluorescence of dye on optical fiber tapered tip diameter, Marie Pospisilová, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); Jan Aubrecht, Tomas Martan, Jan Mrazek, Ivan Kasik, Vlastimil Matejcek, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) [8073A-48]

High-sensitivity temperature sensor for spot pyrometer with in-situ calibration against real object temperature, Galina Y. Sotnikova, Sergey E. Alksandrov, Gennadiy A. Gavrilov, Alexander A. Kapralov, Vladislav L. Suchanov, Ioffe Physical-Technical Institute (Russian Federation) [8073A-49]

Optical fiber element of whole-cell sensors of environmental pollution, Hana Vrbová, Czech Technical Univ. in Prague (Czech Republic) and Institute of Chemical Process Fundamentals of the ASCR, v.v.i. (Czech Republic); Gabriela Kuncová, Institute of Chemical Process Fundamentals of the ASCR, v.v.i. (Czech Republic); Marie Pospisilová, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) and Czech Technical Univ. in Prague (Czech Republic) [8073A-51]

Fiber bragg array as a quasi-distributed temperature sensor, Jan Skapa, Frantisek Hanáček, Jan Vitasek, Jan Látal, Petr Koudelka, Vladimír Vasinek, Technical Univ. of Ostrava (Czech Republic) [8073A-52]

Optical blurring sensor, Zehra Saraç, Yilmaz Yildirim, Halit Taskin, Zonguldak Karaelmas Univ. (Turkey) [8073A-54]

Estimation and optimization of scintillation light collection efficiency using a silicon spomultiplier, Dmitry Ginzburg, Rotem Industries Ltd. (Israel); Nathan Kopeika, Ben-Gurion Univ. (Israel); Vitaly Pushkarsky, Avi Manor, Rotem Industries Ltd. (Israel); Max Ghelman, Tzahi Mazor, Yosef Cohen, Nuclear Research Ctr. Negev (Israel); Alon Osovizky, Rotem Industries Ltd. (Israel) [8073A-55]

- An analysis method for evaluating gradient-index fibers based on the Monte Carlo method**, Shuhei Yoshida, Shuma Horiuchi, Zenta Ushiyama, Manabu Yamamoto, Tokyo Univ. of Science (Japan) [8073A-56]
- Monte Carlo simulation of light propagation in a U-shaped optical fiber**, Ladislav Kalvoda, Rudolf Klepáček, Czech Technical Univ. in Prague (Czech Republic) [8073A-58]
- Dendrimer-based optical sensors**, Eva Rajh, Univ. of Maribor (Slovenia); Spela Korent Urek, Institute for Environmental Protection and Sensors, Ltd. (Slovenia); Matejka Turel, Aljosa Kosak, Aleksandra Lobnik, Univ. of Maribor (Slovenia) [8073A-59]
- Nanosensor based on nanoparticles for glucose detection**, Polonca Nedeljko, Institute for Environmental Protection and Sensors, Ltd. (Slovenia); Aljosa Kosak, Aleksandra Lobnik, Univ. of Maribor (Slovenia) [8073A-60]
- U-optrode-based fiber optic thermometers**, Ladislav Kalvoda, Jan Aubrecht, Rudolf Klepáček, Petra Lukášová, Czech Technical Univ. in Prague (Czech Republic) [8073A-61]
- Optimization of an integrated wavelength monitor device**, Pengfei Wang, Univ. of Southampton (United Kingdom) and Dublin Institute of Technology (Ireland); Gilberto Brambilla, Univ. of Southampton (United Kingdom); Yuliya Semenova, Qiang Wu, Gerald Farrell, Dublin Institute of Technology (Ireland) [8073A-62]
- Microstructure optical fibres for detection of gaseous analytes**, Tomas Martan, Jan Aubrecht, Jan Mrázek, Ondřej Podražky, Vlastimil Matejček, Jiri Kanka, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) [8073A-63]
- Dark current study for CMOS fully integrated-PIN-photodiodes**, Jordi Teva, Ingrid Jonak-Auer, austriamicrosystems AG (Austria) [8073A-64]
- The modulation transfer function of interframe CCD sensors**, Adalat Nasibov, Thomas Pedersen, Humbat Nasibov, Fikret Hacizade, TÜBITAK National Research Institute of Electronics and Cryptology (Turkey) [8073A-65]
- Degradation of the MTF of a CCD sensor at binning modes beyond the Nyquist frequency**, Adalat Nasibov, Thomas Pedersen, Humbat Nasibov, Fikret Hacizade, TÜBITAK National Research Institute of Electronics and Cryptology (Turkey) [8073A-66]
- Optical gas sensor using doped polypyrrole (PPy)**, Maria E. Armas Alvarado, Daniel Orquiza de Carvalho, Gustavo Pamplona Rehder, Escola Politécnica da Univ. de São Paulo (Brazil); Jonas Gruber, Rosamaria W. C. Li, Univ. de São Paulo (Brazil); Marco Isaiás Alayo Chávez, Escola Politécnica da Univ. de São Paulo (Brazil) [8073A-67]
- Fiber-optic DTS system application in the research of accumulation possibilities of thermal energy in the rock mass**, Jan Látal, Petr Koudelka, Petr Siska, Jan Skapa, Frantisek Hanacek, Vladimír Vasinek, Jan Vitásek, Stanislav Hejduk, Jiri Bocheza, Technical Univ. of Ostrava (Czech Republic) [8073A-68]
- Spectral characteristics of thermal radiation emitted in the optical fiber as a method of high temperature measurement using fiber optic sensor**, Frantisek Hanáček, Jan Látal, Petr Siska, Petr Koudelka, Jan Skapa, Jan Vitásek, Vladimír Vasinek, Jan Hurta, Technical Univ. of Ostrava (Czech Republic) [8073A-69]
- Measurement of the spectral characteristics of telecommunication fiber emitted at high temperatures**, Frantisek Hanacek, Jan Látal, Petr Siska, Petr Koudelka, Jan Skapa, Jan Vitásek, Vladimír Vasinek, Jan Hurta, Technical Univ. of Ostrava (Czech Republic) [8073A-70]
- Optical chemical sensor for putrescine determination**, Heda Senica, Spela Korent Urek, Institute for Environmental Protection and Sensors, Ltd. (Slovenia); Matejka Turel, Nina Francic, Aljosa Kosak, Aleksandra Lobnik, Univ. of Maribor (Slovenia) [8073A-71]
- Attenuation changes measurement for SM fiber optic splitters in dependence on temperature**, Petr Siska, Jan Látal, Petr Koudelka, Frantisek Hanacek, Jan Vitásek, Jan Skapa, Vladimír Vasinek, Technical Univ. of Ostrava (Czech Republic) [8073A-72]
- Multiplexing FBG-based sensors using unmodulated continuous wave DFB diode laser**, Luis Antonio Arias, Mikhail G. Shlyagin, Sergei V. Miridonov, Ctr. de Investigación Científica y de Educación Superior de Ensenada (Mexico) [8073A-73]
- Multispectral photoplethysmography biosensor**, Lasma Asare, Edgars Kviesis-Kipge, Andris Grabovskis, Uldis Rubins, Janis Spigulis, Renars Erts, Univ. of Latvia (Latvia) [8073A-76]
- Noise reduction of FBG sensor signal by using a wavelet transform**, Yo-Han Cho, Minho Song, Chonbuk National Univ. (Korea, Republic of) [8073A-77]
- A fiber-optic Sagnac multi-stress sensor system**, HanChul Kang, Chonbuk National Univ. (Korea, Republic of); JuneHo Lee, Hoseo Univ. (Korea, Republic of); Jongkil Lee, Andong National Univ. (Korea, Republic of); Hyun Jin Kim, Minho Song, Chonbuk National Univ. (Korea, Republic of) [8073A-78]
- Comparison of surface chemistries for protein immobilization onto NH₂-rich surfaces**, Markéta Bocková, Veronika Sevcu, Jiri Homola, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) [8073A-79]
- Advancing surface plasmon resonance (SPR) sensors towards single molecule detection**, Pavel Kvasnicka, Milan Vala, Petra Chocholáčová, Pavel Adam, Jiri Homola, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) [8073A-80]
- Pixel diamond detectors for excimer laser beam diagnostics**, Marco Girolami, Stefano Salvatori, Gennaro Conte, Univ. degli Studi Roma Tre (Italy) [8073A-81]
- Selected aspects of mid-IR optopair-based gas detection and analysis in a wide concentration range**, Zbigniew S. Sobków, Tadeusz Pisarkiewicz, AGH Univ. of Science and Technology (Poland); Sergey Kizhaev, Sergey Molchanov, Nikolay Stoyanov, Ioffe Physico-Technical Institute (Russian Federation) [8073A-82]
- Creation of biosensor platform based on localized plasmon resonance in glasses with silver nanoparticles**, Alexei V. Nashchekin, Vladimir N. Nevedomskiy, Ioffe Physical-Technical Institute (Russian Federation); Oleg A. Podsvirov, St. Petersburg State Polytechnical Univ. (Russian Federation); Alexander I. Sidorov, Saint-Petersburg State Univ. of Information Technologies, Mechanics and Optics (Russian Federation); Roman V. Sokolov, Ioffe Physical-Technical Institute (Russian Federation); Konstantin K. Turoverov, Institute of Cytology (Russian Federation); Oleg A. Usov, Ioffe Physical-Technical Institute (Russian Federation) [8073A-83]
- Formation of TH- and TE-polarized Bessel light beams at acousto-optic diffraction in anisotropic crystals**, Vladimir Belyi, B.I. Stepanov Institute of Physics (Belarus); Piotr A. Khilo, Elena Petrova, Gomel State Technical Univ. (Belarus); Nikolai A. Khilo, Nikolai S. Kazak, B.I. Stepanov Institute of Physics (Belarus) [8073A-84]
- Fiber-optic multi-point temperature sensor for oil industry**, Alexandre V. Polyakov, Belarusian State Univ. (Belarus) [8073A-86]
- Cyclops opening-up fiber for real-time fluorescence sensing**, Yi Yang, Donghua Univ. (China); Guanjun Wang, Jiansheng Liu, BeiHang Univ. (China) [8073A-87]
- A large-scale strain sensor based on fiber Bragg grating**, Xiaoyan Shen, China Jiliang Univ. (China); Yuchi Lin, Tianjin Univ. (China) [8073A-88]
- Properties of Bessel beams in the structure containing a layer of metamaterial**, Svetlana N. Kurilkina, Nikolai S. Kazak, Vladimir N. Belyi, B.I. Stepanov Institute of Physics (Belarus) [8073A-89]
- Fabry-Perot resonator as an optical sensor**, Sofyan A. Taya, Taher M. Al-Agez, Islamic Univ. of Gaza (Palestinian Territory, Occupied) [8073A-90]
- PIN photodiode bandwidth optimization in the integrated CMOS process**, Linggang Fang, X-FAB Sarawak Sdn. Bhd. (Malaysia); Matthias Franke, Daniel Gaebler, X-FAB Semiconductor Foundries AG (Germany); Sangsool Koo, X-FAB Sarawak Sdn. Bhd. (Malaysia) [8073A-91]

Photonic Crystal Fibres

Conference Chair: **Kyriacos Kalli**, Cyprus Univ. of Technology (Cyprus)

Programme Committee: **Hartmut Bartelt**, IPHT Jena (Germany); **Neil G. R. Broderick**, Univ. of Southampton (United Kingdom); **Benjamin John Eggleton**, The Univ. of Sydney (Australia); **Sébastien Février**, XLIM Institut de Recherche (France); **Jiri Kanka**, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); **Jonathan C. Knight**, Univ. of Bath (United Kingdom); **Hanne Ludvigsen**, Aalto Univ. School of Science and Technology (Finland); **B. M. Azizur Rahman**, The City Univ. (United Kingdom); **Karsten Rottwitt**, Technical Univ. of Denmark (Denmark); **Kay Schuster**, IPHT Jena (Germany); **Dmitry V. Skryabin**, Univ. of Bath (United Kingdom); **Waclaw Urbanczyk**, Wroclaw Univ. of Technology (Poland); **David J. Webb**, Aston Univ. (United Kingdom); **Alexei M. Zheltikov**, Lomonosov Moscow State Univ. (Russian Federation)

Tuesday 19 April

Opening Remarks

Room: Club D. Tues. 08.30 to 08.40

Kyriacos Kalli, Cyprus Univ. of Technology (Cyprus)

SESSION 10

Room: Club D. Tues. 08.40 to 10.10

Enhanced Nonlinear Properties through Fibre Manufacture

Session Chair: **Kyriacos Kalli**, Cyprus Univ. of Technology (Cyprus)

08.40: **Preparation and characterization of microstructured silica holey fibers filled with high-index glasses** (*Invited Paper*), Jens Kobelke, Ron Spittel, Kay Schuster, Doris Litzkendorf, Anka Schwuchow, Johannes Kirchhof, Hartmut Bartelt, Institut für Photonische Technologien e.V. (Germany) [8073B-100]

09.10: **Supercontinuum generation in microstructured tellurite fibers**, Inna Savellii, Gregory Gadret, Bertrand Kibler, Mohammed El-Amraoui, Julien Fatome, Jean-Charles Jules, Frédéric Desevedavy, Univ. de Bourgogne (France); John M. Dudley, Univ. de Franche-Comté (France); Johann Troles, Univ. de Rennes 1 (France); Laurent Brilland, PERFOS (France); Gilles Renversez, Univ. Paul Cézanne (France); Frédéric Smektala, Univ. de Bourgogne (France) [8073B-101]

09.30: **Nonlinear effects generation in suspended core chalcogenide fibre**, Mohammed El-Amraoui, Univ. de Bourgogne (France); Matthieu Duhant, ONERA (France); Frederic Desevedavy, Univ. de Bourgogne (France); Guillaume Canat, ONERA (France); Gregory Gadret, Jean-Charles Jules, Julien Fatome, Bertrand Kibler, Univ. de Bourgogne (France); Gilles Renversez, Univ. Paul Cézanne (France); Johann Troles, Univ. de Rennes 1 (France); Laurent Brilland, Plateforme d'Étude et de Recherche sur les Fibres Optiques Spéciales (France); Younes Messaddeq, Univ. Estadual Paulista (Brazil); Frédéric Smektala, Univ. de Bourgogne (France) [8073B-102]

09.50: **Tellurite suspended nanowire surrounded with large holes for single-mode SC and THG generations**, Meisong Liao, Guanshi Qin, Xin Yan, Chittrarekha Chaudhari, Takenobu Suzuki, Yasutake Ohishi, Toyota Technological Institute (Japan) [8073B-103]

Coffee Break 10.10 to 10.40

SESSION 11

Room: Club D. Tues. 10.40 to 12.10

Photonic Crystal Fibre Device Development and Measurement

Session Chair: **Jiri Kanka**, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic)

10.40: **Homogenous metallic nanoparticle monolayers inside a microstructured optical fiber** (*Invited Paper*), Kerstin Schröder, Andrea Csaki, Anka Schwuchow, Ines Latka, Katharina Strelau, Thomas Henkel, Daniell Malsch, Kay Schuster, Karina Weber, Robert Möller, Wolfgang Fritzsche, Hartmut Bartelt, Institut für Photonische Technologien e.V. (Germany) [8073B-104]

11.10: **Fabrication of rocking filters in microstructured silica fibers using CO₂ laser**, Wacław Urbanczyk, Alicja Anuszkiewicz, Gabriela Statkiewicz-Barabach, Jacek Olszewski, Tadeusz Martynkien, Wrocław Univ. of Technology (Poland); Pawel Mergo, Mariusz Makara, Krzysztof Skorupski, Univ. Marii Curie-Skłodowskiej (Poland) [8073B-105]

11.30: **Measurement of chromatic dispersion of polarization modes in holey fibers by white-light spectral interferometric techniques**, Miroslava Kadulová, Petr Hlubina, Dalibor Ciprian, Technical Univ. of Ostrava (Czech Republic); Tadeusz Martynkien, Wrocław Univ. of Technology (Poland); Pawel Mergo, Univ. Marii Curie-Skłodowskiej (Poland); Wacław Urbanczyk, Wrocław Univ. of Technology (Poland) [8073B-106]

11.50: **Challenges in characterization of photonic crystal fibers**, Krzysztof Borzycki, National Institute of Telecommunications (Poland); Jens Kobelke, Institut für Photonische Technologien e.V. (Germany); Pawel Mergo, Univ. Marii Curie-Skłodowskiej (Poland); Kay Schuster, Institut für Photonische Technologien e.V. (Germany) [8073B-107]

Lunch/Exhibition Break 12.10 to 13.40

SESSION 12

Room: Club D. Tues. 13.40 to 15.30

Analytical Studies of Photonic Crystal Fibre

Session Chair: **David J. Webb**, Aston Univ. (United Kingdom)

13.40: **Analytical studies of modulation instability and nonlinear compression dynamics in optical fiber propagation** (*Invited Paper*), Benjamin Wetzel, Univ. de Franche-Comté (France); Miro Erkintalo, Goery Genty, Tampere Univ. of Technology (Finland); Kamal Hammani, Bertrand Kibler, Julien Fatome, Christophe Finot, Univ. de Bourgogne (France); Frédéric Dias, Ecole Normale Supérieure de Cachan (France); Nail Akhmediev, The Australian National Univ. (Australia); John M. Dudley, Univ. de Franche-Comté (France) [8073B-108]

14.10: **Electromagnetic analysis and characterization of photonic crystal fibers with slit-like geometry**, Manuel Pérez-Molina, Jorge Frances, Sergi Gallego, Manuel Ortuño, Augusto Beléndez, Univ. de Alicante (Spain) [8073B-109]

14.30: **Photonic crystal fiber with flattened dispersion**, Michal Lucki, Czech Technical Univ. in Prague (Czech Republic) [8073B-110]

14.50: **Dispersion design of all-normal dispersive microstructured optical fibers for coherent supercontinuum generation**, Alexander Hartung, Institut für Photonische Technologien e.V. (Germany); Alexander M. Heidt, Stellenbosch Univ. (South Africa); Hartmut Bartelt, Institut für Photonische Technologien e.V. (Germany) [8073B-111]

15.10: **Full modal analysis of the stimulated Brillouin scattering in As₂Se₃-based chalcogenide photonic crystal fiber**, Rim Cherif, Amine Ben Salem, Mourad Zghal, SUP'COM (Tunisia) [8073B-112]

Coffee Break 15.30 to 16.00

SESSION 13

Room: Club D. Tues. 16.00 to 17.30

PCF-based Systems and Sensors

Session Chair: **Hartmut Bartelt**, IPHT Jena (Germany)

16.00: **Sensing and actuating photonic devices in magnetofluidic, microstructured optical fibre Bragg gratings** (*Invited Paper*), Alessandro Candiani, Foundation for Research and Technology-Hellas (Greece); Walter Margulis, Carola Sterner, Acreo AB (Sweden); Maria Konstantaki, P. A. Childs, Stavros Pissadakis, Foundation for Research and Technology-Hellas (Greece) [8073B-113]

16.30: **Photonic crystal based ultra-broadband transmission system for wave-band division multiplexing**, Yu Omigawa, Yuta Kinoshita, Aoyama Gakuin Univ. (Japan); Naokatsu Yamamoto, Atsushi Kanno, Kouichi Akahane, Tetsuya Kawanishi, National Institute of Information and Communications Technology (Japan); Hideyuki Sotobayashi, Aoyama Gakuin Univ. (Japan) [8073B-114]

16.50: **Dispersion optimization of photonic crystal fiber long-period gratings for a high-sensitivity refractive index sensing**, Jiri Kanka, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) [8073B-115]

17.10: **Polymer PCF grating sensors based on poly(methyl methacrylate) and TOPAS cyclic olefin copolymer**, I. Johnson, David J. Webb, Aston Univ. (United Kingdom); Kyriacos Kalli, Cyprus Univ. of Technology (Cyprus); Wu Yuan, Alessio Stefani, Kristian Nielsen, Henrik K. Rasmussen, Ole Bang, Technical Univ. of Denmark (Denmark) [8073B-116]

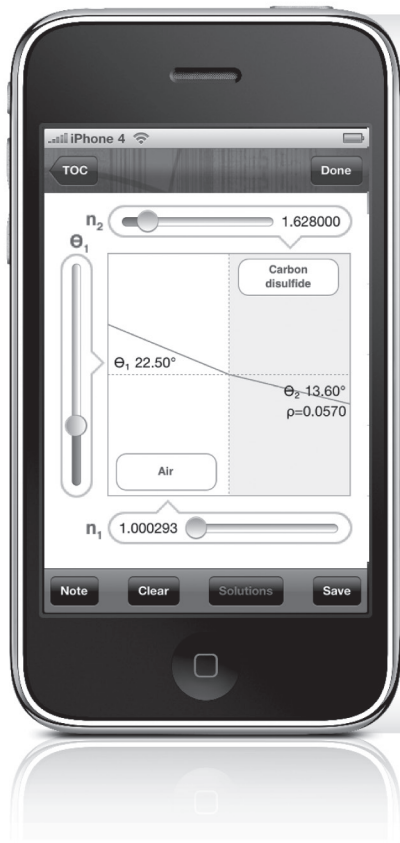
Optics+Optoelectronics

Wednesday 20 April

Posters Wed. 17.40 to 19.15

Conference attendees are invited to attend the EOO Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Tellurite composite microstructured optical fibers with high nonlinearity and flattened dispersion for nonlinear application, Xin Yan, Meisong Liao, Tonghoang Tuan, Takenobu Suzuki, Yasutake Ohishi, Toyota Technological Institute (Japan). [8073B-117]



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Holography: Advances and Modern Trends

Conference Chairs: **Miroslav Hrabovsky**, Palacky Univ. Olomouc (Czech Republic); **Miroslav Miler**, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); **John T. Sheridan**, Univ. College Dublin (Ireland)

Programme Committee: **Radim Chmelik**, Brno Univ. of Technology (Czech Republic); **Antonio Fimia**, Univ. Miguel Hernández de Elche (Spain); **Milos Kopecky**, Institute of Physics of the ASCR, v.v.i. (Czech Republic); **Libor Kotacka**, Optaglio s.r.o. (Czech Republic); **Dagmar Senderáková**, Comenius Univ. in Bratislava (Slovakia); **John T. Sheridan**, Univ. College Dublin (Ireland); **Mitsuo Takeda**, The Univ. of Electro-Communications (Japan); **Vladimir Yu. Venediktov**, S.I. Vavilov State Optical Institute (Russian Federation); **Przemyslaw W. Wachulak**, Military Univ. of Technology (Poland); **Günther K. G. Wernicke**, Humboldt-Univ. zu Berlin (Germany)

Monday 18 April

Opening Remarks

Room: Club C. Mon. 09.00 to 09.10

Miroslav Hrabovsky, Palacky Univ. Olomouc (Czech Republic); **Miroslav Miler**, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic); **John T. Sheridan**, Univ. College Dublin (Ireland)

SESSION 1

Room: Club C. Mon. 09.10 to 10.20

Digital Holography and Computer Generated Holograms I

Session Chair: **John T. Sheridan**, Univ. College Dublin (Ireland)

09.10: **Advances in digital holographic microscopy: coherence-controlled microscope** (*Invited Paper*), Radim Chmelik, Brno Univ. of Technology (Czech Republic) [8074-01]

09.40: **Single particle atmospheric aerosol analysis using digital holographic microscopy**, Mona Mihailescu, National Institute of Microtechnology and Polytechnical Univ. of Bucharest (Romania); Elena R. Cojocaru, Polytechnical Univ. of Bucharest (Romania); Cristian Kusko, National Institute for Research and Development in Microtechnologies (Romania); Flori Toanca, National Institute for Optoelectronics (Romania); Adrian Dinescu, National Institute for Research and Development in Microtechnologies (Romania); Paul I. Schiopu, Polytechnical Univ. of Bucharest (Romania) [8074-02]

10.00: **Statistical analysis of the influence of noise in digital holography**, Nitesh Pandey, Bryan M. Hennelly, National Univ. of Ireland, Maynooth (Ireland). [8074-03]

Coffee Break 10.20 to 10.50

SESSION 2

Room: Club C. Mon. 10.50 to 12.10

Digital Holography and Computer Generated Holograms II

Session Chair: **Radim Chmelik**, Brno Univ. of Technology (Czech Republic)

10.50: **Digital holography for microscopic imaging and 3D shape measurement** (*Invited Paper*), Armin Kießling, Richard M. Kowarschik, Friedrich-Schiller-Univ. Jena (Germany) [8074-04]

11.10: **Computer generated hologram for 3-D display from ray information on tilted surface**, Kenji Yamamoto, Takanori Senoh, Ryutaro Oi, Yasuyuki Ichihashi, Taiichiro Kurita, National Institute of Information and Communications Technology (Japan) [8074-05]

11.30: **NPDD model: a tool for photopolymer enhancement**, Michael R. Gleeson, National Univ. of Ireland Maynooth (Ireland) [8074-46]

11.50: **Optical reconstruction of three-dimensional object from digital holograms using phase information calculated by continuous wavelet transform**, Duygu Onal Tayyar, Gebze Institute of Technology (Turkey); Zehra Saraç, Zonguldak Karaelmas Univ. (Turkey); Fevzi N. Ecevit, Gebze Institute of Technology (Turkey) [8074-07]

Lunch Break 12.10 to 14.00

SESSION 3

Room: Club C. Mon. 14.00 to 15.20

Security Holography and Holographic Diffractive Optics

Session Chair: **Richard M. Kowarschik**, Friedrich-Schiller-Univ. Jena (Germany)

14.00: **Synergy of diffraction and moiré principles in optical devices for document security**, Ivo Aubrecht, Ministry of Defence of CR (Czech Republic) [8074-09]

14.20: **Fully synthetic holograms and DOVID**, Libor Kotacka, Petr Vízdal, Tomas Behounek, Optaglio s.r.o. (Czech Republic) [8074-10]

14.40: **Sequential aberrations compensation in an off-axes holographic imaging system**, Marc Beuret, Patrice J. Twardowski, Univ. de Strasbourg (France); Joël Fontaine, Institut National des Sciences Appliquées de Strasbourg (France); Dalibor Vukicevic, Univ. de Strasbourg (France) [8074-11]

15.00: **Digital holography and phase retrieval: a theoretical comparison**, Damien P. Kelly, Technische Univ. Ilmenau (Germany) [8074-44]

Tuesday 19 April

SESSION 4

Room: Club C. Tues. 08.40 to 10.30

Recording Materials and Information Storage I

Session Chair: **Kalaichelvi Saravanamuttu**, McMaster Univ. (Canada)

08.40: **Holographic recording diffraction gratings in BB-640 photographic emulsions with femtosecond pulses in infrared region** (*Invited Paper*), Antonio Fimia, Pablo Acebal, Salvador Blaya, Luis Carretero, Roque Fernando Madrigal, Angel Murciano, Jose Neftalí, Univ. Miguel Hernández de Elche (Spain) . . [8074-12]

09.10: **Synthesis and properties of 1,3-dioxo-1H-inden-2(3H)-ylidene fragment and (3-(dicyanomethylene)-5,5-dimethylcyclohex-1-enyl)vinyl fragment containing derivatives of azobenzene for holographic recording materials**, Elmars Zarins, Valdis Kokars, Andris Ozols, Peteris Augustovs, Riga Technical Univ. (Latvia) [8074-13]

09.30: **Photopolymerizable thiol-ene nanocomposite materials for holographic applications**, Yasuo Tomita, Eiji Hata, Satoru Yasui, Ken Mitsube, The Univ. of Electro-Communications (Japan) [8074-14]

09.50: **Theoretical and experimental analysis of chain transfer agents behaviors in photopolymer material**, Jinxin Guo, Michael R. Gleeson, Shui Liu, John T. Sheridan, Univ. College Dublin (Ireland) [8074-15]

10.10: **Photo-Kinetics of Irgacure 784 sensitised photopolymer in the blue**, Dusan Sabol, Michael R. Gleeson, John T. Sheridan, Univ. College Dublin (Ireland) [8074-16]

Coffee Break 10.30 to 11.00

SESSION 5

Room: Club C. Tues. 11.00 to 12.00

Recording Materials and Information Storage II

Session Chair: **Gabriella Cipparrone**, Univ. della Calabria (Italy)

11.00: **Recording aspects of high-resolution Bayfol® HX dry photopolymer films for holography** (*Invited Paper*), Horst Berneth, Friedrich K. Bruder, Thomas Fäcke, Rainer Hagen, Dennis Hönel, Bayer MaterialScience AG (Germany); David Jurbergs, Bayer MaterialScience LLC (United States); Thomas Rölle, Marc-Stephan Weiser, Bayer MaterialScience AG (Germany) [8074-17]

11.20: **Improvement of bER using adaptive optics in angle-multiplexing holographic data storage**, Tetsuhiko Muroi, Nobuhiro Kinoshita, Norihiko Ishii, Koji Kamijo, NHK Science & Technical Research Labs. (Japan); Yoshimasa Kawata, Shizuoka Univ. (Japan); Hiroshi Kikuchi, NHK Science & Technical Research Labs. (Japan) [8074-18]

11.40: **Experimental research of a method of multiplexing of microholograms on the thin photosensitive medium in system of holographic memory**, Sergey B. Odínokov, Dmitry S. Lushnikov, Vladimir V. Markin, Alex Nikolae, Alex Y. Pavlov, Anna Borisanova, Bauman Moscow State Technical Univ. (Russian Federation) [8074-19]
Lunch/Exhibition Break 12.00 to 13.50

SESSION 6

Room: Club C Tues. 13.50 to 16.40

Holographic Methods and Other Applications

Session Chair: Antonio Fimia, Univ. Miguel Hernández de Elche (Spain)
13.50: **Exploring unconventional capabilities of holographic tweezers** (*Invited Paper*), Gabriella Cipparrone, Raul J. Hernandez, Pasquale Pagliusi, Clementina Provenzano, Univ. della Calabria (Italy) [8074-21]
14.20: **Holographic fabrication and transmittance analysis of three-dimensional photonic crystals**, Yuzo Ono, Masakazu Notsu, Ritsumeikan Univ. (Japan) [8074-22]
14.40: **New methods of near-field holography**, Dmitry E. Silin, Institute of Applied Physics (Russian Federation); Ilya E. Kozhevator, Radiophysical Research Institute (Russian Federation) [8074-23]
Coffee Break 15.00 to 15.30
15.30: **Nonlinear light propagation in photopolymers: from self-trapped beams to 3-D optical lattices** (*Invited Paper*), K. Saravanamuttu, McMaster Univ. (Canada) [8074-45]
16.00: **Estimation of quality of 3D holographic images by means of stereogrammetry**, Nicolay P. Maryasov, National Aviation Univ. (Ukraine); Aleksey P. Maryasov, Institute of Applied Optics (Ukraine); Tatiana I. Maryasov, National Aviation Univ. (Ukraine) [8074-24]
16.20: **Measurement of surface resistivity/conductivity of carbon steel in 5-20ppm of TROS C-70 inhibited seawater by optical interferometry techniques**, Khaled J. Habib, Kuwait Institute for Scientific Research (Kuwait) [8074-25]

Wednesday 20 April

Posters Wed. 17.40 to 19.15

Conference attendees are invited to attend the EOO Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Modelling of a spatially-frequency spectrum of security holograms and laser analyzer for their identification in real time (*Invited Paper*), Sergey B. Odínokov, Bauman Moscow State Technical Univ. (Russian Federation); Alex Gerdev, Bauman Moscow State Technical Univ. (United States) [8074-08]
Preparation and characteristics of a microlens array for a digital holography application by an inkjet printing method, Yong Suk Yang, In-Kyu You, Jae-Bon Koo, Electronics and Telecommunications Research Institute (Korea, Republic of) [8074-26]
Creation of raster relief structures on silver-halide photographic emulsions with the help of two-dimensional holographic gratings, Nina M. Ganzherli, Ioffe Physico-Technical Institute (Russian Federation); Sergey N. Gulyaev, St. Petersburg State Polytechnical Univ. (Russian Federation); Irina A. Maurer, Galina Y. Sotnikova, Dmitrii F. Chernykh, Ioffe Physico-Technical Institute (Russian Federation) [8074-28]
Amorphous As-S-Se semiconductor thin films for holography and lithography, Vadims Kolbjonoks, Vjaceslavs Gerbreders, Daugavpils Univ. (Latvia); Janis Teteris, Univ. of Latvia (Latvia) [8074-29]
Analysis of the addition of a crosslinking agent in pyromethene-HEMA based photopolymerizable holographic recording materials, Salvador Blaya, Pablo Acebal, Luis Carretero, Roque Fernando Madrigal, Angel Murciano, Antonio Fimia, Univ. Miguel Hernández de Elche (Spain) [8074-30]
Analysis of the effect of the photoinitiator system composition in pyromethene-HEMA based photopolymerizable holographic recording materials, Salvador Blaya, Pablo Acebal, Luis Carretero, Roque Fernando Madrigal, Angel Murciano, Antonio Fimia, Univ. Miguel Hernández de Elche (Spain) [8074-31]
Multiplexed holographic reflection gratings in Sol-Gel, Angel Murciano Cases, Salvador Blaya, Luis Carretero Lopez, Pablo Acebal Gonzalez, Roque Fernando Madrigal, Antonio Fimia, Univ. Miguel Hernández de Elche (Spain) [8074-32]
Technology of integrating diffractive elements into an image-matrix hologram, Andrejs Bulanovs, Vjacheslavs Gerbreders, Georgs Kirilovs M.D., Daugavpils Univ. (Latvia) [8074-34]

Design and research of parameters of an objective of the ultrahigh resolution for producing HOE-DOE by a method a dot-matrix, Sergey B. Odínokov, Alex Gerdev, Bauman Moscow State Technical Univ. (Russian Federation); Ivan K. Tsiganov, Bauman Moscow State Technical Univ., (Russian Federation); Vadim V. Pozdnyakov, Joint-Stock Co. (Russian Federation) [8074-35]
Optic-electronic system "HOLOINID" for automatic individualization and identification of security holograms, Sergey B. Odínokov, Dmitry S. Lushnikov, Alex Y. Pavlov, Bauman Moscow State Technical Univ. (Russian Federation) [8074-36]
Axial intensity distribution of converging spherical wave behind an elliptic aperture, Miroslav Miler, Tomas Martan, Institute of Photonics and Electronics of the ASCR, v.v.i. (Czech Republic) [8074-37]
Development of the next-generation optical holographic photovoltaic concentrator, Chi-Ching Chang, MingDao Univ. (Taiwan); Min-Tzung Shiu, National Defense Univ. (Taiwan) [8074-38]
Recording characteristics of holographic memory-using a co-axis type dual-reference beam, Takefumi Yamada, Kiyoto Katakura, Akihito Nakajima, Shuhei Yoshida, Manabu Yamamoto, Tokyo Univ. of Science (Japan) [8074-39]
Reduction of zero-order spatial frequencies by using binary intensity and phase modulations in holographic data storage, Elena Fernandez, Andres Marquez, Diego Piñol, Javier Padilla, Inmaculada Pascual, Univ. de Alicante (Spain) [8074-40]
Compact slot-in-type optical correlator for retrieving shape, color, and texture, Hirotohi Kuboyama, Kenta Moriyama, Kenzo Yamaguchi, Shinichi Arai, Mitsuo Fukuda, Toyohashi Univ. of Technology (Japan); Makoto Kato, Tadahiko Kawaguchi, Papa Lab. Co., Ltd. (Japan); Mitsuteru Inoue, Toyohashi Univ. of Technology (Japan) [8074-41]
Research of properties of the holographic screen, Sergey B. Odínokov, Vladimir Markin, Dmitry S. Lushnikov, Bauman Moscow State Technical Univ. (Russian Federation) [8074-42]
Coupled-wave theory analysis of holographic structures for slow-light applications, Luis Carretero, Salvador Blaya, Pablo Acebal, Roque Fernando Madrigal, Angel Murciano, Antonio Fimia, Univ. Miguel Hernández de Elche (Spain) [8074-43]

Optics+Optoelectronics

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Harnessing Relativistic Plasma Waves as Novel Radiation Sources from Terahertz to X-rays and Beyond

Conference Chair: **Dino A. Jaroszynski**, Univ. of Strathclyde (United Kingdom)

Conference Co-Chair: **Antoine Rousse**, Ecole Nationale Supérieure de Techniques Avancées (France)

Programme Committee: **Christopher E. Clayton**, Univ. of California, Los Angeles (United States); **Florian J. Grüner**, Ludwig-Maximilians-Univ. München (Germany); **Alexander Pukhov**, Heinrich-Heine-Univ. Düsseldorf (Germany); **Luis O. Silva**, Univ. Técnica de Lisboa (Portugal); **Toshi Tajima**, Ludwig-Maximilians-Univ. München (Germany); **Mark Wiggins**, Univ. of Strathclyde (United Kingdom); **Nicolae-Victor Zamfir**, National Inst. of Physics and Nuclear Engineering (Romania); **Matthew Zepf**, Queen's Univ. Belfast (United Kingdom)

Wednesday 20 April

Opening Remarks

Room: Club C. Wed. 08.25 to 08.30

Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom)

SESSION 1

Room: Club C. Wed. 08.30 to 10.00

QED+High Field Physics I

Session Chair: **Dino A. Jaroszynski**, Univ. of Strathclyde (United Kingdom)

08.30: **Laser-induced relativistic quantum dynamics and quantum electrodynamics** (*Invited Paper*), Christoph H. Keitel, Antonino Di Piazza, Carsten Müller, Zoltán Harman, Max-Planck-Institut für Kernphysik (Germany) . . . [8075-01]

09.00: **Analytical model for QED cascade development in rotating superstrong electric field** (*Invited Paper*), Evgeny N. Nerush, Igor Y. Kostyukov, Institute of Applied Physics (Russian Federation) [8075-02]

09.20: **QED effects and radiation generation in relativistic laser plasma** (*Invited Paper*), Igor Kostyukov, Institute of Applied Physics (Russian Federation) [8075-03]

09.40: **Classical and quantum radiation reaction effects in intense laser fields** (*Invited Paper*), Antonino Di Piazza, Max-Planck-Institut für Kernphysik (Germany) [8075-04]

Coffee Break 10.00 to 10.30

SESSION 2

Room: Club C. Wed. 10.30 to 12.10

QED+High Field Physics II

Session Chair: **Toshiki Tajima**, Ludwig-Maximilians-Univ. München (Germany)

10.30: **High field science for novel radiation sources** (*Invited Paper*), Toshiki Tajima, Ludwig-Maximilians-Univ. München (Germany) [8075-05]

11.00: **QED and nuclear physics based on intense laser fields and gamma ray radiation emanating from plasma** (*Invited Paper*), Dietrich Habs, Ludwig-Maximilians-Univ. München (Germany) [8075-06]

11.30: **Nuclear dynamics in intense laser fields** (*Invited Paper, Presentation Only*), Adriana Palffy, Wen-Te Liao, Christoph H. Keitel, Max-Planck-Institut für Kernphysik (Germany) [8075-07]

11.50: **Radiation friction modeling in superintense laser-plasma interactions** (*Invited Paper*), Andrea Macchi, Istituto Nazionale di Ottica Applicata (Italy) and Univ. di Pisa (Italy); Matteo Tamburini, Francesco Pegoraro, Univ. di Pisa (Italy); Tatyana V. Liseykina, Univ. Rostock (Germany); Antonino Di Piazza, Christoph H. Keitel, Max-Planck-Institut für Kernphysik (Germany) [8075-08]

Lunch/Exhibition Break 12.10 to 13.30

SESSION 3

Room: Club C. Wed. 13.30 to 15.20

QED+High Field Physics III

Session Chair: **Silvia Cipcicia**, Univ. of Strathclyde (United Kingdom)

13.30: **Cascade mechanism of particle creation in super strong laser fields** (*Invited Paper*), Nikolay Narozhny, National Research Nuclear Univ. MEPhI (Russian Federation) [8075-09]

14.00: **Non-linear electrodynamics in plasmas** (*Invited Paper*), David A. Burton, Lancaster Univ. (United Kingdom) [8075-10]

14.30: **Relativistic laser plasmas for novel radiation sources** (*Invited Paper*), Alexander Pukhov, Heinrich-Heine-Univ. Düsseldorf (Germany) [8075-11]

15.00: **High-energy laser pulse propagation in plasma: photon acceleration and self-focusing effects** (*Invited Paper*), Yevgen Kravets, Univ. of Strathclyde (United Kingdom); Alan Cairns, Univ. of St. Andrews (United Kingdom); Bernard Ersfeld, Adam Noble, Ranaul Islam, Gaurav Raj, Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) [8075-12]

Coffee Break 15.20 to 15.50

SESSION 4

Room: Club C. Wed. 15.50 to 17.50

Raman Amplification in Plasma

Session Chair: **Luis Oliveira Silva**, Univ. Técnica de Lisboa (Portugal)

15.50: **Raman amplification in plasma** (*Invited Paper*), Alan Cairns, Univ. of St. Andrews (United Kingdom) [8075-13]

16.20: **Raman amplification of long laser beams to kilojoule energies and petawatt powers** (*Invited Paper*), Raoul M. G. M. Trines, Robert Bingham, Peter A. Norreys, Rutherford Appleton Lab. (United Kingdom); Frederico Fiuza, Ricardo A. Fonseca, Luis O. Silva, Univ. Técnica de Lisboa (Portugal); Alan Cairns, Univ. of St. Andrews (United Kingdom) [8075-14]

16.50: **Chirped pulse amplification based on Raman backscattering in plasma** (*Invited Paper*), Xue Yang, Gregory Vieux, Enrico Brunetti, John P. Farmer, Bernhard Ersfeld, Gaurav Raj, Mark Wiggins, Riju Issac, Gregor Welsh, Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) [8075-15]

17.10: **Wavebreaking as a limit for Raman amplification** (*Invited Paper*), John P. Farmer, Bernhard Ersfeld, Gaurav Raj, Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) [8075-16]

17.30: **Efficient Raman amplification into the multi-PW regime** (*Invited Paper*), Frederico Fiuza, Ricardo Fonseca, Luis Silva, Univ. Técnica de Lisboa (Portugal); Raoul M. G. M. Trines, Robert Bingham, Peter A. Norreys, Rutherford Appleton Lab. (United Kingdom); Alan Cairns, Univ. of St. Andrews (United Kingdom) [8075-17]

Thursday 21 April

SESSION 5

Room: Club C. Thurs. 08.30 to 10.00

Free-Electron Lasers I

Session Chair: **Florian J. Grüner**, Ludwig-Maximilians-Univ. München (Germany)

08.30: **Progress on a XUV free electron laser driven by a laser plasma accelerator** (*Invited Paper*), Wim Leemans, Lawrence Berkeley National Lab. (United States) and Univ. of California, Berkeley (United States); Michael S. Bakeman, Lawrence Berkeley National Lab. (United States) and Univ. of Nevada, Reno (United States); Carlo Benedetti, John M. Byrd, Min Chen, Stefano De Santis, Eric Esarey, Cameron G. R. Geddes, Anthony J. Gonsalves, Lawrence Berkeley National Lab. (United States); Florian J. Grüner, Ludwig-Maximilians-Univ. München (Germany); Chen Lin, Lawrence Berkeley National Lab. (United States) and Peking Univ. (China); Nicholas H. Matlis, Rohan Mittal, Kei Nakamura, Lawrence Berkeley National Lab. (United States); Jens Osterhoff, Deutsches Elektronen-Synchrotron (Germany); Carl Schroeder, Lawrence Berkeley National Lab. (United States); Brian Shaw, Lawrence Berkeley National Lab. (United States) and Univ. of California, Berkeley (United States); Satomi Shiraishi, Lawrence Berkeley National Lab. (United States) and The Univ. of Chicago (United States); Thomas Sokollik, Csaba Toth, Lawrence Berkeley National Lab. (United States); Don van der Drift, Lawrence Berkeley National Lab. (United States) and Technische Univ. Eindhoven (Netherlands); Jeroen van Tilborg, Lawrence Berkeley National Lab. (United States) [8075-18]

09.00: **FEL or synchrotron source driven by LWFA** (*Invited Paper*), Florian J. Grüner, Ludwig-Maximilians-Univ. München (Germany) [8075-19]

SESSION 8

Room: Club C. Thurs. 15.50 to 17.50

Betatron, Plasma Undulators & Harmonic Generation II

Session Chair: S. Mark Wiggins, Univ. of Strathclyde (United Kingdom)

15.50: **Resonant laser plasma accelerated electrons: betatron radiation from gamma-ray to laser harmonic generation** (*Invited Paper*), Silvia Cipiccia, Mohammed R. Islam, Samuel M. Wiggins, Bernhard Ersfeld, Enrico Brunetti, Gregory Vieux, Xue Yang, Riju C. Issac, Gregor Welsh, Maria P. Anania, Grace G. Manahan, Richard P. Shanks, Constantin Aniculaesei, Tom McCanny, David Clark, Sijia Chen, Univ. of Strathclyde (United Kingdom); Dzmitry Maneuski, Rachel Montgomery, Gary Smith, Matthias Hoek, David J. Hamilton, Univ. of Glasgow (United Kingdom); Dan Symes, Pattathi P. Rajeev, Peta Foster, Rutherford Appleton Lab. (United Kingdom); Nuno R. C. Lemos, João Dias, Luis O. Silva, Univ. Técnica de Lisboa (Portugal); Val O. Shea, Univ. of Glasgow (United Kingdom); Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) [8075-30]

16.20: **Relativistically oscillating plasma surfaces: high harmonic generation and ultrafast plasma surface dynamics** (*Invited Paper*), Brendan H. Dromey, Queen's Univ. Belfast (United Kingdom) [8075-31]

16.50: **Status of Thomson backscattering experiments at the HZDR** (*Invited Paper*), Arie Irmann, Axel Jochmann, Alexander Debus, Michael Kuntzsch, Ulf Lehnert, Michael Bussmann, Stephan Kraft, Thomas Cowan, Roland Sauerbrey, Ulrich Schramm, Forschungszentrum Dresden-Rossendorf e.V. (Germany) [8075-32]

17.10: **Gamma-ray generation using laser-accelerated electron beam** (*Invited Paper*), Seong Hee Park, Ho-Hyung Lee, Kitae Lee, Yong-Ho Cha, Ji-Young Lee, Kyung-Nam Kim, Young Uk Jeong, Korea Atomic Energy Research Institute (Korea, Republic of) [8075-33]

17.30: **Replacing magnetic wigglers with density ripple in free-electron lasers for THz radiation** (*Invited Paper*), Vishwa B. Pathak, Joana L. Martins, Ricardo A. Fonseca, Instituto Superior Tecnico (Portugal); Vipin K. Tripathi, ; Luis O. Silva, Instituto Superior Tecnico (Portugal) [8075-34]

09.20: **A new XUV-source for seeding a FEL at high repetition rates** (*Invited Paper*), Arik Willner, Deutsches Elektronen-Synchrotron (Germany) and Helmholtz-Institute Jena (Germany); Michael Schulz, Deutsches Elektronen-Synchrotron (Germany); Robert Riedel, Helmholtz-Institute Jena (Germany); Mark Yeung, Thomas Dzelzainis, Queen's Univ. Belfast (United Kingdom); Christos Kamperidis, Makis Bakarezos, Technological Educational Institute of Crete (Greece); Darryl Adams, Queen's Univ. Belfast (United Kingdom); Vladislav Yakovlev, Max-Planck-Institut für Quantenoptik (Germany); Brendan H. Dromey, Queen's Univ. Belfast (United Kingdom); Nektarios Papadogiannis, Michael Tatarakis, Technological Educational Institute of Crete (Greece); Stefan Düsterer, Bart Faatz, Deutsches Elektronen-Synchrotron (Germany); Markus Drescher, Jörg Rossbach, Univ. Hamburg (Germany); Matthew Zepf, Queen's Univ. Belfast (United Kingdom); Franz Tavella, Helmholtz-Institute Jena (Germany) [8075-20]

09.40: **Coherent transition radiation as a tool for investigating bunches of electrons produced by laser wakefield accelerators** (*Invited Paper*), Constantin Aniculaesei, Gregor Welsh, Riju Issac, Enrico Brunetti, Richard P. Shanks, Silvia Cipiccia, Maria P. Anania, Bernhard Ersfeld, Samuel M. Wiggins, Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) [8075-21]
Coffee Break 10.00 to 10.30

SESSION 6

Room: Club C. Thurs. 10.30 to 12.10

Free-Electron Lasers II

Session Chair: Alexander Pukhov, Heinrich-Heine-Univ. Düsseldorf (Germany)

10.30: **Towards a table top free-electron laser** (*Invited Paper*), Maria P. Anania, Enrico Brunetti, David Clark, Silvia Cipiccia, Riju Issac, Tom McCanny, Albert Reitsma, Richard P. Shanks, Gregor Welsh, S. Mark Wiggins, Univ. of Strathclyde (United Kingdom); Bas van der Geer, Marieke de Loos, Pulsar Physics (Netherlands); Mike Poole, Jim Clarke, Ben Shepherd, Daresbury Lab. (United Kingdom); Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) . . . [8075-22]

11.00: **Laser-driven radiation sources in the ALPHA-X project** (*Invited Paper*), S. Mark Wiggins, R. Isaac, Gregor Welsh, Enrico Brunetti, Bernhard Ersfeld, M. R. Islam, Gaurav Raj, Adam Noble, Gregory Vieux, Richard P. Shanks, Silvia Cipiccia, Maria Pia Anania, Sijia Chen, Xue Yang, John P. Farmer, S. Abuzoum, R. T. L. Burgess, Grace Manahan, Constantin Aniculaesei, David Grant, Anna Subiel, Yevgen Kravets, Rodolfo Bonifacio, Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) [8075-23]

11.30: **X-ray imaging based on radiation sources driven by a laser plasma wakefield accelerator** (*Invited Paper*), Anna Subiel, Silvia Cipiccia, Maria P. Anania, Grace Manahan, Constantin Aniculaesei, David Grant, Riju Issac, S. Mark Wiggins, Gregor Welsh, Enrico Brunetti, Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) [8075-24]

11.50: **Steady-state description of an ion channel free-electron laser with varying betatron amplitude** (*Invited Paper*), Bernhard Ersfeld, Sijia Chen, Rodolfo Bonifacio, Ranaul Islam, Gordon Robb, Univ. of Strathclyde (United Kingdom) and Scottish Universities Physics Alliance (United Kingdom); Peter Smorenburg, Technische Univ. Eindhoven (Netherlands); Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom) and Scottish Universities Physics Alliance (United Kingdom) [8075-25]

Lunch Break 12.10 to 13.30

SESSION 7

Room: Club C. Thurs. 13.30 to 15.20

Betatron, Plasma Undulators & Harmonic Generation I

Session Chair: Dino A. Jaroszynski, Univ. of Strathclyde (United Kingdom)

13.30: **Bright spatially coherent betatron X-rays as wakefield diagnostic and radiation source** (*Invited Paper*), Stefan Kneip, Imperial College London (United Kingdom) [8075-26]

14.00: **Betatron radiation from multi-PW lasers** (*Invited Paper*), Joana L. Martins, Jorge M. Vieira, Samuel F. Martins, Ricardo A. Fonseca, Luis O. Silva, Univ. Técnica de Lisboa (Portugal) [8075-27]

14.30: **Traveling wave Thomson scattering: a source of X-ray photons with high per-shot yield and tunable energy and bandwidth** (*Invited Paper*), Alexander D. Debus, Michael Bussmann, Matthias Siebold, Axel Jochmann, Arie Irmann, Ulrich Schramm, Thomas E. Cowan, Roland Sauerbrey, Forschungszentrum Dresden-Rossendorf e.V. (Germany) [8075-28]

15.00: **Exploring the betatron radiation physics using colliding pulse injection** (*Invited Paper*), Sebastien Corde, Kim Ta Phuoc, Romuald Fitour, Clement Rechatin, Jerome Faure, Cédric Thauy, Guillaume Lambert, Ecole Nationale Supérieure de Techniques Avancées (France); Elsa Benveniste, Ahmed Ben-Ismaïl, Leonid Arantchouk, Ecole Polytechnique ParisTech (France); Alexandre Marciniak, Ecole Nationale Supérieure de Techniques Avancées (France); Adrien Stordeur, Ecole Polytechnique ParisTech (France); Stéphane Sebban, Ecole Nationale Supérieure de Techniques Avancées (France); Arnd Specka, Ecole Polytechnique ParisTech (France); Victor Malka, Antoine Rousse, Ecole Nationale Supérieure de Techniques Avancées (France) [8075-29]

Coffee Break 15.20 to 15.50

Optics+Optoelectronics

EUV and X-ray Optics: Synergy between Laboratory and Space

Conference Chairs: **René Hudec**, Astronomical Institute of the ASCR, v.v.i. and Czech Technical Univ. in Prague (Czech Republic); **Ladislav Pina**, Czech Technical Univ. in Prague (Czech Republic)

Programme Committee: **Webster C. Cash, Jr.**, Univ. of Colorado at Boulder (United States); **George W. Fraser**, Univ. of Leicester (United Kingdom); **René Hudec**, Astronomical Institute of the ASCR, v.v.i. and Czech Technical Univ. in Prague (Czech Republic); **Ali M. Khounsary**, Argonne National Lab. (United States); **Alan G. Michette**, King's College London (United Kingdom); **Giovanni Pareschi**, Osservatorio Astronomico di Brera (Italy); **Ladislav Pina**, Czech Technical Univ. in Prague (Czech Republic); **Yuriy Ya. Platonov**, Rigaku Innovative Technologies (United States); **Paul B. Reid**, Harvard-Smithsonian Ctr. for Astrophysics (United States); **Bedrich Rus**, Institute of Physics of the ASCR, v.v.i. (Czech Republic); **Anatoly A. Snigirev**, European Synchrotron Radiation Facility (France); **Peter Z. Takacs**, Brookhaven National Lab. (United States); **Melville P. Ulmer**, Northwestern Univ. (United States); **David L. D. Windt**, Reflective X-Ray Optics LLC (United States); **William W. Zhang**, NASA Goddard Space Flight Ctr. (United States)

Wednesday 20 April

Opening Remarks

Room: Club H. Wed. 13.00 to 13.10

René Hudec, Astronomical Institute of the ASCR, v.v.i. and Czech Technical Univ. in Prague (Czech Republic); **Ladislav Pina**, Czech Technical Univ. in Prague (Czech Republic)

SESSION 1

Room: Club H. Wed. 13.10 to 15.00

Astronomical X-ray Optics I

13.10: **X-ray optics for the 2020's** (*Invited Paper*), William W. Zhang, NASA Goddard Space Flight Ctr. (United States) [8076-01]

13.40: **Compact optics for high resolution spectroscopy of celestial x-ray sources**, Webster C. Cash, Jr., Univ. of Colorado at Boulder (United States) [8076-02]

14.00: **Extremely lightweight X-ray optics based on thin substrates**, René Hudec, Czech Technical Univ. in Prague (Czech Republic) and Astronomical Institute of the ASCR, v.v.i. (Czech Republic); Jan Sik, Michal Lorenc, ON Semiconductor Czech Republic (Czech Republic); Veronika Semencova, Adolf J. Inneman, Rigaku Innovative Technologies Europe (Czech Republic); Ladislav Pina, Czech Technical Univ. in Prague (Czech Republic); Michaela Skulinova, Astronomical Institute of the ASCR, v.v.i. (Czech Republic) [8076-03]

14.20: **Deformable mirrors for X-ray astronomy and beyond**, Melville P. Ulmer, Northwestern Univ. (United States) [8076-04]

14.40: **Technologies for manufacturing of high angular resolution multilayer coated optics for the New Hard X-ray Mission**, Giuseppe Borghi, Oberto Citterio, Gabriele Grisoni, Jacques Kools, Fabio Marioni, Nadia Missaglia, Alessandro Orlandi, Antonio Ritucci, Roberto Subranni, Giuseppe Valsecchi, Dervis Vernani, Media Lario Technologies (Italy); Stefano Basso, Riccardo Negri, Giovanni Pareschi, Bianca Salmaso, Lorenzo Raimondi, Giorgia Sironi, Daniele Spiga, Gianpiero Tagliaferri, INAF - Osservatorio Astronomico di Brera (Italy); Barbara Negri, Agenzia Spaziale Italiana (Italy) [8076-05]

Coffee Break 15.00 to 15.30

SESSION 2

Room: Club H. Wed. 15.30 to 15.50

Astronomical X-ray Optics II

15.30: **X-ray imaging with Kirkpatrick-Baez optics: a review** (*Invited Paper*), René Hudec, Astronomical Institute of the ASCR, v.v.i. (Czech Republic) . [8076-06]

16.00: **Innovative multilayer coatings for space solar physics: performances and stability over time** (*Invited Paper*), Paola Zuppella, Alain Jody Corso, Piergiorgio Nicolosi, Gianni G. Monaco, Univ. degli Studi di Padova (Italy); David L. Windt, Reflective X-Ray Optics LLC (United States); Marco Barbetta, Maria G. Pelizzo, Univ. degli Studi di Padova (Italy) [8076-07]

16.30: **Performance of Kirkpatrick-Baez test modules as measured in full aperture X-ray tests**, Veronika Marsikova, Rigaku Innovative Technologies Europe (Czech Republic); Ladislav Pina, Czech Technical Univ. in Prague (Czech Republic); Adolf J. Inneman, Jiri Marsik, Rigaku Innovative Technologies Europe (Czech Republic); René Hudec, Czech Technical Univ. in Prague (Czech Republic) and Astronomical Institute of the ASCR, v.v.i. (Czech Republic); Webster C. Cash, Jr., Ann F. Shipley, Ben Zeiger, Univ. of Colorado at Boulder (United States) [8076-08]

16.50: **The X-Ray optics design for the cryogenic imaging spectrometer on-board ORIGIN**, Marco Barbera, Univ. degli Studi di Palermo (Italy) and INAF - Osservatorio Astronomico di Palermo Giuseppe S. Vaiana (Italy); Teresa Mineo, INAF - IASF Palermo (Italy); Coen van Baren, SRON Nationaal Instituut voor Ruimteonderzoek (Netherlands); Stefano Basso, INAF - Osservatorio Astronomico di Brera (Italy); Finn E. Christensen, Danish National Space Ctr. (Denmark); Jan-Willem A. den Herder, Jelle S. Kaastra, SRON Nationaal Instituut voor Ruimteonderzoek (Netherlands); Luigi Piro, INAF - IASF Roma (Italy); Daniele Spiga, INAF - Osservatorio Astronomico di Brera (Italy) [8076-09]

17.10: **Optical subsystems characterization in laboratory**, Piergiorgio Nicolosi, Paola Zuppella, Maria Guglielmina Pelizzo, Alain Jody Corso, Univ. degli Studi di Padova (Italy); Jean Francois Mariscal, Nicolas Rouanet, Enrique Quémerais, Jean-Luc Maria, Lab. Atmosphères, Milieux, Observations Spatiales (France) . . [8076-10]

17.30: **Preliminary imaging tests of lobster eye optics for nano-satellite**, Vladimir Tichy, Czech Technical Univ. in Prague (Czech Republic); Marco Barbera, Univ. degli Studi di Palermo (Italy); Alfonso Collura, Osservatorio Astronomico di Palermo (Italy); Martin Hromcik, Rene Hudec, Czech Technical Univ. in Prague (Czech Republic); Adolf J. Inneman, Jiri Marsik, Veronika Marsikova, Rigaku Innovative Technologies Europe (Czech Republic); Ladislav Pina, Czech Technical Univ. in Prague (Czech Republic); Salvatore Varisco, Osservatorio Astronomico di Palermo (Italy) [8076-11]

Posters Wed. 17.40 to 19.15

Conference attendees are invited to attend the EOO Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Performance benchmark of a gateable micro-channel plate detector for extreme ultraviolet radiation with high temporal resolution, Johannes Hauck, Ralf Freiburger, Larissa Juschkina, RWTH Aachen (Germany) [8076-25]

The CODEX sounding rocket payload, Ben Zeiger, Ann F. Shipley, Webster C. Cash, Phil H. Oakley, Univ. of Colorado at Boulder (United States); Ted Schultz, The Univ. of Iowa (United States); Thomas Rogers, Univ. of Colorado at Boulder (United States); Randall L. McEntaffer, The Univ. of Iowa (United States) . [8076-26]

CODEX sounding rocket wire grid collimator design, Ann F. Shipley, Benjamin Zeiger, Thomas Rogers, Univ. of Colorado at Boulder (United States) . . . [8076-27]

Optimization of the MARS-XRD collimator using converging blades, Carlo Pellicciari, Lucia Marinangeli, Fabio Critani, Antonio Baliva, International Research School of Planetary Sciences (Italy) and Univ. d'Annunzio di Pescara (Italy); Ian Hutchinson, Space Research Centre (United Kingdom) [8076-28]

Focusing EUV radiation from the capillary discharge source on PMMA layer, Veronika Pickova, Czech Technical Univ. in Prague (Czech Republic) . . . [8076-29]

Thursday 21 April

SESSION 3

Room: Club H. Thurs. 09.00 to 10.30

Laboratory Multi-Layer X-ray and EUV Optics

09.00: **Multilayer coatings for the far- and extreme ultraviolet** (*Invited Paper*), Juan I. Larruquert, Manuela Vidal-Dasilva, Sergio Garcia-Cortés, Luis Rodríguez-de Marcos, Mónica Fernández-Perea, José A. Aznárez, José A. Méndez, Consejo Superior de Investigaciones Científicas (Spain) [8076-12]

09.30: **Small diameter multilayer coated x-ray concentrators**, Peter Hoghoj, Xenocs (France) [8076-13]

09.50: **Multi-layer coated Echelle grating for x-ray phase-contrast imaging**, Susanna K. Lynch, Camille K. Kemble, Nicole Y. Morgan, Harold H. Wen, National Institutes of Health (United States) [8076-14]

10.10: **Experimental investigations of backward transition radiation characteristics in extreme ultraviolet region**, Leonid Sukhikh, Tomsk Polytechnic Univ. (Russian Federation); Dirk Krambrich, Johannes Gutenberg Univ. Mainz (Germany); Gero Kube, Deutsches Elektronen-Synchrotron (Germany); Werner Lauth, Johannes Gutenberg Univ. Mainz (Germany); Yury Popov, Alexander Potylitsyn, Tomsk Polytechnic Univ. (Russian Federation) [8076-15]

Coffee Break 10.30 to 11.00

SESSION 4

Room: Club H. Thurs. 11.00 to 12.10

X-ray Refractive Optics and Microscopy

11.00: **X-ray translocators: tunable devices based on refractive optics** (*Invited Paper*), Anatoly A. Snigirev, European Synchrotron Radiation Facility (France) [8076-16]

11.30: **X-ray refractive large aperture rolled prism lenses as condensers for X-ray tubes**, Harald Vogt, Markus Simon, Arndt Last, Vladimir P. Nazmov, Jürgen Mohr, Karlsruher Institut für Technologie (Germany); Rachel Eisenhower, Kai Uwe Mettendorf, Bruker AXS GmbH (Germany) [8076-17]

11.50: **High-resolution X-ray microscopy for mesoscopic photonic crystals**, Irina I. Snigireva, Anatoly A. Snigirev, European Synchrotron Radiation Facility (France) [8076-18]

Lunch Break 12.10 to 13.30

SESSION 5

Room: Club H. Thurs. 13.30 to 15.50

EUV Optics & Sources, Microlithography Optics

13.30: **Time resolved EUV pump-probe microscopy of fs-LASER induced nanostructure formation**, Ralf Freiburger, Johannes Hauck, Martin Reininghaus, Dirk Wortmann, Larissa Juschkina, RWTH Aachen (Germany) [8076-19]

13.50: **Measurement of characteristics XUV capillary laser**, Jan Novak, Alexandr Jančárek, Michal Nevrkla, Czech Technical Univ. in Prague (Czech Republic) [8076-20]

14.10: **The problem of roughness detection for supersmooth surfaces**, Maria M. Barysheva, Nikolay I. Chkhalo, Boris A. Gribkov, Alexey E. Pestov, Institute for Physics of Microstructures (Russian Federation); Yuriy Y. Platonov, Rigaku Innovative Technologies, Inc. (United States); Nikolay N. Salashchenko, Denis N. Rogachev, Yuliy A. Vainer, Maria V. Zorina, Institute for Physics of Microstructures (Russian Federation) [8076-21]

14.30: **Multilayers for next generation EUVL at 6.x nm**, Yuriy Y. Platonov, Jim Rodriguez, Michael Kriese, Vladimir Martynov, Rigaku Innovative Technologies, Inc. (United States) [8076-22]

14.50: **Freestanding multilayer films for application as phase retarders and spectral purity filters in the soft X-ray and EUV ranges**, Alexey Y. Lopatin, Nikolay I. Chkhalo, Mikhail N. Drozdov, Evgeniy B. Klunov, Valery I. Luchin, Nikolay N. Salashchenko, Institute for Physics of Microstructures (Russian Federation); Leonid A. Shmaenok, PhysTeX (Russian Federation); Nikolay N. Tsybin, Boris A. Volodin, Institute for Physics of Microstructures (Russian Federation) [8076-23]

15.10: **Manufacturing and characterization of diffraction quality normal incidence optics for the XEUV range**, Nikolay I. Chkhalo, Maria M. Barysheva, Alexey E. Pestov, Nikolay N. Salashchenko, Mikhail N. Toropov, Institute for Physics of Microstructures (Russian Federation) [8076-24]

15.30: **Glass and silicon for x-ray telescopes: composition effects on slumping**, M. Mika, M. Landova, Institute of Chemical Technology (Czech Republic); R. Hudec, Astronomical Institute of the ASCR, v.v.i. (Czech Republic); L. Sveda, Czech Technical Univ. in Prague (Czech Republic); M. Skulinova, Astronomical Institute of the ASCR, v.v.i. (Czech Republic); L. Pina, R. Havlikova, Czech Technical Univ. in Prague (Czech Republic); A. J. Inneman, V. Marsikova, Rigaku Innovative Technologies Europe (Czech Republic) [8076-30]

Damage to VUV, EUV, and X-ray Optics (XDam3)

Conference Chairs: **Libor Juha**, Institute of Physics of the ASCR, v.v.i. (Czech Republic); **Saša Bajt**, Deutsches Elektronen-Synchrotron (Germany); **Richard A. London**, Lawrence Livermore National Lab. (United States)

Programme Committee: **Fred Bijkerk**, FOM-Institute for Plasma Physics Rijnhuizen (Netherlands); **Henryk Fiedorowicz**, Military Univ. of Technology (Poland); **Jérôme Gaudin**, European XFEL (Germany); **Jacek Krzywinski**, Stanford Linear Accelerator Ctr. (United States); **Klaus Mann**, Laser-Lab. Göttingen e.V. (Germany); **Tomás Mocek**, Institute of Physics of the ASCR, v.v.i. (Czech Republic); **Ladislav Pina**, Czech Technical Univ. in Prague (Czech Republic); **Jorge J. Rocca**, Colorado State Univ. (United States); **Michael Störmer**, GKSS-Forschungszentrum Geesthacht (Germany); **Philippe Zeitoun**, Ecole Nationale Supérieure de Techniques Avancées (France); **Beata Ziaja-Motyka**, Deutsches Elektronen-Synchrotron (Germany)

Monday 18 April

Opening Remarks

Room: Terrace 2 Mon. 08.25 to 08.30

Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic)

SESSION 1

Room: Terrace 2 Mon. 08.30 to 09.40

Facilities and their Optics

Session Chair: **Libor Juha**,
Institute of Physics of the ASCR, v.v.i. (Czech Republic)

08.30: **Lifetime and damage threshold properties of reflective x-ray coatings for the LCLS free electron laser** (*Invited Paper*), Regina Soufli, Lawrence Livermore National Lab. (United States); Mónica Fernández-Perea, Lawrence Livermore National Lab. (United States) and Consejo Superior de Investigaciones Científicas (Spain); Stefan P. Hau-Riege, Sherry L. Baker, Jeff C. Robinson, Eric M. Gullikson, Lawrence Livermore National Lab. (United States); John D. Bozek, Nicholas M. Kelez, Sebastien Boutet, SLAC National Accelerator Lab. (United States) [8077-01]

08.55: **Damage investigations for the European XFEL beamlines components**, Jérôme Gaudin, European XFEL GmbH (Germany) [8077-02]

09.15: **Probing matter under extreme conditions at Fermi@Elettra: the TIMEX beamline** (*Invited Paper*), Andrea Di Cicco, Emiliano Principi, Univ. degli Studi di Camerino (Italy) [8077-03]

SESSION 2

Room: Terrace 2 Mon. 09.40 to 10.20

Damage by Ultra-Short Pulses I

Session Chair: **Jérôme Gaudin**, European XFEL GmbH (Germany)

09.40: **Soft x-ray laser driven ion acceleration and ablation in solids: niobium, vanadium and their deuterides**, Bianca S. Iwan, Jakob Andreasson, Uppsala Univ. (Sweden); Andrzej Andrejczuk, Univ. of Białystok (Poland); Elsa Abreu, Uppsala Univ. (Sweden); Magnus Bergh, Swedish Defence Research Agency (Sweden); Carl Coleman, Technische Univ. München (Germany); Art J. Nelson, Lawrence Livermore National Lab. (United States); Saša Bajt, Deutsches Elektronen-Synchrotron (Germany); Jaromir Chalupsky, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Henry N. Chapman, Roland R. Fäustlin, Deutsches Elektronen-Synchrotron (Germany); Vera Hajkova, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Philip A. Heimann, Lawrence Berkeley National Lab. (United States); Björgvin Hjörvarsson, Uppsala Univ. (Sweden); Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Dorota Klinger, Institute of Physics (Poland); Jacek Krzywinski, SLAC National Accelerator Lab. (United States); Bob Nagler, Univ. of Oxford (United Kingdom); Gunnar K. Palsson, Uppsala Univ. (Sweden); Waldemar Singer, Deutsches Elektronen-Synchrotron (Germany); Marvin M. Seibert, Uppsala Univ. (Sweden); Ryszard Sobierajski, Institute of Physics (Poland) and FOM-Institute for Plasma Physics (Netherlands); Sven Toleikis, Thomas Tschentscher, Deutsches Elektronen-Synchrotron (Germany); Sam M. Vinko, Univ. of Oxford (United Kingdom); Richard W. Lee, Lawrence Livermore National Lab. (United States); Janos Hajdu, Nicusor Timneanu, Uppsala Univ. (Sweden) [8077-04]

10.00: **Transversal and longitudinal non-Gaussian laser beam characterization by ablative imprints in various solids**, Jaromir Chalupsky, Institute of Physics, AS CR, v.v.i. (Czech Republic) and Faculty of Nuclear Sciences and Physical Engineering, CTU (Czech Republic); Pavel Boháček, Tomáš Burian, Jaroslav Cihelka, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Jerome Gaudin, European XFEL GmbH (Germany); Anthony J. Gleeson, Daresbury Lab. (United Kingdom); Vera Hajkova, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Stefan P. Hau-Riege, Philip A. Heimann, Lawrence Livermore National Lab. (United States); Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Marek Jurek, Instytut Fizyki (Poland); Ali R. Khorsand, FOM-Institute for Plasma Physics Rijnhuizen (Netherlands); Dorota Klinger, Instytut Fizyki (Poland); Jacek Krzywinski, Marc Messerschmidt, Stefan P. Moeller, Bob Nagler, Michael Rowen, William F. Schlotter, SLAC National Accelerator Lab. (United States); Michael Störmer, GKSS-Forschungszentrum Geesthacht (Germany); Michele L. Swiggers, SLAC National Accelerator Lab. (United States); Kai Tiedtke, Sven Toleikis, Deutsches Elektronen-Synchrotron (Germany); Joshua J. Turner, SLAC National Accelerator Lab. (United States); Ludek Vysin, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Hubertus Wabnitz, Deutsches Elektronen-Synchrotron (Germany) [8077-05]

Coffee Break 10.20 to 10.40

SESSION 3

Room: Terrace 2 Mon. 10.40 to 12.15

Damage by Ultra-Short Pulses II

Session Chair: **Regina Soufli**,
Lawrence Livermore National Lab. (United States)

10.40: **Ablation of solids using an extreme ultraviolet free electron laser at SCSS test accelerator** (*Invited Paper*), Mitsuru Nagasono, RIKEN (Japan); Yasunori Senba, Haruhiko Ohashi, Japan Synchrotron Radiation Research Institute (Japan) and RIKEN (Japan); Kensuke Tono, Tadashi Togashi, Makina Yabashi, Tetsuya Ishikawa, RIKEN (Japan) [8077-06]

11.05: **Damage in Mo/Si multilayer optics irradiated by intense short-wavelength FELs** (*Invited Paper*), Eric Louis, FOM-Institute for Plasma Physics Rijnhuizen (Netherlands); Ryszard Sobierajski, Institute of Physics (Poland) and FOM-Institute for Plasma Physics Rijnhuizen (Netherlands); Rolf A. Loch, FOM-Institute for Plasma Physics Rijnhuizen (Netherlands); Christoph Bostedt, John Bozek, SLAC National Accelerator Lab. (United States); Tomas Burian, Jaromir Chalupsky, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Jerome Gaudin, European XFEL GmbH (Germany); Alexander Graf, Lawrence Livermore National Lab. (United States); Justyna Grzonka, Warsaw Univ. of Technology (Poland); Vera Hajkova, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Stefan P. Hau-Riege, Lawrence Livermore National Lab. (United States); Eddie van Hattum, FOM-Institute for Plasma Physics Rijnhuizen (Netherlands); Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Dorota Klinger, Institute of Physics (Poland); Jacek Krzywinski, SLAC National Accelerator Lab. (United States); Richard A. London, Lawrence Livermore National Lab. (United States); Marc Messerschmidt, Stefan Moeller, SLAC National Accelerator Lab. (United States); Tomasz Plocinski, Warsaw Univ. of Technology (Poland); Andrzej Wawro, Institute of Physics (Poland); Pawel Zabierowski, Warsaw Univ. of Technology (Poland); Fred Bijkerk, FOM-Institute for Plasma Physics Rijnhuizen (Netherlands) and MESA+ Institute for Nanotechnology (Netherlands) [8077-07]

11.30: **Femtosecond laser-induced periodic surface structures: importance of transient excitation stages** (*Invited Paper*), Jörn Bonse, Jörg Krüger, Bundesanstalt für Materialforschung und -prüfung (Germany); Marcus Rohloff, Susanta K. Das, Sandra Höhm, Arkadi Rosenfeld, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany) [8077-08]

11.55: **TBA**

Lunch Break 12.15 to 13.25

SESSION 4

Room: Terrace 2 Mon. 13.25 to 15.40

Thermal Effects of Intense Radiation

Session Chair: Jaromír Chalupsky,
Institute of Physics of the ASCR, v.v.i. (Czech Republic)

13.25: **Transient analysis of thermal distortion in a silicon substrate on incidence of a single soft X-ray FEL pulse** (*Invited Paper*), A. Rubens B. de Castro, Univ. Estadual de Campinas (Brazil) and Brazilian Synchrotron Source LNSL (Brazil); Aurea R. Vasconcellos, Roberto Luzzi, Univ. Estadual de Campinas (Brazil) [8077-10]

13.50: **Computer simulation of heat transfer in zone plate optics exposed to X-ray FEL radiation** (*Invited Paper*), Daniel Nilsson, Anders P. Holmberg, Royal Institute of Technology (Sweden); Harald Sinn, European XFEL GmbH (Germany); Ulrich Vogt, Royal Institute of Technology (Sweden) [8077-11]

14.15: **Time-resolved investigation of thermal distortions induced by a high flux x-ray beam in optical substrate**, Bernhard Flöter, Laser-Lab. Göttingen e.V. (Germany); Barbara Keitel, Deutsches Elektronen-Synchrotron (Germany); Laurent Guerin, European Synchrotron Radiation Facility (France); Klaus Mann, Laser-Lab. Göttingen e.V. (Germany); Kai Tiedtke, Deutsches Elektronen-Synchrotron (Germany); Andrius Jurgilaitis, Ralf Nüske, Lund Univ. (Sweden); Antje Trapp, Thomas Tschentscher, Fan Yang, European XFEL GmbH (Germany); Michael Wulff, European Synchrotron Radiation Facility (France); Harald Sinn, Jérôme Gaudin, European XFEL GmbH (Germany) [8077-12]

14.35: **TBA**

14.55: **Time resolved optical methods for investigation of phase transformations in materials exposed to nanosecond laser pulses** (*Invited Paper*), Jiri Martan, Univ. of West Bohemia (Czech Republic); Nadjib Semmar, Univ. d'Orléans (France); Ondrej E. Cibulka, Univ. of West Bohemia (Czech Republic) [8077-14]

15.20: **Thermal analysis and proton implantation experiment to evaluate the stability of multilayer coatings in a space environment close to the sun**, Gianni G. Monaco, Univ. degli Studi di Padova (Italy) and CNR-IFN UOS Padova, LUXOR Lab. (Italy); Alain J. Corso, Lab. for Ultraviolet and X-ray Optical Research (Italy); Paola Zuppella, Piergiorgio Nicolosi, Univ. degli Studi di Padova (Italy); David L. Windt, Reflective X-Ray Optics LLC (United States); Maria G. Pelizzo, Univ. degli Studi di Padova (Italy) [8077-15]

Tuesday 19 April

SESSION 5

Room: Terrace 2 Tues. 08.20 to 10.00

Damage by Plasma Emission

Session Chair: Bernhard Flöter, Laser-Lab. Göttingen e.V. (Germany)

08.20: **Responses of polymers to laser plasma EUV light beyond ablation threshold and micromachining** (*Invited Paper*), Tetsuya Makimura, Shuichi Torii, Univ. of Tsukuba (Japan); Kota Okazaki, Daisuke Nakamura, Akihiko Takahashi, Hiroyuki Niino, Tatsuo Okada, Kyushu Univ. (Japan); Kouichi Murakami, Univ. of Tsukuba (Japan) [8077-16]

08.45: **Damage investigations on EUV relevant materials using a table-top LPP source** (*Invited Paper*), Frank Barkusky, Laser-Lab. Göttingen e.V. (Germany) [8077-17]

09.10: **EUV-induced ablation and surface modifications of solids** (*Invited Paper*), Andrzej S. Bartnik, Henryk Fiedorowicz, Roman Jarocki, Jerzy Kostecki, Mirosław Szczurek, Anna Szczurek, Przemysław Wachulak, Military Univ. of Technology (Poland) [8077-18]

09.35: **Particle-induced damage effects on EUV source collector mirror optics** (*Invited Paper*), Jean-Paul Allain, Alex Cimaroli, Daniel Rokusek, Brandon Holybee, Alexandra Kacic, Purdue Univ. (United States) [8077-19]

Coffee Break 10.00 to 10.30

SESSION 6

Room: Terrace 2 Tues. 10.30 to 12.20

Damage Mechanisms and Characterization

Session Chair: Eric Louis, FOM-Institute for Plasma Physics Rijnhuizen (Netherlands)

10.30: **Structural change induced in carbon materials by electronic excitations** (*Invited Paper*), Koji Maeda, The Univ. of Tokyo (Japan) [8077-20]

10.55: **Damage formation and characterization with scanning photoemission spectroscopy** (*Invited Paper*), Luca Gregoratti, Matteo Amati, Majid Kazemian Abyaneh, Sincrotrone Trieste S.C.p.A. (Italy) [8077-21]

11.20: **Desorption mechanisms in PMMA irradiated by high order harmonics**, Marco V. De Grazia, Hamed Merdji, Bertrand Carré, Commissariat à l'Énergie Atomique (France); Jerome Gaudin, European XFEL GmbH (Germany); G. Geoffroy, Ecole Polytechnique (France); Stéphane Guizard, Commissariat à l'Énergie Atomique (France); F. Krejci, Jaroslav Kuba, Czech Technical Univ. in Prague (Czech Republic); Jaromír Chalupsky, Jaroslav Cihelka, Vera Hajkova, Martin Ledinsky, Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic) [8077-22]

11.40: **Multilayer white beam study**, Kathrin Friedrich, Christian Morawe, Jean-Christophe Peffen, Markus Osterhoff, European Synchrotron Radiation Facility (France) [8077-23]

12.00: **Three dimensional measurement of the point spread function of a soft X-ray zone plate via single pixel exposure of photoresists at focus**, Adam F. G. Leontowich, Adam P. Hitchcock, McMaster Univ. (Canada) [8077-24]

Lunch/Exhibition Break 12.20 to 13.30

SESSION 7

Room: Terrace 2 Tues. 13.30 to 14.45

Theory and Computation

Session Chair: Jacek Krzywinski, SLAC National Accelerator Lab. (United States)

13.30: **Radiation damage by secondary electrons within FEL irradiated samples** (*Invited Paper*), Beata Ziaja-Motyka, Deutsches Elektronen-Synchrotron (Germany) [8077-25]

13.55: **Molecular dynamics simulations on time-dependent potential energy surfaces for the study of ultrafast phase transitions and coherent phonons** (*Invited Paper*), Harald O. Jeschke, Johann Wolfgang Goethe-Univ. Frankfurt am Main (Germany) [8077-26]

14.20: **Electron kinetics in semiconductors and metals irradiated with VUV-XUV femtosecond laser pulses** (*Invited Paper*), Nikita A. Medvedev, Baerbel Rethfeld, Technische Univ. Kaiserslautern (Germany) [8077-27]

SESSION 8

Room: Terrace 2 Tues. 14.45 to 15.35

Damage by VUV Radiation

Session Chair: Marco Kirm, Univ. of Tartu (Estonia)

14.45: **Frenkel defect process in amorphous silica** (*Invited Paper*), Koichi Kajihara, Tokyo Metropolitan Univ. (Japan); Masahiro Hirano, Tokyo Institute of Technology (Japan); Linards Skuja, Univ. of Latvia (Latvia); Hideo Hosono, Tokyo Institute of Technology (Japan) [8077-28]

15.10: **Damage to low-k porous organosilicate glass from vacuum ultraviolet irradiation** (*Invited Paper*), J. Leon Shohet, Univ. of Wisconsin-Madison (United States) [8077-29]

Coffee Break 15.35 to 16.00

SESSION 9

Room: Terrace 2 Tues. 16.00 to 17.55

Damage to Filters, Splitters, Phosphors, and Samples

Session Chair: Saša Bajt, CFEL-DESY (Germany)

16.00: **High-throughput beam splitters for high-order harmonics in soft-x-ray region** (*Invited Paper*), Masatoshi Hatayama, NTT Advanced Technology Corp. (Japan); Eiji J. Takahashi, RIKEN (Japan); Hisataka Takenaka, NTT Advanced Technology Corp. (Japan); Eric M. Gullikson, Lawrence Berkeley National Lab. (United States); Katsumi Midorikawa, RIKEN (Japan) [8077-30]

16.25: **Relaxation and interaction of electronic excitations induced by intense ultra short light pulses in scintillators** (*Invited Paper*), Marco Kirm, Vitali Nagirnyi, Sebastian Vielhauer, Eduard Feldbach, Univ. of Tartu (Estonia) [8077-31]

16.50: **Saturation of Ce:YAG scintillator exposed to ultrashort VUV, XUV and hard X-ray radiation pulses** (*Invited Paper*), Jacek Krzywinski, SLAC National Accelerator Lab. (United States); Andrzej Andrejczuk, Univ. of Białystok (Poland); Richard M. Bionta, Lawrence Livermore National Lab. (United States); Jaromír Chalupsky, Jaroslav Cihelka, Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Marco Kirm, Univ. of Tartu (Estonia); Marek Jurek, Ryszard Sobierajski, Institute of Physics (Poland); Kai Tiedtke, Deutsches Elektronen-Synchrotron (Germany) [8077-32]

17.15: **Damage to dry plasmid DNA induced by nanosecond XUV-laser pulses**, Eva Nováková, Marie Davidková, Ludek Vysin, Tomáš Burian, Jaromír Chalupsky, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Michael E. Grisham, Scott C. Heinbuch, Jorge J. Rocca, Colorado State Univ. (United States); Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic) [8077-33]

17.35: **Study on the lifetime of Mo/Si multilayer optics with pulsed EUV-source at the ETS**, Mark Schürmann, Sergiy A. Yulin, Viatcheslav Nesterenko, Torsten Feigl, Norbert Kaiser, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Boris Tkachenko, Max C. Schürmann, XTREME technologies GmbH (Germany) [8077-34]

Wednesday 20 April

Posters Wed. 17.40 to 19.15

Conference attendees are invited to attend the EOO Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Damage of amorphous carbon induced by x-ray femtosecond free electron lasers pulses, Shafagh Dastjani Farahani, European XFEL GmbH (Germany) [8077-35]

Laser-produced plasma EUV source at 6.7 nm as a future EUV source, Takamitsu Otsuka, Utsunomiya Univ. (Japan); Colm O' Gorman, Thomas Cummins, Tony Donnelly, Deirdre Kilbane, John White, Univ. College Dublin (Ireland); Takeshi Higashiguchi, Noboru Yugami, Toyohiko Yatagai, Utsunomiya Univ. (Japan); Weihua Jiang, Nagaoka Univ. of Technology (Japan); Akira Endo, Forschungszentrum Dresden-Rossendorf e.V. (Germany); Pdraig Dunne, Gerry O' Sullivan, Univ. College Dublin (Ireland) [8077-36]

Thermal stability on Mo/B4C multilayers, Miriam Barthelmess, Saša Bajt, Deutsches Elektronen-Synchrotron (Germany) [8077-37]

FEL multilayer optics damaged by multiple shot laser beam: experimental results and discussion, Angelo Giglia, Consiglio Nazionale delle Ricerche (Italy); Nicola Mahne, Lab. Nazionale TASC (Italy); Anna Bianco, Cristian Svetina, Sincrotrone Trieste S.C.p.A. (Italy); Stefano Nannarone, Univ. di Modena e Reggio Emilia (Italy) [8077-38]

Handling the carbon contamination issue at SOLEIL, Isabelle Yao-Leclerc, Laurent Nahon, Nelson De Oliveira, Muriel Thomasset, Fausto Sirotti, Christian Chauvet, Stefan Kubsky, Francois Nicolas, Synchrotron SOLEIL (France) [8077-39]

Blistering behaviour in Mo/Si mirrors for EUV lithography, Alexey S. Kuznetsov, Michael A. Gleeson, Robbert W. E. van de Kruijs, FOM-Institute for Plasma Physics Rijnhuizen (Netherlands); Fred Bijkerk, FOM-Institute for Plasma Physics Rijnhuizen (Netherlands) and MESA+ Institute for Nanotechnology (Netherlands) . . . [8077-40]

Micromachining of polydimethylsiloxane induced by laser plasma EUV light, Shuichi Torii, Tetsuya Makimura, Univ. of Tsukuba (Japan); Kouta Okazaki, Daisuke Nakamura, Akihiko Takahashi, Tatsuo Okada, Kyushu Univ. (Japan); Hiroyuki Niino, National Institute of Advanced Industrial Science and Technology (Japan); Kouichi Murakami, Univ. of Tsukuba (Japan) [8077-41]

Computer simulation of short-wavelength laser ablation: the XUV-ABLATOR code (*Invited Paper*), Ludek Vysin, Jaromír Chalupsky, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Jacek Krzywinski, SLAC National Accelerator Lab. (United States); Ryszard Sobierajski, Institute of Physics (Poland); Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Létal Vít, Czech Technical Univ. in Prague (Czech Republic) [8077-42]

Electron kinetics in liquid water excited with a femtosecond VUV laser pulse, Klaus Huthmacher, Bärbel Rethfeld, Nikita Medvedev, Technische Univ. Kaiserslautern (Germany) [8077-43]

Radiation damage to molecular solids exposed to multiple shots of x-ray laser below the single-shot ablation threshold, Tomas Burian, Martina Toufarova, Jaromir Chalupsky, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Stefan P. Hau-Riege, Lawrence Livermore National Lab. (United States); Jacek Krzywinski, SLAC National Accelerator Lab. (United States); Vera Hajkova, Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic) [8077-44]

Short-wavelength ablation of lead compounds, Vera Hajkova, Institute of Physics of the ASCR, v.v.i. (Czech Republic) [8077-45]

Ablation of ionic crystals induced by capillary-discharge XUV laser, Peter Pira, Charles Univ. in Prague (Czech Republic); Jan Lancok, Institute of Physics of the ASCR, v.v.i. (Czech Republic); Jan Wild, Charles Univ. in Prague (Czech Republic); Michal Strizik, Technical Univ. Ostrava (Czech Republic); Zdenek Zelinger, J. Heyrovsky Institute of Physical Chemistry (Czech Republic); Jorge J. Rocca, Colorado State Univ. (United States); Libor Juha, Institute of Physics of the ASCR, v.v.i. (Czech Republic) [8077-46]

Optics+Optoelectronics

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Advances in X-ray Free-Electron Lasers: Radiation Schemes, X-ray Optics and Instrumentation

Conference Chairs: **Thomas Tschentscher**, European XFEL GmbH (Germany); **Daniele Cocco**, Sincrotrone Trieste S.C.p.A. (Italy)

Programme Committee: **Fred Bijkerk**, FOM-Institute for Plasma Physics Rijnhuizen (Netherlands); **Roberto Cimino**, Istituto Nazionale di Fisica Nucleare (Italy); **Christian David**, Paul Scherrer Institut (Switzerland); **Klaus Mann**, Laser-Lab. Göttingen e.V. (Germany); **Robert Aymeric**, SLAC National Accelerator Lab. (United States); **Kai I. Tiedtke**, Deutsches Elektronen-Synchrotron (Germany); **Makina Yabashi**, SPring-8 (Japan); **Philippe Zeitoun**, ENSTA-LOA (France)

Wednesday 20 April

Opening and Introduction

Room: Club E Wed. 09.00 to 09.20

Thomas Tschentscher, European XFEL GmbH (Germany);
Daniele Cocco, Sincrotrone Trieste S.C.p.A. (Italy)

SESSION 1

Room: Club E Wed. 09.20 to 11.40

Status of Operational and Planned FEL Facilities

Session Chair: **Roberto Cimino**,
Istituto Nazionale di Fisica Nucleare (Italy)

09.20: **FERMI@Elettra, a seeded free electron laser source for a broad scientific user programme** (*Invited Paper*), Enrico M. Allaria, Paolo Craievich, Simone Di Mitri, Giuseppe Penco, Mauro Trovo, Sincrotrone Trieste S.C.p.A. (Italy) [8078-01]

09.50: **Development of X-ray Optics and beamlines for XFEL at Spring-8**, Makina Yabashi, Kensuke Tono, Tadashi Togashi, Takashiro Sato, Yuichi Inubushi, RIKEN (Japan); Togo Kudo, Hiromitsu Tomizawa, Japan Synchrotron Radiation Research Institute (Japan); Hiroaki Kimura, RIKEN (Japan); Sunao Takahashi, Japan Synchrotron Radiation Research Institute (Japan); Haruhiko Ohashi, RIKEN (Japan); Shunji Goto, Japan Synchrotron Radiation Research Institute (Japan); Tetsuya Ishikawa, RIKEN (Japan) [8078-02]

10.10: **Scientific progress at SPARC**, Massimo Ferrario, Istituto Nazionale di Fisica Nucleare (Italy) [8078-03]

Coffee Break 10.30 to 11.00

11.00: **The SwissFEL facility and its preliminary optics beamline layout**, Peter Oberta, Uwe Flechsig, Rafael Abela, Paul Scherrer Institut (Switzerland) . [8078-04]

11.20: **ZFEL: a compact, soft X ray free-electron laser in the Netherlands**, Ronnie Hoekstra, Univ. of Groningen (Netherlands) [8078-05]

SESSION 2

Room: Club E Wed. 11.40 to 12.30

Scientific Applications and their Instrumentation Requirements I

Session Chair: **Robert Aymeric**,
SLAC National Accelerator Lab. (United States)

11.40: **Ultrafast atomic and molecular photoionization at the LCLS** (*Invited Paper*), John D. Bozek, Christoph Bostedt, Sebastian Schorb, SLAC National Accelerator Lab. (United States) [8078-06]

12.10: **Coincidence experiments at FELs**, Robert Moshhammer, Max-Planck-Institut für Kernphysik (Germany) [8078-07]

Lunch/Exhibition Break 12.30 to 14.00

SESSION 3

Room: Club E Wed. 14.00 to 14.40

Scientific Applications and their Instrumentation Requirements II

Session Chair: **Robert Aymeric**,
SLAC National Accelerator Lab. (United States)

14.00: **Single particle imaging with soft X-rays at LCLS**, Andrew V. Martin, Deutsches Elektronen-Synchrotron (Germany); Jakob Andreasson, Uppsala Univ. (Sweden); Andrew L. Aquila, Saša Bajt, Deutsches Elektronen-Synchrotron (Germany); Thomas R. M. Barends, Max-Planck-Institut für medizinische Forschung (Germany); Miriam Barthelmeß, Anton Barty, Deutsches Elektronen-Synchrotron (Germany); W. Henry Benner, Lawrence Livermore National Lab. (United States); Christoph Bostedt, Sebastien Boutet, John D. Bozek, Phillip Bucksbaum, SLAC National Accelerator Lab. (United States); Carl Caleman, Nicola Coppola, Daniel P. DePonte, Deutsches Elektronen-Synchrotron (Germany); Tomas Ekeberg, Uppsala Univ. (Sweden); Sascha Epp, Benjamin Erk, Deutsches Elektronen-Synchrotron (Germany); George Farquar, Lawrence Livermore National Lab. (United States); Holger Fleckenstein, Lutz Foucar, Deutsches Elektronen-Synchrotron (Germany); Matthias A. Frank, Lawrence Livermore National Lab. (United States); Lars Gumprecht, Deutsches Elektronen-Synchrotron (Germany); Christina Y. Hampton, SLAC National Accelerator Lab. (United States); Elisabeth Hartmann, Max-Planck-Institut für medizinische Forschung (Germany); Robert Hartmann, PNSensor GmbH (Germany); Stephan P. Hau-Riege, Lawrence Livermore National Lab. (United States); Günther Hauser, Max-Planck-Institut Halbleiterlabor (Germany); Peter Holl, PNSensor GmbH (Germany); André Hömke, Deutsches Elektronen-Synchrotron (Germany); Olof Jönsson, Uppsala Univ. (Sweden); Stephan Kassemeier, Max-Planck-Institut für mediz [8078-08]

14.20: **Ultrafast pump/probe diffraction and spectroscopy experiments with FEL radiation: setup development from the soft to the hard X-rays with the aim of studying chemical processes**, Ivan Rajkovic, Sebastian Gruebel, Rene More, Wilson Quevedo, Marcel Petri, Mirko Scholz, Simone Teichert, Max-Planck-Institut für biophysikalische Chemie (Germany) [8078-09]

SESSION 4

Room: Club E Wed. 14.40 to 17.20

Optics and Beam Transport Performance

Session Chair: **Klaus Mann**, Laser-Lab. Göttingen e.V. (Germany)

14.40: **Current status of precision mirror development for coherent X-rays** (*Invited Paper*), Kazuto Yamauchi, Osaka Univ. (Japan) [8078-10]

15.10: **KB Mirrors for the LCLS hard x-ray free electron laser**, Sebastien Boutet, Garth Williams, Marvin Seibert, SLAC National Accelerator Lab. (United States) [8078-11]

Coffee Break 15.30 to 16.00

16.00: **Diffraction optics for hard X-FEL radiation**, Christian David, Simon Rutishauser, Sergey Gorelick, Vitaliy A. Guzenko, Oliver Bunk, Paul Scherrer Institut (Switzerland); Jan Grünert, Liubov Samoylova, Harald Sinn, European XFEL GmbH (Germany); Jacek Krzywinski, Marco Cammarata, David M. Fritz, SLAC National Accelerator Lab. (United States) [8078-12]

16.20: **Multilayer XUV/SXR beam splitters for short-wavelength FEL applications**, Rolf A. Loch, FOM-Institute for Plasma Physics Rijnhuizen (Netherlands); Ryszard Sobierajski, Institute of Physics (Poland) and FOM-Institute for Plasma Physics Rijnhuizen (Netherlands); Eric M. Gullikson, Lawrence Berkeley National Lab. (United States); Dorota Klinger, Institute of Physics (Poland); Robbert W. E. van de Kruijs, Eric Louis, FOM-Institute for Plasma Physics Rijnhuizen (Netherlands); Frank Siewert, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH (Germany); Andrzej Wawro, Institute of Physics (Poland); Fred Bijkerk, FOM-Institute for Plasma Physics Rijnhuizen (Netherlands) and Univ. Twente (Netherlands) [8078-13]

16.40: **Multilayer mirrors for FERMI@ELETTRA beam transport system**, Alain J. Corso, Lab. for Ultraviolet and X-ray Optical Research (Italy); Gianni G. Monaco, Lab. for Ultraviolet and X-ray Optical Research (Italy) and Univ. degli Studi di Padova (Italy); Paola Zuppella, Lab. for Ultraviolet and X-ray Optical Research (Italy); Piergiorgio Nicolosi, Univ. degli Studi di Padova (Italy); Daniele Cocco, Sincrotrone Trieste S.C.p.A. (Italy); Maria Guglielmina Pelizzo, Lab. for Ultraviolet and X-ray Optical Research (Italy) [8078-14]

Optics+Optoelectronics

17.00: **Development of X-ray optics for advanced research light sources**, Michael Störmer, Christian Horstmann, GKSS-Forschungszentrum Geesthacht (Germany); Frank Siewert, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH (Germany); Frank Hertlein, Uwe Heidorn, Incoatec GmbH (Germany); Jerome Gaudin, European XFEL GmbH (Germany) [8078-15]

Posters Wed. 17.40 to 19.15

Conference attendees are invited to attend the EOO Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Visualizing XUV-induced isomerisation of acetylene cations in the free electron laser field, Yuhai Jiang, A. Rudenko, Max-Planck-Institut für Kernphysik (Germany); O. Herrwerth, Max-Planck-Institut für Quantenoptik (Germany); L. Foucar, Deutsches Elektronen-Synchrotron (Germany); M. Kurka, K. U. Kühnel, Max-Planck-Institut für Kernphysik (Germany); M. Lezius, M. F. Kling, Max-Planck-Institut für Quantenoptik (Germany); J. van Tilborg, A. Belkacem, Lawrence Berkeley National Lab. (United States); K. Ueda, Tohoku Univ. (Japan); S. Düsterer, R. Treusch, Deutsches Elektronen-Synchrotron (Germany); C. D. Schröter, R. Moshhammer, J. Ullrich, Max-Planck-Institut für Kernphysik (Germany) . . . [8078-27]

Ion imaging experiments at FLASH, LCLS, and SCSS, Daniel Rolles, Max-Planck-Institut für Kernphysik (Germany) [8078-28]

Practical experience from operating the imaging pnCCD detectors of the CAMP chamber at LCLS, Georg Weidenspointner, Max-Planck-Institut fuer extraterrestrische Physik (Germany) and Max-Planck-Institut Halbleiterlabor (Germany); Sascha Epp, Deutsches Elektronen-Synchrotron (Germany); Andreas Hartmann, Robert Hartmann, PNSensor GmbH (Germany); Guenter Hauser, Max-Planck-Institut fuer extraterrestrische Physik (Germany); Peter Holl, PNSensor GmbH (Germany); Nils Kimmel, Max-Planck-Institut fuer extraterrestrische Physik (Germany); Christian Reich, PNSensor GmbH (Germany); Daniel Rolles, Deutsches Elektronen-Synchrotron (Germany); Lothar Strueder, Max-Planck-Institut fuer extraterrestrische Physik (Germany); Joachim Ullrich, Max-Planck-Institut für Kernphysik (Germany) [8078-30]

Calibration methods and performance evaluation for pnCCDs in experiments with FEL radiation, Nils J. Kimmel, Max-Planck-Institut Halbleiterlabor (Germany); Sascha Epp, Deutsches Elektronen-Synchrotron (Germany); Robert Hartmann, Andreas Hartmann, PNSensor GmbH (Germany); Günther Hauser, Max-Planck-Institut Halbleiterlabor (Germany); Peter Holl, Christian Reich, PNSensor GmbH (Germany); Daniel Rolles, Deutsches Elektronen-Synchrotron (Germany); Lothar Strüder, Max-Planck-Institut Halbleiterlabor (Germany); Joachim Ullrich, Max-Planck-Institut für Kernphysik (Germany); Georg Weidenspointner, Max-Planck-Institut Halbleiterlabor (Germany) [8078-31]

Large format imaging detectors for X-ray free-electron-lasers, Robert Hartmann, PNSensor GmbH (Germany); Sascha Epp, Deutsches Elektronen-Synchrotron (Germany); Hubert Gorke, Forschungszentrum Jülich GmbH (Germany); Lothar Strüder, Max-Planck-Institut Halbleiterlabor (Germany); Joachim Ullrich, Max-Planck-Institut für Kernphysik (Germany); Heike Soltau, PNSensor GmbH (Germany); Sven Herrmann, Max-Planck-Institut Halbleiterlabor (Germany); Daniel Rolles, Deutsches Elektronen-Synchrotron (Germany); Peter Holl, PNSensor GmbH (Germany); Norbert Meidinger, Max-Planck-Institut Halbleiterlabor (Germany); Andreas Hartmann, PNSensor GmbH (Germany); Günther Hauser, Nils J. Kimmel, Max-Planck-Institut Halbleiterlabor (Germany); Christian Reich, PNSensor GmbH (Germany); Georg Weidenspointner, Max-Planck-Institut Halbleiterlabor (Germany) [8078-32]

Delay systems and phase retarders based on multilayers coated mirrors for FEL beam manipulation, Maria Guglielmina Pelizzo, Alain Jody Corso, Paola Zuppella, Lab. for Ultraviolet and X-ray Optical Research (Italy); Gianni G. Monaco, Lab. for Ultraviolet and X-ray Optical Research (Italy) and Univ. degli Studi di Padova (Italy); Daniele Cocco, Sincrotrone Trieste S.C.p.A. (Italy); Piorgiorgio Nicolosi, Univ. degli Studi di Padova (Italy) [8078-34]

Partial-coherence colored-noise approach to model FEL pulse statistics, Thomas Pfeifer, Yuhai Jiang, Max-Planck-Institut für Kernphysik (Germany); Stefan Duesterer, Deutsches Elektronen-Synchrotron (Germany); Robert Moshhammer, Joachim Ullrich, Max-Planck-Institut für Kernphysik (Germany) [8078-35]

Thursday 21 April

SESSION 5

Room: Club E Thurs. 08.30 to 10.00

Diagnostics of FEL Radiation

Session Chair: Kai Tiedtke, Deutsches Elektronen-Synchrotron (Germany)

08.30: **Determination of temporal FEL pulse properties: challenging concepts and experiments** (*Invited Paper*), Stefan Duesterer, Deutsches Elektronen-Synchrotron (Germany) [8078-16]

09.00: **First results from the commissioning of the FERMI@Elettra free electron laser by means of the Photon Analysis Delivery and Reduction System (PADReS)**, Marco Zangrando, Ivan Cudin, Claudio Fava, Simone Gerusina, Riccardo Gobessi, Roberto Godnig, Luca Rumiz, Cristian Svetina, Fulvio Parmigiani, Daniele Cocco, Sincrotrone Trieste S.C.p.A. (Italy) [8078-17]

09.20: **Hard X-FEL source diagnostics at LCLS using a grating interferometer**, Simon Rutishauser, Christian David, Oliver Bunk, Paul Scherrer Institut (Switzerland); Jan Grünert, Liubov Samoylova, Harald Sinn, European XFEL GmbH (Germany); Jacek Krzywinski, Marco Cammarata, David Fritz, SLAC National Accelerator Lab. (United States) [8078-18]

09.40: **Beam characterization of FLASH from Hartmann data and measurement of the Wigner distribution function**, Bernd Schäfer, Bernhard Flöter, Klaus Mann, Laser-Lab. Göttingen e.V. (Germany); Barbara Keitel, Elke Plönjes, Kai Tiedtke, Deutsches Elektronen-Synchrotron (Germany) [8078-19]

Coffee Break 10.00 to 10.30

SESSION 6

Room: Club E Thurs. 10.30 to 12.20

FEL Instrumentation and Sample Related Issues

Session Chair: Makina Yabashi, SPring-8 (Japan)

10.30: **CAMP: a multipurpose instrument for imaging experiments and simultaneous detection of photons and charged particles at VUV and X-ray free electron lasers**, Daniel Rolles, Deutsches Elektronen-Synchrotron (Germany) [8078-20]

10.50: **Sample injection for pulsed X-ray sources**, Daniel P. DePonte, Karol Nass, Stellato Francesco, Mengning Liang, Henry N. Chapman, Deutsches Elektronen-Synchrotron (Germany) [8078-21]

11.10: **PnCCDs as high-speed imagers for X-ray and electron imaging and spectroscopy: first experience at FLASH and LCLS** (*Invited Paper*), Lothar Strueder, Max-Planck-Institut für extraterrestrische Physik (Germany); Robert Hartmann, Heike Soltau, PNSensor GmbH (Germany); Joachim Ullrich, Max-Planck-Institut für Kernphysik (Germany) [8078-22]

11.40: **Development of the DEPFET sensor with signal compression: a large format X-ray imager with mega-frame readout capability for the European XFEL**, Matteo Porro, Max-Planck-Institut für extraterrestrische Physik (Germany) and MPI Halbleiterlabor (Germany) [8078-23]

12.00: **Characterization and diagnostics of fast X-ray imaging detectors for X-ray free electron laser sources**, Andrea Castoldi, Chiara Guazzoni, Davide Mezza, Politecnico di Milano (Italy) and Istituto Nazionale di Fisica Nucleare (Italy); Gerhard Lutz, Peter H. Lechner, PNSensor GmbH (Germany) and Max-Planck-Institut für extraterrestrische Physik (Germany); Luca Carraresi, Univ. degli Studi di Firenze (Italy) and Istituto Nazionale di Fisica Nucleare (Italy); Francesco Taccetti, Univ. degli Studi di Firenze (Italy) [8078-29]

Lunch Break 12.20 to 13.50

SESSION 7

Room: Club E Thurs. 13.50 to 14.40

Advanced FEL Radiation Schemes

Session Chair: Philippe Zeitoun, Ecole Nationale Supérieure de Techniques Avancées (France)

13.50: **Echo-enabled harmonic generation for seeded FELs** (*Invited Paper*), Gennady Stupakov, SLAC National Accelerator Lab. (United States) [8078-24]

14.20: **Self-seeding schemes for the European XFEL**, Gianluca Geloni, Vitali Kocharyan, Evgeni Saldin, European XFEL GmbH (Germany) [8078-25]

Concluding Remarks

Room: Club E Thurs. 15.00 to 15.20

Thomas Tschentscher, European XFEL GmbH (Germany);
Daniele Cocco, Sincrotrone Trieste S.C.p.A. (Italy)

Optics+Optoelectronics

Laser Acceleration of Electrons, Protons and Ions

Conference Chairs: **Wim P. Leemans**, Lawrence Berkeley National Lab. (United States); **Eric Esarey**, Lawrence Berkeley National Lab. (United States); **Simon M. Hooker**, Univ. of Oxford (United Kingdom)

Programme Committee: **Thomas Cowan**, Forschungszentrum Dresden-Rossendorf e.V. (Germany); **Brigitte Cros**, Univ. Paris-Sud 11 (France); **Antonio Giulietti**, Consiglio Nazionale delle Ricerche (Italy); **Florian J. Grüner**, Ludwig-Maximilians-Univ. München (Germany); **Bjoen Manuel Hegelich**, Los Alamos National Lab. (United States); **Karl M. Krushelnick**, Univ. of Michigan (United States); **Victor Malka**, Ecole Nationale Supérieure de Techniques Avancées (France); **Zulfikar Najmudin**, Imperial College London (United Kingdom); **Zheng-Ming Sheng**, Shanghai Jiao Tong Univ. (China); **Luis O. Silva**, Univ. Técnica de Lisboa (Portugal); **Vladimir Tikhonchuk**, Univ. Bordeaux 1 (France); **Antonio C. Ting**, U.S. Naval Research Lab. (United States); **Mitsuru Uesaka**, The Univ. of Tokyo (Japan); **Claes-Goran Wahlström**, Lund Univ. (Sweden); **Matthew Zepf**, Queen's Univ. Belfast (United Kingdom)

Monday 18 April

Opening Remarks

Room: Club H. Mon. 08.30 to 08.40

Wim P. Leemans, Lawrence Berkeley National Lab. (USA); **Eric Esarey**, Lawrence Berkeley National Lab. (USA); **Simon M. Hooker**, Univ. of Oxford (United Kingdom)

SESSION 1

Room: Club H. Mon. 08.40 to 10.10

Electron Acceleration I

Session Chair: **Wim P. Leemans**, Lawrence Berkeley National Lab. (United States)

08.40: **Tunable two-stage laser-plasma accelerator based on longitudinal density tailoring** (*Invited Paper*), Anthony J. Gonsalves, Kei Nakamura, Chen Lin, Dmitry Panasenkov, Satomi Shiraiishi, Thomas Sokollik, Carlo Benedetti, Carl B. Schroeder, Cameron G. R. Geddes, Jeroen van Tilborg, Eric Esarey, Csaba Toth, Wim P. Leemans, Lawrence Berkeley National Lab. (United States) [8079A-01]

09.10: **Narrow energy spread electron beams from the ALPHA-X laser wakefield accelerator**, Mark Wiggins, Riju Issac, Gregor Welsh, Enrico Brunetti, Richard Shanks, Silvia Cipiccia, Maria Pia Anania, Grace Manahan, Constantin Aniculaesei, David Grant, Anna Subiel, Bernhard Ersfeld, Ranaul Islam, Gaurav Raj, Univ. of Strathclyde (United Kingdom); Allan Gillespie, Univ. of Dundee (United Kingdom); Allan MacLeod, Univ. of Abertay Dundee (United Kingdom); Dino Jaroszynski, Univ. of Strathclyde (United Kingdom) [8079A-02]

09.30: **Evolution of electron-bunch parameters during laser-wakefield acceleration**, Antonia Popp, Raphael Weingartner, Jens Osterhoff, T. Mehrling, Johannes Wenz, Matthias Heigoldt, Shao-wei Chou, Konstantin Khrennikov, Zsuzsanna Major, Florian J. Grüner, Ferenc Krausz, Stefan Karsch, Max-Planck-Institut für Quantenoptik (Germany) [8079A-03]

09.50: **Plasma wave structure and particle trapping in nonlinear laser wakefields**, Carlo Benedetti, Carl B. Schroeder, Eric Esarey, Wim P. Leemans, Lawrence Berkeley National Lab. (United States) [8079A-04]

Coffee Break 10.10 to 10.40

SESSION 2

Room: Club H. Mon. 10.40 to 12.10

Electron Acceleration II

Session Chair: **Eric Esarey**, Lawrence Berkeley National Lab. (United States)

10.40: **Complete characterization of laser wakefield acceleration** (*Invited Paper*), Laszlo Veisz, A. Buck, Max-Planck-Institut für Quantenoptik (Germany); Maria Nicolai, Friedrich-Schiller-Univ. Jena (Germany); K. Schmid, Christopher M. S. Sears, Max-Planck-Institut für Quantenoptik (Germany); Alexander Sävert, Friedrich-Schiller-Univ. Jena (Germany); J. Mikhailova, Ferenc Krausz, Max-Planck-Institut für Quantenoptik (Germany); Malte C. Kaluza, Friedrich-Schiller-Univ. Jena (Germany) [8079A-05]

11.10: **Measurement of the transverse electron beam size right after exiting the capillary of a laser-plasma accelerator**, Raphael Weingartner, Sebastian Raith, Antonia Popp, Shao-wei Chou, Matthias Heigoldt, Konstantin Khrennikov, Johannes Wenz, Andreas Maier, Matthias Fuchs, Ferenc Krausz, Stefan Karsch, Florian J. Gruener, Ludwig-Maximilians-Univ. München (Germany) and Max-Planck-Institut für Quantenoptik (Germany) [8079A-06]

11.30: **In-situ on-axis density characterization of plasma channels based on two-color group velocity dispersion**, Jeroen van Tilborg, Anthony J. Gonsalves, Brian Shaw, Rohan Mittal, Nicholas H. Matlis, Chen Lin, Kei Nakamura, Satomi Shiraiishi, Thomas Sokollik, Carl B. Schroeder, Eric Esarey, Wim P. Leemans, Lawrence Berkeley National Lab. (United States) [8079A-07]

11.50: **High-resolution emittance and energy spread measurements of relativistic electron beam from laser wakefield accelerator**, Grace Manahan, Enrico Brunetti, Richard Shanks, Ranaul Islam, Bernhard Ersfeld, Maria Pia Anania, Silvia Cipiccia, Riju Issac, Gaurav Raj, Gregory Vieux, Gregor Welsh, Mark Wiggins, Dino Jaroszynski, Univ. of Strathclyde (United Kingdom) [8079A-08]

Lunch Break 12.10 to 13.40

SESSION 3

Room: Club H. Mon. 13.40 to 15.30

Ion Acceleration I

Session Chair: **Igor V. Pogorelsky**, Brookhaven National Lab. (United States)

13.40: **The transparent overdense regime of plasma physics: experimental demonstration of high efficiency particle acceleration, coherent photon generation, and relativistic pulse shaping** (*Invited Paper*), Bjoern M. Hegelich, Brian J. Albright, Lin Yin, Juan C. Fernandez, Los Alamos National Lab. (United States); Daniel Jung, Los Alamos National Lab. (United States) and Ludwig-Maximilians-Univ. München (Germany); D. Cort Gautier, Chenkun Huang, Samuel A. Letzring, Sasikumar Palaniyappan, Rahul C. Shah, Hui-chun Wu, Los Alamos National Lab. (United States); Rainer Hoerlein, Joerg Schreiber, Max-Planck-Institut für Quantenoptik (Germany); Dietrich Habs, Daniel Kiefer, Toshiki Tajima, Ludwig-Maximilians-Univ. München (Germany); Brendan Dromey, Queen's Univ. Belfast (United Kingdom) [8079A-09]

14.10: **The laser-driven proton acceleration experiments at JAEA**, Mamiko Nishiuchi, Koichi Ogura, Alexander Pirozhkov, Akito Sagisaka, Tsuyoshi Tanimoto, Hironao Sakaki, Toshihiko Hori, Yuji Fukuda, Masato Kanasaki, Akifumi Yogo, Motonobu Tamppo, Hiromitsu Kiriyama, Takuya Shimomura, Kiminori Kondo, Shunichi Kawanishi, Japan Atomic Energy Agency (Japan); Hideaki Habara, Kazuo Tanaka, Osaka Univ. (Japan) [8079A-10]

14.30: **Progress in optimizing laser-generated ion beams**, Sven Steinke, Max-Born-Institut (Germany); Andreas Henig, Rainer Hörlein, Max-Planck-Institut für Quantenoptik (Germany); Matthias Schnürer, Max-Born-Institut (Germany); Sergey G. Rykovanov, Ludwig-Maximilians-Univ. München (Germany); Thomas Sokollik, Max-Born-Institut (Germany) and Lawrence Berkeley National Lab. (United States); Daniel Kiefer, Max-Planck-Institut für Quantenoptik (Germany) and Ludwig-Maximilians-Univ. München (Germany); Daniel Jung, Ludwig-Maximilians-Univ. München (Germany); Jörg Schreiber, Max-Planck-Institut für Quantenoptik (Germany); Björn M. Hegelich, Los Alamos National Lab. (United States); Xueqing Yan, Max-Planck-Institut für Quantenoptik (Germany) and State Key Lab of Nuclear Physics and Technology (China); Toshiki Tajima, Max-Planck-Institut für Quantenoptik (Germany) and Ludwig-Maximilians-Univ. München (Germany) and Photomedical Research Ctr., JAEA (Japan); Peter V. Nickles, Gwangju Institute of Science and Technology (Korea, Republic of); Dietrich Habs, Ludwig-Maximilians-Univ. München (Germany) and Max-Planck-Institut für Quantenoptik (Germany); Wolfgang Sandner, Max-Born-Institut (Germany) and Technische Univ. Berlin (Germany) [8079A-11]

14.50: **Energy scaling of laser accelerated protons and proton emission from reduced mass targets**, Karl Zeil, Josefine Metzkes, Stephan Kraft, Michael H. Bussmann, Thomas Cowan, Thomas Kluge, Ulrich Schramm, Forschungszentrum Dresden-Rossendorf e.V. (Germany) [8079A-12]

15.10: **Control of proton beam spectra from high intensity, high contrast laser interactions**, Franklin J. Dollar, Takeshi Matsuoka, Chris McGuffey, Stepan S. Bulanov, Vladimir V. Chvykov, Univ. of Michigan (United States); Jack Davis, U.S. Naval Research Lab. (United States); Galina A. Kalinchenko, Univ. of Michigan (United States); George M. Petrov, U.S. Naval Research Lab. (United States); Alexander G. R. Thomas, Louise Willingale, Victor P. Yanovsky, Anatoly M. Maksimchuk, Karl M. Krushelnick, Univ. of Michigan (United States) . . . [8079A-13]

Tuesday 19 April

SESSION 4

Room: Club H. Tues. 08.30 to 10.00

Electron Acceleration III

Session Chair: Simon M. Hooker, Univ. of Oxford (United Kingdom)

08.30: **Coherent transition radiation generated by a femtosecond electron beam from an optically injected laser-plasma accelerator** (*Invited Paper*), Olle Lundh, Lund Univ. (Sweden); Jerome Faure, Jaeku Lim, Clement Rechatin, Victor Malka, Ecole Nationale Supérieure de Techniques Avancées (France); Erik Lefebvre, Commissariat à l'Énergie Atomique (France) [8079A-14]

09.00: **Towards single-shot temporal characterization of laser plasma accelerated electron bunches by coherent transition radiation**, Matthias Heigoldt, Antonia Popp, Johannes Wenz, Konstantin Khrennikov, Shao-wei Chou, Raphael Weingartner, Ferenc Krausz, Stefan Karsch, Max-Planck-Institut für Quantenoptik (Germany); Svetoslav Bajlekov, Simon M. Hooker, Univ. of Oxford (United Kingdom) [8079A-15]

09.20: **Observation of long range coherent OTR from LPA electron beams**, Chen Lin, Kei Nakamura, Jeroen van Tilborg, Anthony J. Gonsalves, Nicholas H. Matlis, Thomas Sokollik, Satomi Shiraishi, Jens Osterhoff, Carl B. Schroeder, Carlo Benedetti, Eric Esarey, Wim P. Leemans, Lawrence Berkeley National Lab. (United States) [8079A-16]

09.40: **Electro-optic detection of ultrashort electron beams: moving beyond the transverse optical phonon resonance**, Michael H. Helle, Daniel F. Gordon, Dmitri Kaganovich, Antonio Ting, U.S. Naval Research Lab. (United States) [8079A-17]

Coffee Break 10.00 to 10.30

SESSION 5

Room: Club H. Tues. 10.30 to 12.00

Electron Acceleration IV

Session Chair: Carl B. Schroeder, Lawrence Berkeley National Lab. (United States)

10.30: **Radiation signatures of laser-driven wakes** (*Invited Paper*), Daniel F. Gordon, Michael H. Helle, Dmitri Kaganovich, Antonio C. Ting, U.S. Naval Research Lab. (United States) [8079A-18]

11.00: **Laser-powered dielectric-structures for the production of high-brightness electron and x-ray beams**, Gil Travish, Univ. of California, Los Angeles (United States) [8079A-19]

11.20: **A kinetic treatment of radiation reaction effects**, Adam Noble, Univ. of Strathclyde (United Kingdom) and Lancaster Univ. (United Kingdom); David Burton, Jonathan Gratus, Lancaster Univ. (United Kingdom) and Cockcroft Institute (United Kingdom); Bernhard Ersfeld, Ranaul Islam, Yevgen Kravets, Gaurav Raj, Dino Jaroszynski, Univ. of Strathclyde (United Kingdom) [8079A-20]

11.40: **Coherently enhanced radiation reaction effects in laser-vacuum acceleration of electron bunches**, Peter W. Smorenburg, Leon P. J. Kamp, Technische Univ. Eindhoven (Netherlands); Gianluca Geloni, European XFEL GmbH (Germany); Jom Luiten, Technische Univ. Eindhoven (Netherlands) [8079A-21]

Lunch/Exhibition Break 12.00 to 13.30

SESSION 6

Room: Club H. Tues. 13.30 to 15.20

Ion Acceleration II

Session Chair: Björn Manuel Hegelich, Los Alamos National Lab. (United States)

13.30: **Ion acceleration with prospective sub-PW CO₂ lasers** (*Invited Paper*), Igor V. Pogorelsky, Mikhail N. Polyanskiy, Vitaly Yakimenko, Brookhaven National Lab. (United States); Zulfikar Najmudin, Nicholas P. Dover, Charlotte A. J. Palmer, Imperial College London (United Kingdom); Peter Shkolnikov, Stony Brook Univ. (United States); Galina I. Dudnikova, Univ. of Maryland, College Park (United States); Viktor T. Platonenko, Lomonosov Moscow State Univ. (Russian Federation) [8079A-22]

14.00: **Conversion efficiency and angular distribution measurements of ion acceleration in the break-out afterburner regime**, Daniel Jung, Björn M. Hegelich, Brian J. Albright, Lin Yin, Donald C. Gautier, Los Alamos National Lab. (United States); Rainer Höllein, Max-Planck-Institut für Quantenoptik (Germany); Randall P. Johnson, Los Alamos National Lab. (United States); Daniel Kiefer, Max-Planck-Institut für Quantenoptik (Germany); Samuel A. Letzring, Rahul C. Shah, Sasikumar Palaniyappan, Tsutomu Shimada, Juan C. Fernandez, Los Alamos National Lab. (United States); Dietrich Habs, Ludwig-Maximilians-Univ. München (Germany) [8079A-23]

14.20: **Fast ions generation from nanostructure target irradiated by high intensity short laser pulse**, Alexander A. Andreev, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany) [8079A-24]

14.40: **Key conditions for stable ion radiation pressure acceleration by circularly polarized laser pulses at moderate intensities**, Bin Qiao, Matthew Zepf, Queen's Univ. Belfast (United Kingdom) [8079A-25]

15.00: **Relativistic electron dynamics in laser-nanofoil interactions: towards ultra-dense electron mirrors**, Daniel Kiefer, Andreas Henig, Rainer Höllein, Max-Planck-Institut für Quantenoptik (Germany); Daniel Jung, Los Alamos National Lab. (United States); Joerg Schreiber, Max-Planck-Institut für Quantenoptik (Germany); Xueqing Yan, Peking Univ. (China); Dietrich Habs, Ludwig-Maximilians-Univ. München (Germany); Sven Steinke, Thomas Sokollik, Matthias Schnürer, Wolfgang Sandner, Max-Born-Institut (Germany); Donald C. Gautier, Randy Johnson, Rahul C. Shah, Sasikumar Palaniyappan, Tsutomu Shimada, Juan C. Fernández, Manuel Hegelich, Los Alamos National Lab. (United States) [8079A-26]

Coffee Break 15.20 to 15.50

SESSION 7

Room: Club H. Tues. 15.50 to 17.30

Ion Acceleration III

Session Chair: Baifei Shen, Shanghai Institute of Optics and Fine Mechanics (China)

15.50: **Monodimensional Airy beam generation using an amplitude mask and lens aberrations**, Pablo Acebal, Luis Carretero, Salvador Blaya, Angel Murciano, Madrigal Roque, Antonio Fimia, Alejandro Cabrera, Univ. Miguel Hernández de Elche (Spain) [8079A-27]

16.10: **Laser pulse shaping due to self-induced relativistic transparency in laser-nanofoil interactions**, Sasikumar Palaniyappan, Rahul C. Shah, Juan C. Fernandez, Björn M. Hegelich, Samuel A. Letzring, Donald C. Gautier, Daniel Jung, Hui-Chun Wu, Randall P. Johnson, Tsutomu Shimada, Brian J. Albright, Lin Yin, Los Alamos National Lab. (United States) [8079A-28]

16.30: **Energetic proton beams from plastic targets irradiated by an ultra-intense laser pulse**, Kitae Lee, Korea Atomic Energy Research Institute (Korea, Republic of); Ji-Young Lee, Korea Atomic Energy Research Institute (Korea, Republic of) and Hannam Univ. (Korea, Republic of); Seong Hee Park, Yong-Ho Cha, Korea Atomic Energy Research Institute (Korea, Republic of); Kyung-Nam Kim, Korea Atomic Energy Research Institute (Korea, Republic of) and Kongju National Univ. (Korea, Republic of); Young Uk Jeong, Korea Atomic Energy Research Institute (Korea, Republic of) [8079A-29]

16.50: **Simulations of short pulses laser interaction with targets having a submicron surface structure: energy absorption and ion acceleration**, Ondrej Klimo, Jan Psikal, Jiri Limpouch, Jan Proška, Czech Technical Univ. in Prague (Czech Republic); Tiberio Ceccotti, Vincent Floquet, Commissariat à l'Énergie Atomique (France); Shigeo Kawata, Utsunomiya Univ. (Japan) [8079A-30]

17.10: **RF photogun for external injection of electrons in a laser wakefield accelerator**, G. J. H. Brussaard, X. F. D. Stragier, Bas van der Geer, Marnix J. van der Wiel, Jom Luiten, Technische Univ. Eindhoven (Netherlands) [8079A-31]

Wednesday 20 April

SESSION 8

Room: Club H. Wed. 08.30 to 10.00

Electron Acceleration V

Session Chair: Florian J. Grüner, Ludwig-Maximilians-Univ. München (Germany)

08.30: **Numerical modeling of plasma-based accelerators in ultra-relativistic boosted frames** (*Invited Paper*), Jorge M. Vieira, Samuel F. Martins, Ricardo A. Fonseca, Univ. Técnica de Lisboa (Portugal); Warren Mori, Univ. of California, Los Angeles (United States); Luís O. Silva, Univ. Técnica de Lisboa (Portugal) [8079A-32]

09.00: **Physics considerations for laser-plasma linear colliders**, Eric Esarey, Carl B. Schroeder, Cameron G. Geddes, Carlo Benedetti, Wim P. Leemans, Lawrence Berkeley National Lab. (United States) [8079A-33]

09.20: **Polarization-dependent ponderomotive force in a standing wave**, Peter W. Smorenburg, Joris H. M. Kanters, Leon P. J. Kamp, Jom Luiten, Technische Univ. Eindhoven (Netherlands) [8079A-34]

09.40: **Nonlinear phase velocity of intense laser-driven plasma waves**, Carl B. Schroeder, Carlo Benedetti, Eric Esarey, Wim Leemans, Lawrence Berkeley National Lab. (United States) [8079A-35]

Coffee Break 10.00 to 10.30

SESSION 9

Room: Club H Wed. 10.30 to 12.00

Ion Acceleration IV

Session Chair: Alexander A. Andreev, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany)

10.30: **Generation of energetic protons from GeV to TeV** (*Invited Paper*), Baifei Shen, Shanghai Institute of Optics and Fine Mechanics (China) [8079A-36]

11.00: **PIC simulations of ion acceleration in laser irradiated submicron droplets**, Jan Psikal, Ondrej Klimo, Jiri Limpouch, Czech Technical Univ. in Prague (Czech Republic) [8079A-37]

11.20: **A new mechanism for hot electron generation increasing the proton energy in laser-ion acceleration**, Thomas Kluge, Sandrine Gaillard, Forschungszentrum Dresden-Rossendorf e.V. (Germany); Kirk Flippo, Los Alamos National Lab. (United States); Brady Gall, Univ. of Missouri-Columbia (United States); Tom Lockard, Univ. of Nevada, Reno (United States); Matthias Geissel, Sandia National Labs. (United States); D. T. Offermann, Los Alamos National Lab. (United States); Marius Schollmeier, Sandia National Labs. (United States); S. D. Kraft, Josefine Metzkes, Karl Zeil, Ulrich Schramm, Forschungszentrum Dresden-Rossendorf e.V. (Germany); Y. Sentoku, Univ. of Nevada, Reno (United States); Wolfgang Enghardt, OncoRay - National Ctr. for Radiation Research in Oncology (Germany); Roland Sauerbrey, Michael Bussmann, T. E. Cowan, Forschungszentrum Dresden-Rossendorf e.V. (Germany) [8079A-38]

11.40: **Three-dimensional multi-scale modeling of ion acceleration in laser-plasma interactions**, Frederico Fiuza, Michael Marti, Ricardo Fonseca, Luis Silva, Univ. Técnica de Lisboa (Portugal); John Tonge, Josh May, Warren Mori, Univ. of California, Los Angeles (United States) [8079A-39]

Closing Remarks

Room: Club H Wed. 12.00 to 12.05

Wim P. Leemans, Lawrence Berkeley National Lab. (USA); **Eric Esarey**, Lawrence Berkeley National Lab. (USA); **Simon M. Hooker**, Univ. of Oxford (United Kingdom)

Posters

Conference attendees are invited to attend the EOO Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.

Future experiments of the electron laser acceleration at PALS, M. Krus, D. Margarone, J. Nejdil, J. Hrebicek, B. Rus, Institute of Physics ASCR (Czech Republic) [8079A-60]

Pilot experiment on ion acceleration and diagnostics at the new femtosecond laser system at PALS, J. Prokupek, D. Margarone, H. Hrebicek, M. Krus, A. Velyhan, M. Pfeifer, J. Krasa, T. Mocek, B. Rus, Institute of Physics, ASCR (Czech Republic) [8-79A-61]

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Medical Applications of Laser-Generated Secondary Sources of Radiation and Particles

Conference Chair: **Kenneth W. D. Ledingham**, Univ. of Strathclyde (United Kingdom)

Conference Co-Chairs: **Klaus Spohr**, Univ. of the West of Scotland (United Kingdom); **Paul McKenna**, Univ. of Strathclyde (United Kingdom)

Programme Committee: **Paul R. Bolton**, Japan Atomic Energy Agency (Japan); **Sergei V. Bulanov**, Japan Atomic Energy Agency (Japan); **Thomas Cowan**, Forschungszentrum Dresden-Rossendorf e.V. (Germany); **Wolfgang Enghardt**, Technische Univ. Dresden/OncoRay (Germany); **Jean-Claude Kieffer**, Institut National de la Recherche Scientifique (Canada); **C-M Ma**, Fox Chase Cancer Ctr. (United States); **Victor Malka**, Ecole Nationale Supérieure de Techniques Avancées (France); **Franz Pfeiffer**, Paul Scherrer Institut (Switzerland); **Markus Roth**, Gesellschaft für Schwerionenforschung GmbH (Germany); **Sune Svanberg**, Lund Univ. (Sweden); **Akifumi Yogo**, Japan Atomic Energy Agency (Japan)

Wednesday 20 April

Opening Remarks

Room: Wed. 08.55 to 09.00

Kenneth W. D. Ledingham, Univ. of Strathclyde (United Kingdom)

SESSION 10

Room: Club B. Wed. 09.00 to 10.30

Laser production of Ions and Medical Applications I

Session Chair: **Kenneth W. D. Ledingham**, Univ. of Strathclyde (United Kingdom)

09.00: **Developing an integrated, laser-driven ion accelerator system for ion beam radiotherapy: progress and challenges** (*Invited Paper*), Paul R. Bolton, Japan Atomic Energy Agency (Japan) [8079B-40]

09.30: **Stable proton pulses for the measurement of the biological effectiveness of laser accelerated particle beams**, Karl Zeil, Josefine Metzkes, Stephan Kraft, Thomas Cowan, Forschungszentrum Dresden-Rossendorf e.V. (Germany); Leonhard Karsch, Jörg Pawelke, Technische Univ. Dresden (Germany); Christian Richter, Roland Sauerbrey, Ulrich Schramm, Forschungszentrum Dresden-Rossendorf e.V. (Germany) [8079B-41]

09.50: **Enhanced proton beam collimation in the ultra-intense short pulse regime**, James S. Green, Rutherford Appleton Lab. (United Kingdom) . . [8079B-42]

10.10: **Dosimetry and biological effectiveness of laser-accelerated particle beams**, Leonhard Karsch, Michael Baumann, OncoRay - National Ctr. for Radiation Research in Oncology (Germany); Elke Beyreuther, Trevor Burris-Mog, Thomas Cowan, Forschungszentrum Dresden-Rossendorf e.V. (Germany); Yassine Dammene, Wolfgang Enghardt, Lydia Laschinsky, OncoRay - National Ctr. for Radiation Research in Oncology (Germany); Elisabeth Lessmann, Forschungszentrum Dresden-Rossendorf e.V. (Germany); Malte C. Kaluza, Friedrich-Schiller-Univ. Jena (Germany); Stephan Kraft, Josefine Metzkes, Forschungszentrum Dresden-Rossendorf e.V. (Germany); Doreen Naumburger, OncoRay - National Ctr. for Radiation Research in Oncology (Germany); Maria Nicolai, Friedrich-Schiller-Univ. Jena (Germany); Christian Richter, OncoRay - National Ctr. for Radiation Research in Oncology (Germany); Roland Sauerbrey, Forschungszentrum Dresden-Rossendorf e.V. (Germany); Hans-Peter Schlenvoigt, Friedrich-Schiller-Univ. Jena (Germany); Ulrich Schramm, Forschungszentrum Dresden-Rossendorf e.V. (Germany); Michael Schürer, OncoRay - National Ctr. for Radiation Research in Oncology (Germany); Manfred Sobella, Forschungszentrum Dresden-Rossendorf e.V. (Germany); Julia Woithe, OncoRay - National Ctr. for Radiation Research in Oncology (Germany); Karl Zeil, Forschungszentrum Dresden-Rossendorf e.V. (Germany); Joerg Pawelke, OncoRay - National Ctr. for Radiation Research in Oncology (Germany) [8079B-43]

Coffee Break 10.30 to 11.00

SESSION 11

Room: Club B. Wed. 11.00 to 12.00

Laser production of Ions and Medical Applications II

Session Chair: **Paul McKenna**, Univ. of Strathclyde (United Kingdom)

11.00: **Applications of laser accelerated particle beams for radiation therapy** (*Invited Paper*), Chang-Ming C. Ma, Fox Chase Cancer Ctr. (United States) [8079B-44]

11.30: **Laser ion accelerators for hadron therapy: requirements and prospects** (*Invited Paper*), Sergei V. Bulanov, Timur Z. Esirkepov, Japan Atomic Energy Agency (Japan) [8079B-45]

Lunch/Exhibition Break 12.00 to 13.30

SESSION 12

Room: Club B. Wed. 13.30 to 15.00

Laser production of Ions and Medical Applications III

Session Chair: **Klaus Spohr**, Univ. of the West of Scotland (United Kingdom)

13.30: **Radiobiology with laser-accelerated quasi-monoenergetic proton beams** (*Invited Paper*), Akifumi Yogo, Takuya Maeda, Toshihiko Hori, Hironao Sakaki, Koichi Ogura, Mamiko Nishiuchi, Akito Sagisaka, Paul R. Bolton, Kiminori Kondo, Japan Atomic Energy Agency (Japan) [8079B-46]

14.00: **Proton source development and radiobiology applications within the LIBRA project** (*Invited Paper*), Marco Borghesi, Queen's Univ. Belfast (United Kingdom) [8079B-47]

14.30: **A technology platform for translational research on laser driven particle accelerators for radiotherapy** (*Invited Paper*), Wolfgang Enghardt, Technische Univ. Dresden (Germany); Michael Busmann, Thomas Cowan, Fine Fiedler, Forschungszentrum Dresden-Rossendorf e.V. (Germany); Malte C. Kaluza, Friedrich-Schiller-Univ. Jena (Germany); Jörg Pawelke, Technische Univ. Dresden (Germany); Ulrich Schramm, Roland Sauerbrey, Forschungszentrum Dresden-Rossendorf e.V. (Germany); Andreas Tünnermann, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); Michael Baumann, Technische Univ. Dresden (Germany) [8079B-48]

Thursday 21 April

SESSION 13

Room: Club B. Thurs. 09.00 to 10.30

Laser Production of Electron and Photon Beams I

Session Chair: **Kenneth W. D. Ledingham**, Univ. of Strathclyde (United Kingdom)

09.00: **Medical applications studies at ELI: nuclear physics** (*Invited Paper*), Victor Zamfir, Florin Negoita, Horia Hulubei National Institute of Physics and Nuclear Engineering (Romania); Dietrich Habs, Ludwig-Maximilians-Univ. München (Germany) [8079B-49]

09.30: **TBA1** (*Invited Paper*), Jean-Claude Kieffer, Institut National de la Recherche Scientifique (Canada) [8079B-50]

10.00: **Pulsed radiobiology with laser-driven plasma accelerators** (*Invited Paper*), Antonio Giulietti, Consiglio Nazionale delle Ricerche (Italy) [8079B-51]

Coffee Break 10.30 to 11.00

SESSION 14**Room: Club B. Thurs. 11.00 to 12.10****Laser Production of Electron and Photon Beams II***Session Chair: Paul McKenna, Univ. of Strathclyde (United Kingdom)*

11.00: **Laser-plasma accelerated high-energy electron beams for radiotherapy** (*Invited Paper*), Olle Lundh, Lund University (Sweden) and Laboratoire d'Optique Appliquée, ENSTA (France); Jerome Faure, Laboratoire d'Optique Appliquée, ENSTA (France); Clement Rechatin, Laboratoire d'Optique Appliquée, ENSTA (United States); Yann A. Gauduel, Laboratoire d'Optique Appliquée, ENSTA (France); Carlos De Wagter, Peter De Neve, Ghent Univ. Hospital (Belgium); Victor Malka, Laboratoire d'Optique Appliquée, ENSTA (France) [8079B-52]

11.30: **Prospects for medical applications of proton- and x-ray beams produced with ultra-fast CO₂ lasers**, Igor V. Pogorelsky, Mikhail N. Polyanskiy, Vitaly Yakimenko, Brookhaven National Lab. (United States); Zulfikar Najmudin, Imperial College London (United Kingdom); Peter Shkolnikov, Stony Brook Univ. (United States); Piernicola Oliva, Massimo Carpinelli, Univ. degli Studi di Sassari (Italy); Ilan Ben-Zvi, Brookhaven National Lab. (United States) [8079B-53]

11.50: **Proton acceleration to above 6MeV by interaction of 1017W/cm² laser pulse with H₂O nano-wire targets**, Elad Schleifer, Nir Bruner, Shmuel Eisenmann, Moti Botton-Dascal, Hebrew Univ. (Israel); Sergey A. Pikuz, Jr., Anatoly Faenov, Joint Institute for High Temperatures (Russian Federation); Daniel Gordon, U.S. Naval Research Lab. (United States); Arie Zigler, Hebrew Univ. (Israel) [8079B-54]

Lunch Break 12.10 to 13.30

SESSION 15**Room: Club B. Thurs. 13.30 to 14.30****The Future for Laser Production of Particle Beams in Medicine***Session Chair: Klaus Spohr, Univ. of the West of Scotland (United Kingdom)*

13.30: **Potential medical applications of laser generated particles** (*Invited Paper*), Bledwyn Jones, Puretherampil Wilson, Univ of Oxford (United Kingdom) [8079B-55]

14.00: **Novel technologies in charged particle therapy** (*Invited Paper*), Ken Peach, Univ. of Oxford (United Kingdom) [8079B-56]

PANEL DISCUSSION**Room: Club B. Thurs. 14.30 to 15.30****The Future for Laser Production of Particle Beams in Medicine***Moderator: Kenneth W. D. Ledingham, Univ. of Strathclyde (United Kingdom)*

For at least ten years the intense laser community has proposed the laser production of beams in medicine. Unfortunately very little progress has been made for a number of reasons.

The panel will attempt to answer questions put by the audience to try and rectify this situation in particular what must we do to interest clinicians.

The panel under the chairmanship of Ken Ledingham will consist of Ken Peach, Wolfgang Enghardt, Timur Esirkepov, and Marco Borghesi.

Diode-Pumped High Energy and High Power Lasers

Conference Chair: **Joachim Hein**, Friedrich-Schiller-Univ. Jena (Germany)

Programme Committee: **Andy J. Bayramian**, Lawrence Livermore National Lab. (United States); **Jean-Christophe Francis Chanteloup**, Ecole Polytechnique (France); **Klaus Ertel**, Rutherford Appleton Lab. (United Kingdom); **Leonida Antonio Gizzi**, Istituto per i Processi Chimico-Fisici (Italy); **Bruno Le Garrec**, Commissariat à l'Énergie Atomique (France); **Stefan Karsch**, Max-Planck-Institut für Quantenoptik (Germany); **Bedrich Rus**, Institute of Physics of the ASCR, v.v.i. (Czech Republic); **Mathias Siebold**, Forschungszentrum Dresden-Rossendorf e.V. (Germany); **Johannes F. Tümmler**, Max-Born-Institut (Germany)

Monday 18 April

Opening Remarks

Room: Club E Mon. 08.45 to 08.50

Joachim Hein, Friedrich-Schiller-Univ. Jena (Germany)

SESSION 1

Room: Club E Mon. 08.50 to 10.00

Advanced Laser Materials

Session Chair: **Joachim Hein**, Friedrich-Schiller-Univ. Jena (Germany)

08.50: **Optical properties of CaF₂ and Yb³⁺:CaF₂ for laser applications** (*Invited Paper*), Jörg Stäblein, Karin Pöhl, Ute Natura, Andreas Weisleder, Gordon von der Gönna, Thomas Töpfer, Hellma Materials GmbH & Co. KG (Germany); Joachim Hein, Friedrich-Schiller-Univ. Jena (Germany); Mathias Siebold, Forschungszentrum Dresden-Rossendorf e.V. (Germany) [8080A-01]

09.20: **Temperature dependent measurement of absorption and emission cross sections for various Yb³⁺ doped laser materials**, Jörg Körner, Joachim Hein, Martin Kahle, Hartmut Liebetrau, Mathias Lenski, Malte C. Kaluza, Ulrich Schramm, Forschungszentrum Dresden-Rossendorf e.V. (Germany); Markus Loeser, Mathias Siebold, Forschungszentrum Dresden-Rossendorf e.V. (Germany) [8080A-02]

09.40: **Broadband, diode-pumped Yb:SiO₂ multicomponent glass laser**, Markus Loeser, Fabian Röser, Almud Reichelt, Franziska Kroll, Mathias Siebold, Ulrich Schramm, Forschungszentrum Dresden-Rossendorf e.V. (Germany); Stefan Grimm, Doris Litzkendorf, Johannes Kirchhof, Institut für Photonische Technologien e.V. (Germany) [8080A-03]

Coffee Break 10.00 to 10.30

SESSION 2

Room: Club E Mon. 10.30 to 11.50

Diode Lasers and Pump Engines

Session Chair: **Antonio Lucianetti**, Ecole Polytechnique (France)

10.30: **Recent advances in diode pump engines for high-power amplifiers**, Stephan Jirak, Karsten Mensel, Thomas Töpfer, Lastronics GmbH (Germany); Joachim Hein, Friedrich-Schiller-Univ. Jena (Germany) [8080A-04]

10.50: **Residual mechanical stress decrease in GaAs-based laser diodes via a bi-material investigation**, Julien LeClech, 3S PHOTONICS SA (France); Daniel T. Cassidy, McMaster Univ. (Canada); François J. Laruelle, Mauro A. Bettinati, 3S PHOTONICS SA (France); Jean-Pierre Landesman, Institut des Matériaux Jean Rouxel (France) [8080A-05]

11.10: **The Petawatt-Field-Synthesizer (PFS) project at the MPIQ**, Christoph Wandt, Max-Planck-Institut für Quantenoptik (Germany) [8080A-06]

11.30: **Development of a 10 mJ-level optically synchronized picosecond Yb:KYW amplifier at 1040 nm for OPCPA pumping**, Celso P. João, Instituto de Plasmas e Fusão Nuclear, Associação EURATOM/IST (Portugal); Jörg Körner, Martin Kahle, Hartmut Liebetrau, Ruediger Seifert, Mathias Lenski, S. Pastrik, Joachim Hein, Thomas Gottschall, Jens Limpert, Friedrich-Schiller-Univ. Jena (Germany); Vincent Bagnoud, Gesellschaft für Schwerionenforschung GmbH (Germany) [8080A-07]

SESSION 3

Room: Club E Mon. 11.50 to 12.30

High Power Fiber Laser Arrays

Session Chair: **Magdalena Sawicka**, Institute of Physics of the ASCR, v.v.i. (Czech Republic)

11.50: **Simple model to explain instabilities in passively-phased fiber laser arrays**, Erik J. Bochove, Air Force Research Lab. (United States); Alejandro B. Aceves, Southern Methodist Univ. (United States); Yehuda Y. Braiman, Oak Ridge National Lab. (United States); Pere Colet, Univ. de les Illes Balears (Spain); Ralf Deiterding, Oak Ridge National Lab. (United States); Adrian Jacobo, Univ. de les Illes Balears (Spain); Casey Miller, Oak Ridge National Lab. (United States); Charles K. Rhodes, Libration Systems Management Inc. (United States); Sami A. Shakir, TASC, Inc. (United States) [8080A-08]

12.10: **Laser phased-array beam steering based on crystal fiber**, Dengcai Yang, Dayong Wang, Xiaofei Zhang, Beijing Univ. of Technology (China) [8080A-09]

Lunch Break 12.30 to 13.40

SESSION 4

Room: Club E Mon. 13.40 to 14.40

Cryogenic DPSSL

Session Chair: **Mathias Siebold**, Forschungszentrum Dresden-Rossendorf e.V. (Germany)

13.40: **One kilohertz cryogenic disk laser with high average power**, Oleg V. Palashov, Ivan B. Mukhin, Evgeniy A. Perevezentsev, Anton G. Vyatkin, Olga Vadimova, Efim A. Khazanov, Institute of Applied Physics (Russian Federation) [8080A-10]

14.00: **Heat deposition in cryogenically cooled multi-slab amplifiers**, Magdalena Sawicka, Martin Divoky, Jakub Novak, Tomas Mocek, Bedrich Rus, Institute of Physics of the ASCR, v.v.i. (Czech Republic) [8080A-11]

14.20: **High-efficiency, relay imaging, diode-pumped amplifier for nanosecond pulses**, Jörg Körner, Joachim Hein, Martin Kahle, Hartmut Liebetrau, Malte C. Kaluza, Friedrich-Schiller-Univ. Jena (Germany); Markus Loeser, Mathias Siebold, Forschungszentrum Dresden-Rossendorf e.V. (Germany) [8080A-12]

SESSION 5

Room: Club E Mon. 14.40 to 15.20

Ultrashort Pulse Lasers

Session Chair: **Mathias Siebold**, Forschungszentrum Dresden-Rossendorf e.V. (Germany)

14.40: **Z-Backlighter facility upgrades: a path to short/long pulse, multi-frame, multi-color x-ray backlighting at the Z-Accelerator**, Jens Schwarz, Patrick K. Rambo, Mark W. Kimmel, Matthias Geissel, Marius Schollmeier, Ian C. Smith, Sandia National Labs. (United States); John C. Bellum, Sandia Staffing Alliance, LLC (United States); Briggs W. Atherton, Sandia National Labs. (United States) [8080A-13]

15.00: **Contrast improvement by prepulse suppression of cascaded amplifier cavities**, Sebastian Keppler, Ragnar Bödefeld, Marco Hornung, Alexander Sävert, Joachim Hein, Malte C. Kaluza, Friedrich-Schiller-Univ. Jena (Germany) [8080A-14]

Optics+Optoelectronics

Tuesday 19 April**SESSION 6****Room: Club E Tues. 09.00 to 10.30****Modulators and Polarization Optics for High Power Lasers***Session Chair: Christoph Wandt,*
Max-Planck-Institut für Quantenoptik (Germany)09.00: **Switching technology for high repetition rate and high energy laser systems** (*Invited Paper*), Zhang Jun, Xiongjun Zhang, Dengsheng Wu, Jianguang Zheng, Mingzhong Li, Wentao Duan, Kuixing Zheng, Jingqin Su, Feng Jing, Chinese Academy of Engineering Physics (China) [8080A-16]09.30: **A new material for single crystal photo-elastic modulators: BBO**, Ferdinand Bammer, Technische Univ. Wien (Austria); Rok Petkovsek, Univ. of Ljubljana (Slovenia) [8080A-17]09.50: **Optical coatings on laser crystals for HiPER project**, Jindrich Oulehla, Pavel Pokorny, Josef Lazar, Institute of Scientific Instruments of the ASCR, v.v.i. (Czech Republic) [8080A-18]10.10: **Wide-aperture Faraday isolator for high average power laser system**, Ilya L. Snetkov, Oleg V. Palashov, Ivan Mukhin, Efim Khazanov, Institute of Applied Physics (Russian Federation) [8080A-19]

Coffee Break 10.30 to 11.00

SESSION 7**Room: Club E Tues. 11.00 to 13.00****Thin Discs and Active Mirrors***Session Chair: Jens Schwarz,* Sandia National Labs. (United States)11.00: **Active mirror high energy Yb:YAG amplifier**, Markus Loeser, Mathias Siebold, Franziska Kroll, Fabian Roeser, Ulrich Schramm, Forschungszentrum Dresden-Rossendorf e.V. (Germany) [8080A-20]11.20: **Joule-level, diode-pumped, room-temperature Yb:CaF₂ amplifiers**, Markus Loeser, Mathias Siebold, Franziska Kroll, Fabian Roeser, Ulrich Schramm, Forschungszentrum Dresden-Rossendorf e.V. (Germany) [8080A-21]11.40: **Analysis of thermo-optic effects in Nd:YAG ceramics disk under high heat load**, Jan K. Jabczynski, Mateusz Kaskow, Lukasz Gorajek, Jacek Kwiatkowski, Waldemar Zendzian, Military Univ. of Technology (Poland) [8080A-22]12.00: **LUCIA advanced cryogenic amplifier**, Antonio Lucianetti, Daniel Albach, Thierry Novo, Benedicte Vincent, Jean-Christophe F. Chanteloup, Ecole Polytechnique (France) [8080A-29]12.20: **Comprehensive simulation of an edge pumped composite Yb:YAG/YAG asymmetric hexagonal disk laser**, Mohammad Javadi Dashcasan, Elham Barati, National Iranian Ctr. for Laser Science and Technology (Iran, Islamic Republic of) [8080A-23]12.40: **Simulation and optimizing of quasi longitudinal pumped Yb:YAG thin disc laser operation**, Mohammad Javadi Dashcasan, Elham Barati, National Iranian Ctr. for Laser Science and Technology (Iran, Islamic Republic of) [8080A-24]**Wednesday 20 April****Posters Wed. 17.40 to 19.15***Conference attendees are invited to attend the EOO Poster Session on Wednesday afternoon. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions.***Thermo-optical effects on quasi-cavity performance used for end-pumped thin-disk solid state lasers**, Hamed Aminpour, Iranian National Ctr. of Laser Science and Technology (Iran, Islamic Republic of); Reza Aghbolaghi, The Univ. of Guilan (Iran, Islamic Republic of); Iraj Mashaieky Asl, Jamshid Sabbaghzadeh, Amir Ghaedzadeh, Iranian National Ctr. of Laser Science and Technology (Iran, Islamic Republic of) [8080A-25]**Exploration of selective excitation of Mathieu-Gauss modes in end-pumped solid state lasers**, Shu-Chun Chu, Ko-Fan Tsai, National Cheng Kung Univ. (Taiwan) [8080A-26]**Suppression of ASE using the co-doping technology**, Jianguang Zheng, Chinese Academy of Engineering Physics (China) [8080A-27]**A ridge waveguide quantum well ALGAAS/GAAS laser design**, Marziyeh Nazari, Islamic Azad Univ. (Iran, Islamic Republic of) [8080A-28]**25TW Titan Sapphire laser chain at PALS**, Jan Hrebicek, Institute of Physics, ASCR (Czech Republic) [8080A-64]

ELI: Ultrarelativistic Laser-Matter Interactions and Petawatt Photonics

Conference Chairs: **Luis O. Silva**, Univ. Técnica de Lisboa (Portugal); **Georg Korn**, Max-Planck-Institut für Quantenoptik (Germany)

Programme Committee: **Sergei V. Bulanov**, Japan Atomic Energy Agency (Japan); **Todd Ditmire**, The Univ. of Texas at Austin (United States); **Peter Dombi**, Research Institute for Solid State Physics and Optics (Hungary); **Nelson Lopes**, Univ. Técnica de Lisboa (Portugal); **Cristina Hernandez-Gomez**, Rutherford Appleton Lab. (United Kingdom); **Mattias Marklund**, Umeå Univ. (Sweden); **N. B. Narozhny**, National Nuclear Research Univ. (Russian Federation); **David Neely**, Rutherford Appleton Lab. (United Kingdom); **F. Negoita**, "Horia Hulubei"-National Institute for Physics and Nuclear Engineering (Hungary); **Alexander Pukhov**, Heinrich-Heine-Univ. Düsseldorf (Germany); **Johann Rafelski**, The Univ. of Arizona (United States); **Bedrich Rus**, Institute of Physics of the ASCR, v.v.i. (Czech Republic); **Toshi Tajima**, Technische Univ. Munich and Max Planck Inst. Quantum Optics (Germany); **Matthew Zepf**, Queen's Univ. Belfast (United Kingdom)

Monday 18 April

Opening Remarks

Room: Club A. Mon. 08.45 to 08.50

Georg Korn, Max-Planck-Institut für Quantenoptik (Germany); **Luis O. Silva**, Univ. Técnica de Lisboa (Portugal)

SESSION 10

Room: Club A. Mon. 08.50 to 10.20

High Intensity Lasers I

Session Chair: **Georg Korn**,

Max-Planck-Institut für Quantenoptik (Germany)

08.50: **MEGA-rays, petawatts and nuclear photonics** (*Invited Paper*), Christopher P. J. Barty, Lawrence Livermore National Lab. (United States) [8080B-30]

09.20: **Extreme Light Infrastructure: nuclear physics** (*Invited Paper*), Victor Zamfir, Florin Negoita, Horia Hulubei National Institute of Physics and Nuclear Engineering (Romania); Dietrich Habs, Ludwig-Maximilians-Univ. München (Germany) [8080B-31]

09.50: **Scaling the technology of the Texas petawatt laser to exawatt peak powers** (*Invited Paper*), Todd Ditmire, The Univ. of Texas at Austin (United States) [8080B-32]

Coffee Break 10.20 to 10.50

SESSION 11

Room: Club A. Mon. 10.50 to 12.20

High Intensity Lasers II

Session Chair: **Todd Ditmire**,

The Univ. of Texas at Austin (United States)

10.50: **Progress at the multi-PW ELI-NP laser facility in Romania** (*Invited Paper*), Daniel Ursescu, National Institute for Lasers, Plasma and Radiation Physics (Romania) [8080B-33]

11.20: **Outline of the ELI-Beamlines facility** (*Invited Paper*), Bedrich Rus, Institute of Physics of the ASCR, v.v.i. (Czech Republic) [8080B-34]

11.50: **Present status and recent developments on the APOLLON 10PW French laser** (*Invited Paper*), Jean-Paul Chambaret, Ecole Nationale Supérieure de Techniques Avancées (France) [8080B-35]

Lunch Break 12.20 to 13.40

SESSION 12

Room: Club A. Mon. 13.40 to 15.40

High Intensity Lasers III

Session Chair: **Christopher P. J. Barty**,

Lawrence Livermore National Lab. (United States)

13.40: **LASERIX: an open facility for developments of Soft X-ray and EUV lasers and applications** (*Invited Paper*), David R. Ros, Univ. Paris-Sud 11 (France) [8080B-36]

14.00: **Large aperture Nd:glass amplifiers with high-pulse repetition rate**, Alexey A. Kuzmin, Andrey A. Shaykin, Efim A. Khazanov, Institute of Applied Physics (Russian Federation) [8080B-37]

14.20: **Study of acousto-optic programmable dispersive filter for amplitude and phase control of femtosecond seed pulse in sub PW OPCPA laser system**, Vladislav Ginzburg, Eugeny Katin, Efim Khazanov, Vladimir Lozhkarev, Mikhail Martyanov, Ivan Yakovlev, Institute of Applied Physics (Russian Federation); Sergey Chizhikov, Vladimir Molchanov, Nikolay Solodovnikov, Moscow State Institute of Steel and Alloys Technological Univ. (Russian Federation); Yuriy Kitaev, Voronezh State Univ. (Russian Federation) . . . [8080B-38]

14.40: **Secondary sources of ELI-PP** (*Invited Paper*), Nelson C. Lopes, Univ. Técnica de Lisboa (Portugal) [8080B-39]

15.10: **Progress of the ELI attosecond facility project in Hungary and novel schemes for attosecond pulse generation** (*Invited Paper, Presentation Only*), Peter Dombi, Research Institute for Solid State Physics and Optics (Hungary) [8080B-40]

Tuesday 19 April

SESSION 13

Room: Club A. Tues. 08.40 to 10.00

X-Ray Generation with Ultra-Intense Lasers and Attosecond Generation

Session Chair: **Donald P. Umstadter**, Univ. of Nebraska-Lincoln (United States)

08.40: **Generation of giant attosecond pulses at the plasma surface in the regime or relativistic electronic spring** (*Invited Paper*), Alexander M. Sergeev, Institute of Applied Physics (Russian Federation) [8080B-41]

09.10: **Perspectives for a laser-driven XFEL** (*Invited Paper*), Florian J. Grüner, Ludwig-Maximilians-Univ. München (Germany) [8080B-42]

09.40: **Modelling and design of high harmonic seeding in soft x-ray laser plasmas with both direct and stretched amplification techniques: application to ELI facilities**, Philippe Zeitoun, Ecole Nationale Supérieure de Techniques Avancées (France) and ENSTA-ParisTech (France) and Ecole Polytechnique-ParisTech (France); Eduardo Oliva, Ecole Polytechnique (France); Marta Fajardo, Univ. Técnica de Lisboa (Portugal); Pedro Velarde, Univ. Politécnica de Madrid (Spain); David Ros, Univ. Paris-Sud 11 (France); Stéphane Sebban, Ecole Nationale Supérieure de Techniques Avancées (France) [8080B-43]

Coffee Break 10.00 to 10.30

SESSION 14

Room: Club A. Tues. 10.30 to 12.40

Particle Acceleration with Ultra-Intense Laser Pulses

Session Chair: **Florian J. Grüner**, Ludwig-Maximilians-Univ. München (Germany)

10.30: **Radiation pressure acceleration of ions in the ultraintense regime** (*Invited Paper*), Marco Borghesi, Queen's Univ. Belfast (United Kingdom) [8080B-44]

11.00: **Latest progress in electron acceleration and laser development at MPQ** (*Invited Paper*), Stefan Karsch, Max-Planck-Institut für Quantenoptik (Germany) [8080B-45]

11.30: **Multiple beams for laser wakefield driven particle acceleration**, Vishwa B. Pathak, Jorge M. Vieira, Ricardo A. Fonseca, Luis O. Silva, Univ. Técnica de Lisboa/Instituto Superior Técnico (Portugal) [8080B-46]

11.50: **Petawatt peak power photons for monoenergetic beams of gigavolt energy electrons and megavolt energy x-rays** (*Invited Paper*), Donald P. Umstadter, Univ. of Nebraska-Lincoln (United States) [8080B-47]

Optics+Optoelectronics

Wednesday 20 April

12.20: **A scalable, performant, highly-parallel particle-in-cell code for fast simulations of large laser-plasma experiments**, Michael H. Bussmann, Heiko Burau, Florian Berninger, Alexander Debus, Arie Irman, Axel Jochmann, Forschungszentrum Dresden-Rossendorf e.V. (Germany); Wolfgang Hönig, Felix Schmitt, René Widera, Guido Juckeland, Wolfgang Nagel, Technische Univ. Dresden (Germany); Ulrich Schramm, Thomas E. Cowan, Forschungszentrum Dresden-Rossendorf e.V. (Germany) [8080B-48]
Lunch/Exhibition Break 12.40 to 14.00

SESSION 15

Room: Club A Tues. 14.00 to 15.30

Ultra-Intense Laser Matter and Laser Vacuum Interactions ISession Chair: **Luis O. Silva**, Univ. Técnica de Lisboa (Portugal)

14.00: **High-energy quantum dynamics in ultra-strong laser pulses** (*Invited Paper*), Christoph H. Keitel, Max-Planck-Institut für Kernphysik (Germany) [8080B-57]
14.30: **High intensity laser plasma interactions in the context of fusion fast ignition** (*Invited Paper*), Vladimir Tikhonchuk, Univ. Bordeaux 1 (France) [8080B-50]
15.00: **Probing new physics using high-intensity laser systems** (*Invited Paper*), Mattias Marklund, Umeå Univ. (Sweden) [8080B-51]
Coffee Break 15.30 to 16.00

SESSION 16

Room: Club A Tues. 16.00 to 17.50

Ultra-Intense Laser Matter and Laser Vacuum Interactions IISession Chair: **Christoph H. Keitel**,

Max-Planck-Institut für Kernphysik (Germany)

16.00: **Simulation of radiation back-reaction into the QED regime** (*Invited Paper*), Natalia Naumova, Ecole Polytechnique (France) [8080B-52]
16.30: **Electron-positron-photon cascades in strong laser field**, Maxim Legkov, Alexander M. Fedotov, National Research Nuclear Univ. MEPhI (Russian Federation) [8080B-53]
16.50: **Full-scale modeling of fast ignition with ultra-intense lasers**, Frederico Fiuza, Michael Marti, Ricardo Fonseca, Luis Silva, Univ. Técnica de Lisboa (Portugal); John Tonge, Josh May, Warren Mori, Univ. of California, Los Angeles (United States) [8080B-54]
17.10: **Radiation cooling dominated regimes in particle-in-cell simulations**, Marija Vranic, Univ. Técnica de Lisboa (Portugal); Joana L. Martins, Samuel F. Martins, Instituto Superior Tecnico (Portugal); Ricardo A. Fonseca, Instituto Superior Tecnico (Portugal) and Univ. Técnica de Lisboa (Portugal); Luis O. Silva, Instituto Superior Tecnico (Portugal) [8080B-55]
17.30: **Vision of positron science with ELI Beamlines**, Ladislav Drska, Czech Technical Univ. in Prague (Czech Republic) [8080B-56]

SESSION 17

Room: Terrace 1 Wed. 08.30 to 10.20

Ultra-Intense Laser Matter and Laser Vacuum Interactions IIISession Chair: **Mattias Marklund**, Umeå Univ. (Sweden)

08.30: **TBA** (*Invited Paper*), Wolfgang Sandner, Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (Germany) [8080B-49]
09.00: **On the design of experiments for the study of extreme field limits in the ultra-relativistic interaction of electromagnetic waves with plasmas** (*Invited Paper*), Sergei V. Bulanov, Timur Z. Esirkepov, Japan Atomic Energy Agency (Japan) [8080B-58]
09.30: **Effects of quantum vacuum in ultra-intense laser fields and their simulation** (*Invited Paper*), Hartmut Ruhl, Ludwig-Maximilians-Univ. München (Germany) [8080B-59]
10.00: **"Rogue" waves in plasma and multi-hysteresises due to relativistic nonlinearities**, Alexander E. Kaplan, The Johns Hopkins Univ. (United States) [8080B-60]
Coffee Break 10.20 to 10.50

SESSION 18

Room: Terrace 1 Wed. 10.50 to 12.10

Ultra-Intense Laser Matter and Laser Vacuum Interactions ISession Chair: **Theodor Schlegel**,
Technische Univ. Darmstadt (Germany)

10.50: **Radiation damping of relativistic electrons at laser hole-boring in overdense plasmas** (*Invited Paper*), Theodor Schlegel, Technische Univ. Darmstadt (Germany) [8080B-61]
11.20: **Absorption and contrast studies at relativistic intensities** (*Invited Paper*), David Neely, Rutherford Appleton Lab. (United Kingdom) [8080B-62]
11.50: **Ultra-strong laser pulses: quantum radiative reaction and streak-camera for gamma-rays via pair production** (*Invited Paper*), Karen Z. Hatsagortsyan, Max-Planck-Institut für Kernphysik (Germany) [8080B-63]

A

Abdoulkader Ibrahim, Idriss [8070-04]S1
 Abela, Rafael [8078-04]S1
 Abrami, Alessandro [8078-33]SPS
 Abreu, Elsa [8077-04]S2
 Abuazoum, S. [8075-23]S6
 Abubaker, Hamed Mohamed [8073A-31]S7
 Acebal, Pablo [8074-12]S4, [8074-30]SPS, [8074-31]SPS, [8074-43]SPS, [8079A-27]S7, [8074-32]SPS
 Aceves, Alejandro B. [8080A-08]S3
 Adam, Pavel [8073A-80]SPS
 Adams, Darryl [8075-20]S5
 Afkhami-Garaei, Marzie [8073A-27]S5
 Aghbolaghi, Reza [8080A-25]SPS
 Agio, Mario [8071-18]S6
Agranat, Aharon J. [8071-25]S8
 Akahane, Kouichi [8073B-114]S13
 Akhmediev, Nail [8071-27]S8, [8073B-108]S12
 Akmene, Velga [8071-40]SPS
 Al-Agez, Taher M. [8073A-90]SPS
 Alayo Chávez, Marco Isaías [8073A-67]SPS
 Albach, Daniel [8080A-29]S7, [WS-02]S1, [WS-02]S1
 Albright, Brian J. [8079A-09]S3, [8079A-23]S6, [8079A-28]S7
 Aleksandrov, Sergey E. [8073A-46]SPS
 Aleksandrovsky, Aleksandr S. [8071-19]S6
 Allain, Jean-Paul [8077-19]S5
 Allaria, Enrico M. [8078-01]S1
 Alley, Carroll O. [8072B-27]S6
 Almpanis, Evangelos [8071-35]S10
 Alrksandrov, Sergey E. [8073A-49]SPS
 Amati, Matteo [8077-21]S6
 Aminpour, Hamed [8080A-25]SPS
 Amro, Kassem [8073A-33]S8
 An, Pavel [8072A-01]S1
 Anania, Maria P. [8075-21]S5, [8075-22]S6, [8075-24]S6, [8075-30]S8, [8075-23]S6, [8079A-02]S1, [8079A-08]S2
 Andersen, Ulrik 8072B ProgComm
 Andreasson, Jakob [8077-04]S2, [8078-08]S3
 Andreev, Alexander A. 8079A S9 SessChr, [8079A-24]S6
 Andryczuk, Andrzej [8077-04]S2, [8077-32]S9
Andrejcsuk, Andrei [8070-06]S2, [8070-21]S5
 Aniculaesei, Constantin [8075-21]S5, [8075-23]S6, [8075-24]S6, [8075-30]S8, [8079A-02]S1
 Antonelli, L. [WS-13]S5, [WS-13]S5, [WS-16]S5, [WS-16]S5
 Antos, Roman [8070-07]S2
 Antosiewicz, Tomasz J. [8070-16]S8, [8070-17]S4, [8070-33]S4, [8070-35]S8
Anuszkiewicz, Alicja [8073B-105]S11
 Aparicio, Francisco J. [8073A-40]S9
 Aquila, Andrew L. [8078-08]S3
 Arabshahi, Hadi [8071-43]SPS, [8072B-36]SPS
 Arai, Shinichi [8074-41]SPS
 Arantchouk, Leonid [8075-29]S7
 Argiolas, Nicola [8071-26]S8
 Arias, Luis Antonio [8073A-73]SPS
 Armas Alvarado, Maria E. [8073A-67]SPS
 Artoni, Maurizio [8071-06]S2
 Asakawa, Kiyoshi 8071 ProgComm
Asare, Lasma [8073A-76]SPS
Aslan, Mustafa M. [8073A-17]S3
 Atherton, Briggs W. [8080A-13]S5
 Attanasio, Carmine [8072A-18]S4
 Atzeni, Stefano [WS-09]S4, [WS-09]S4, [WS-12]S4, [WS-12]S4
 Aubrecht, Ivo [8074-09]S3
 Aubrecht, Jan [8073A-48]SPS, [8073A-61]SPS, [8073A-63]SPS
 Augustovs, Peteris [8074-13]S4
 Aymeric, Robert 8078 ProgComm, 8078 S2 SessChr, 8078 S3 SessChr
 Aznárez, José A. [8076-12]S3
 Azzouz, Hatim [8072A-15]S4

B

Bagnoud, Vincent [8080A-07]S2
 Baida, Fadi I. [8070-04]S1
 Bajilekov, Svetoslav [8079A-15]S4
Bajit, Sa?a 8077 S9 SessChr, 8077 Chr, [8077-04]S2, [8077-37]SPS, [8078-08]S3
 Bakarezos, Makis [8075-20]S5
 Bakeman, Michael S. [8075-18]S5
 Baker, Sherry L. [8077-01]S1
Baldini, Francesco 8073 Chr, 8073A Chr, [8073A-09]S2, [8073A-25]S5
 Baliva, Antonio [8076-28]SPS
 Bammer, Ferdinand [8080A-17]S6
 Banerjee, S. [WS-04]S1, [WS-04]S1
 Banerjee, Saumyabrata [WS-27]SPS
 Bang, Ole [8073B-116]S13
 Baradaran Ghasemi, Amir [8071-18]S6
 Barati, Elham [8080A-23]S7, [8080A-24]S7
 Barbera, Marco [8076-09]S2, [8076-11]S2
 Barbetta, Marco [8076-07]S2
 Baregheh, Mandana [8071-41]SPS
 Barends, Thomas R. M. [8078-08]S3
 Barkusky, Frank [8077-17]S5
 Barnakov, Yuri [8070-37]SPS
 Barnes, William L. 8070 S3 SessChr, [8070-01]S1
 Barranco, Angel [8073A-40]S9
 Bartelt, Hartmut [8073A-18]S3, 8073B ProgComm, 8073B S13 SessChr, [8073B-100]S10, [8073B-104]S11, [8073B-111]S12
 Barthelmeß, Miriam [8077-37]SPS, [8078-08]S3
 Bartl, Michael H. [8071-08]S2
 Bartnik, Andrzej S. [8077-18]S5
 Barty, Anton [8078-08]S3
Barty, Christopher P. J. [8080B-30]S10
 Barysheva, Maria M. [8076-21]S5, [8076-24]S5
 Basso, Stefano [8076-05]S1, [8076-09]S2
 Batani, Dimitri EOO11WS S4 SessChr, [WS-13]S5, [WS-13]S5, [WS-16]S5, [WS-16]S5, [WS-21]SPS, [WS-21]SPS
 Baton, Sophie D. [WS-13]S5, [WS-13]S5, [WS-21]SPS, [WS-21]SPS
 Battistelli, Enrico [8073A-05]S1
 Baumann, Michael [8079B-43]S10, [8079B-48]S12
 Bayramian, Andy J. 8080A ProgComm
 Bazzan, Marco [8071-26]S8
 Beck, Arie [8072A-07]SPS
Becker, Wolfgang 8072A ProgComm
 Behounek, Toma? [8074-10]S3
 Belardini, Alessandro [8071-11]S3
 Belegratis, Ma R. [8071-32]S9
Beléndez, Augusto [8073B-109]S12
 Belka, Radoslaw [8070-47]SPS
 Belkacem, A. [8078-27]SPS
 Belle, Stefan [8073A-12]S2
 Bellini, Marco 8072B ProgComm, [8072B-25]S6
Bellum, John C. [8080A-13]S5
 Belotelov, Vladimir I. [8070-14]S8
 Belyi, Vladimir [8073A-84]SPS, [8073A-89]SPS
Ben Salem, Amine [8073B-112]S12
 Benedetti, Alessio [8071-10]S3
 Benedetti, C. [WS-21]SPS, [WS-21]SPS
 Benedetti, Carlo [8075-18]S5, [8079A-01]S1, [8079A-04]S1, [8079A-16]S4, [8079A-33]S8, [8079A-35]S8
 Ben-Ismael, Ahmed [8075-29]S7
 BenMoussa, Ali [8073A-01]S1
 Benner, W. Henry [8078-08]S3
 Benson, Oliver [8072A-04]S2
 Benveniste, Elsa [8075-29]S7
 Ben-Zvi, Ilan [8079B-53]S14
 Berger, Jean-Philippe [8071-07]S2
 Bergh, Magnus [8072A-04]S2
 Berkova, Daniela [8073A-34]S8
 Bermudez-Urena, Esteban [8072A-15]S4
 Berneth, Horst [8074-17]S5
 Berninger, Florian [8080B-48]S14

Bertolotti, Mario 8071 Chr, 8071 S1 SessChr, 8071 S2 SessChr, 8071 S5 SessChr
 Bettinati, Mauro A. [8080A-05]S2
 Beuret, Marc [8074-11]S3
 Beyreuther, Elke [8079B-43]S10
 Bianchini, Claudio [8073A-25]S5
 Bianco, Anna [8077-38]SPS
Bijkerk, Fred 8077 ProgComm, [8077-07]S3, [8077-40]SPS, 8078 ProgComm, [8078-13]S4
 Bingham, Robert [8075-14]S4, [8075-17]S4
 Bionta, Richard M. [8077-32]S9
 Blaya, Salvador [8074-12]S4, [8074-30]SPS, [8074-31]SPS, [8074-32]SPS, [8074-43]SPS, [8079A-27]S7
Blazej, Josef 8072A ProgComm, [8072A-09]S3, [8072A-10]S3, [8072A-11]S3
 Blonsky, Ivan V. [8071-21]S6
 Blum, Loic [8073A-16]S3, 8073A ProgComm
 Bluss, Kristaps [8073A-42]SPS
 Bocheza, Jiri [8073A-13]S2, [8073A-68]SPS
 Bochove, Erik J. [8080A-08]S3
 Bockova, Marketa [8073A-19]S3, [8073A-79]SPS
 Bödefeld, Ragnar [8080A-14]S5
 Bogan, Michael J. [8078-08]S3
 Boháček, Pavel [8077-05]S2
Bolton, Paul R. 8079B ProgComm, [8079B-40]S10, [8079B-46]S12
 Bonello, Bernard [8071-35]S10
 Bonifacio, Rodolfo [8075-23]S6, [8075-25]S6
 Bonneau, Damien [8072B-21]S5
 Bonse, Jörn [8077-08]S3
 Booth, Nicola [WS-20]SPS, [WS-20]SPS
 Borghesi, Marco [8079B-47]S12, [8080B-44]S14
 Borghi, Giuseppe [8076-05]S1
 Borisanova, Anna [8074-19]S5
 Borchagovsky, Eugene G. [8070-45]SPS, [8073A-45]SPS
 Borzycki, Krzysztof [8073B-107]S11
 Bostedt, Christoph [8077-07]S3, [8078-06]S2, [8078-08]S3
 Botton-Dascal, Moti [8079B-54]S14
 Boutet, Sebastian [8077-01]S1, [8078-08]S3, [8078-11]S4
Boyraz, Ozdal [8071-42]SPS
 Bozek, John D. [8077-01]S1, [8077-07]S3, [8078-06]S2, [8078-08]S3
 Braiman, Yehuda Y. [8080A-08]S3
 Brambilla, Gilberto [8073A-62]SPS
 Brandys, Irad [8072A-07]SPS
 Bratkovsky, Alexandre M. [8070-28]S7
 Breglio, Giovanni [8072A-08]S2
 Brenci, Massimo [8073A-09]S2
 Brilland, Laurent [8073B-101]S10, [8073B-102]S10
 Brinek, Jan [8072A-09]S3
 Broderick, Neil G. R. 8073B ProgComm
 Bruder, Friedrich K. [8074-17]S5
 Bruhns, Henry [8073A-37]S8
 Bruner, Nir [8079B-54]S14
 Brunetti, Enrico [8075-15]S4, [8075-21]S5, [8075-22]S6, [8075-23]S6, [8075-24]S6, [8075-30]S8, [8079A-02]S1, [8079A-08]S2
 Brussaard, G. J. H. [8079A-31]S7
 Buatier de Mongeot, Francesco [8071-11]S3
 Buck, A. [8079A-05]S2
 Bucksbaum, Phillip [8078-08]S3
 Bulanov, Sergei V. 8079B ProgComm, [8079B-45]S11, 8080B ProgComm, [8080B-58]S17
 Bulanov, Stepan S. [8079A-13]S3
 Bulanovs, Andrejs [8074-34]SPS
 Bülter, Andreas [8072A-06]S2
 Bunk, Oliver [8078-12]S4, [8078-18]S5
 Burau, Heiko [8080B-48]S14
 Burgess, R. T. L. [8075-23]S6
 Burgess, Ronan MeetingVIP
 Burian, Tomas [8077-07]S3, [8077-44]SPS, [8077-05]S2, [8077-33]S9
Burr, Geoffrey W. [8070-04]S1

Burris-Mog, Trevor [8079B-43]S10
Burton, David A. [8075-10]S3, [8079A-20]S5
Bussmann, Michael [8075-28]S7, [8075-32]S8,
[8079A-12]S3, [8079A-38]S9, [8079B-48]S12,
[8080B-48]S14
Byrd, John M. [8075-18]S5

C

Caballero, Olga [8071-07]S2
Caballero Caballero, Maria T. [8070-34]S4
Cabrera, Alejandro [8079A-27]S7
Cairns, Alan [8075-12]S3, [8075-14]S4, [8075-17]S4, [8075-35]S4
Caleman, Carl [8077-04]S2, [8078-08]S3
Cammarata, Marco [8078-12]S4, [8078-18]S5
Camps Sanchis, Vicent [8070-34]S4
Canat, Guillaume [8073B-102]S10
Candiani, Alessandro [8073B-113]S13
Capanni, Annalisa [8073A-05]S1
Capretti, Antonio [8072A-12]S4
Carpinelli, Massimo [8079B-53]S14
Carraresi, Luca [8078-29]S6
Carré, Bertrand [8077-22]S6
Carretero, Luis [8074-12]S4, [8074-30]SPS,
[8074-31]SPS, [8074-43]SPS, [8079A-27]S7,
[8074-32]SPS
Casaburi, Alessandro [8072A-02]S1, [8072A-04]S1
Cash, Webster C. 8076 ProgComm, [8076-02]S1, [8076-08]S2, [8076-26]SPS
Caspi, El'ad [8072A-07]SPS
Cassidy, Daniel T. [8080A-05]S2
Castoldi, Andrea [8078-29]S6
Cecchetti, C. A. [WS-16]S5, [WS-16]S5, [WS-19]SPS, [WS-19]SPS, [WS-20]SPS, [WS-20]SPS
Ceccotti, Tiberio [8079A-30]S7
Cech, Miroslav [8072A-19]SPS
Centini, Marco [8071-10]S3, [8071-11]S3
Cerf, Nicolas J. 8072B ProgComm
Cha, Yong-Ho [8075-33]S8, [8079A-29]S7
Chalupsk?, Jaromir [8077-04]S2, [8077-07]S3, [8077-32]S9, [8077-44]SPS, 8077 S4 SessChr, [8077-05]S2, [8077-22]S6, [8077-33]S9, [8077-42]SPS
Chambaret, Jean-Paul [8080B-35]S11
Chang, Chi-Ching [8074-38]SPS
Chanteloup, Jean-Christophe F. 8080A ProgComm, [8080A-29]S7, [WS-02]S1, [WS-02]S1
Chapman, Henry N. [8077-04]S2, [8078-08]S3, [8078-21]S6
Chaudhari, Chitrarekha [8073B-103]S10
Chauvet, Christian [8077-39]SPS
Chauvet, Mathieu [8071-24]S7
Chembo, Yanne K. [8071-03]S1, [8071-37]SPS
Chen, How Foo [8073A-20]S3
Chen, Hui [WS-20]SPS, [WS-20]SPS
Chen, Jilu [8073A-07]S1
Chen, Min [8075-18]S5
Chen, Or [8072A-07]SPS
Chen, Sijia [8075-23]S6, [8075-25]S6, [8075-30]S8
Chen, Xue-Wen [8071-18]S6
Cherif, Rim [8073B-112]S12
Chernykh, Dmitrii F. [8074-28]SPS
Chiang, Yi-Ju [8070-30]S7
Chiappe, Daniele [8071-11]S3
Chiavaioli, Francesco [8073A-09]S2
Chichkov, Boris N. [8071-13]S4
Childs, P. A. [8073B-113]S13
Chipouline, Arkadi 8070 S5 SessChr, [8070-23]S6, [8070-24]S6
Chizhikov, Sergey [8080B-38]S12
Chkhalo, Nikolay I. [8076-21]S5, [8076-23]S5, [8076-24]S5
Chmelik, Radim 8074 ProgComm, 8074 S2 SessChr, [8074-01]S1
Cho, Yo-Han [8073A-77]SPS

Chocholáčová, Petra [8073A-80]SPS
Cholley, Nathalie [8071-37]SPS
Chomat, Miroslav [8073A-34]S8
Chou, Shao-wei [8079A-03]S1, [8079A-06]S2, [8079A-15]S4
Christensen, Finn E. [8076-09]S2
Chu, Shu-Chun [8080A-26]SPS
Chufyrev, Pavel [8071-31]S9, [8074-20]S5
Chvykov, Vladimir V. [8079A-13]S3
Ciampolillo, Maria Vittoria [8071-26]S8
Cibulka, Ondrej E. [8077-14]S4
Cihelka, Jaroslav [8077-05]S2, [8077-32]S9, [8077-22]S6
Cimaroli, Alex [8077-19]S5
Cimino, Roberto 8078 ProgComm, 8078 S1 SessChr
Ciobanu, Nelu [8072B-29]S6
Cipiccia, Silvia 8075 S3 SessChr, [8075-21]S5, [8075-22]S6, [8075-23]S6, [8075-24]S6, [8075-30]S8, [8079A-02]S1, [8079A-08]S2
Cipparrone, Gabriella 8074 S5 SessChr, [8074-21]S6
Ciprian, Dalibor [8073B-106]S11
Ciricosta, O. [WS-16]S5, [WS-16]S5, [WS-19]SPS, [WS-19]SPS
Cirillo, Carla [8072A-18]S4
Citterio, Oberto [8076-05]S1
Clark, David [8075-22]S6, [8075-30]S8
Clark, E. L. [WS-18]S6, [WS-18]S6
Clarke, Jim [8075-22]S6
Clayton, Christopher E. 8075 ProgComm
Clément, Sébastien [8073A-33]S8
Cocco, Daniele 8078 Chr, [8078-14]S4, [8078-17]S5, [8078-33]SPS, [8078-34]SPS
Cohen, Yosef [8073A-55]SPS
Cohen, Yossi [8072A-07]SPS
Cohen-Zada, Ilan [8072A-07]SPS
Cojocar, Elena R. [8074-02]S1
Colet, Pere [8080A-08]S3
Collier, John L. WS CoChr, [WS-01]SKS, [WS-01]SKS, [WS-03]S1, [WS-03]S1, [WS-04]S1, [WS-04]S1, [WS-27]SPS
Collura, Alfonso [8076-11]S2
Conte, Gennaro [8073A-81]SPS
Conti, Claudio [8071-25]S8
Coppola, Nicola [8078-08]S3
Coradini, Angioletta [8073A-05]S1
Corde, Sebastien [8075-29]S7
Corso, Alain J. [8077-15]S4, [8078-14]S4, [8076-07]S2, [8076-10]S2, [8078-34]SPS
Cova, Sergio D. 8072A ProgComm, [8072A-05]S2
Cowan, T. E. [8079A-38]S9, [8075-28]S7, [8075-32]S8, 8079A ProgComm, [8079A-12]S3, 8079B ProgComm, [8079B-41]S10, [8079B-43]S10, [8079B-48]S12, [8080B-48]S14
Craievich, Paolo [8078-01]S1
Crespi, Andrea [8072B-26]S6
Cristiani, Ilaria [8071-26]S8
Cristiano, Roberto [8072A-02]S1, [8072A-04]S1, [8072A-18]S4
Critani, Fabio [8076-28]SPS
Cros, Brigitte 8079A ProgComm
Crosignani, Bruno 8071 ProgComm
Crotti, Matteo [8072A-13]S3
Crouse, David [8070-31]S7
Crouse, Michael M. [8070-31]S7
Csaki, Andrea [8073A-18]S3, [8073B-104]S11
Ctyrok?, Jiri [8070-22]S5, 8070 ProgComm, [8070-02]S1
Cudin, Ivan [8078-17]S5, [8078-33]SPS
Cummins, Thomas [8077-36]SPS
Curl, Robert [8073A-38]S9
Czerwosz, Elzbieta [8070-47]SPS

D

Dagens, Beatrice [8070-14]S8
Dammene, Yassine [8079B-43]S10

Das, Susanta K. [8077-08]S3
Dastjani Farahani, Shafagh [8077-35]SPS
David, Christian 8078 ProgComm, [8078-12]S4, [8078-18]S5
Davidková, Marie [8077-33]S9
Davis, Jack [8079A-13]S3
Davoine, Laurent [8073A-40]S9
de Castro, A. Rubens B. [8077-10]S4
De Grazia, Marco V. [8077-22]S6
De La Rue, Richard M. [8070-20]S5
De Laurentis, Martina [8072A-08]S2
De Lisio, Corrado [8072A-18]S4
de Loos, Marieke [8075-22]S6
De Martini, Francesco [8072B-22]S5
De Moor, Piet [8073A-01]S1
De Neve, Peter [8079B-52]S14
De Oliveira, Nelson [8077-39]SPS
De Santis, Stefano [8075-18]S5
De Stefantis, Luca [8073A-26]S5
De Tandt, Cathleen [8070-26]S6
De Wagter, Carlos [8079B-52]S14
Debus, Alexander D. [8075-28]S7, [8075-32]S8, [8080B-48]S14
Degiorgio, Vittorio [8071-26]S8
Deiterding, Ralf [8080A-08]S3
Déjardin, Philippe [8073A-33]S8
Del Re, Eugenio 8071 S7 SessChr, [8071-25]S8
Delboulbé, Alain [8071-07]S2
Delpont, Guillaume [8072A-06]S2
Demizu, Yusuke [8079B-57]SPS
den Herder, Jan-Willem A. [8076-09]S2
DePonte, Daniel P. [8078-08]S3, [8078-21]S6
Der, Andras [8071-39]SPS
Desevedavy, Frederic [8073B-102]S10, [8073B-101]S10
Di Cicco, Andrea [8077-03]S1
Di Mitri, Simone [8078-01]S1
Di Piazza, Antonino [8075-01]S1, [8075-04]S1, [8075-08]S2
Dias, Frederic [8071-27]S8, [8073B-108]S12
Dias, João [8075-30]S8
Dinescu, Adrian [8074-02]S1
Ditlbacher, Harald [8073A-15]S3
Ditmire, Todd 8080B ProgComm, [8080B-32]S10
Divochiy, Alexander [8072A-01]S1
Divoky, Martin [8080A-11]S4
Djafari-Rouhani, Bahram [8071-35]S10
Dmitruk, Igor [8070-37]SPS
Dolev, Eli [8072A-07]SPS
Dollar, Franklin J. [8079A-13]S3
Dombi, Peter 8080B ProgComm, [8080B-40]S12
Dong, Lei [8073A-38]S9, [8073A-41]S9
Donnelly, Tony [8077-36]SPS
Dorchies, Fabien [WS-21]SPS, [WS-21]SPS
Dorenbos, Sander [8072A-15]S4, [8072A-16]S4
Doty, James H. [8073A-41]S9
Douglas, William E. [8073A-33]S8
Dover, Nicholas P. [8079A-22]S6
Drescher, Markus [8075-20]S5
Dromey, Brendan H. [8075-20]S5, [8075-31]S8, [8079A-09]S3
Drozdov, Mikhail N. [8076-23]S5
Drška, Ladislav [8080B-56]S16
Duan, Wentao [8080A-16]S6
Dubard, Jimmy [8073A-21]S4
Duboz, Jean-Yves [8073A-01]S1
Dudley, John M. [8071-17]S5, [8071-27]S8, [8073B-101]S10, [8073B-108]S12
Dudnikova, Galina I. [8079A-22]S6
Duesterer, Stefan [8078-16]S5, [8078-35]SPS
Dufresne, Eric M. [8077-13]S4
Duhant, Matthieu [8073B-102]S10
Dunne, Pdraig [8077-36]SPS
Dusek, Miloslav 8072B ProgComm
Düsterer, S. [8078-27]SPS, [8075-20]S5
Dybko, Artur 8073A ProgComm
Dzelzainis, Thomas [8075-20]S5
Dziubak, Tomasz [8071-38]SPS

E

Ecevit, Fevzi N. [8074-07]S2
 Edwards, Chris WS Chr, [WS-03]S1, [WS-03]S1
 Efremenko, Elena N. [8073A-36]S7
 Eggleton, Benjamin J. 8073B ProgComm
 Eisenhower, Rachel [8076-17]S4
 Eisenmann, Shmuel [8079B-54]S14
 Eisert, Jens 8072B ProgComm
 Eijrnaes, Mikkel [8072A-02]S1, [8072A-04]S1, [8072A-18]S4
 Ekeberg, Tomas [8078-08]S3
 El-Amraoui, Mohammed [8073B-101]S10, [8073B-102]S10
 Elezov, Michael [8072A-01]S1
Elhawil, Amna [8070-26]S6
 Enaki, Nicolae A. [8072B-29]S6
 Endo, Akira [8077-36]SPS
Enmuo, Amarachukwu [8070-31]S7
 Enghardt, Wolfgang [8079A-38]S9, 8079B ProgComm, [8079B-43]S10, [8079B-48]S12
Engheta, Nader 8070 ProgComm
 Epp, Sascha [8078-08]S3, [8078-30]SPS, [8078-31]SPS, [8078-32]SPS
Erdmann, Rainer [8072A-06]S2
 Erk, Benjamin [8078-08]S3
 Erkintalo, Miro [8073B-108]S12
 Ersfeld, Bernard [8075-12]S3, [8075-15]S4, [8075-16]S4, [8075-21]S5, [8075-23]S6, [8075-25]S6, [8075-30]S8, [8079A-02]S1, [8079A-08]S2, [8079A-20]S5
 Ertel, Klaus 8080A ProgComm, [WS-04]S1, [WS-04]S1, [WS-27]SPS
 Erts, Renars [8073A-76]SPS
 Esarey, Eric [8075-18]S5, 8079 Chr, 8079A S2 SessChr, 8079A Chr, [8079A-01]S1, [8079A-04]S1, [8079A-07]S2, [8079A-16]S4, [8079A-33]S8, [8079A-35]S8
 Esirkepov, Timur Z. [8079B-45]S11, [8080B-58]S17
 Evans, R. G. [WS-20]SPS, [WS-20]SPS
 Evstratova, Diana [8071-31]S9, [8074-20]S5
 Eyderman, Sergey L. [8070-14]S8, [8070-15]S8

F

Faatz, Bart [8075-20]S5
 Fábíán, László [8071-39]SPS
 Fäcke, Thomas [8074-17]S5
 Faenov, Anatoly [8079B-54]S14
 Fajardo, Marta [8080B-43]S13
 Falciai, Riccardo [8073A-09]S2
 Fang, Linggang [8073A-91]SPS
 Fang, Nicholas X. [8070-09]S3
 Farmer, John P. [8075-15]S4, [8075-16]S4, [8075-23]S6
 Farquar, George [8078-08]S3
 Farrell, Gerald [8073A-43]SPS, [8073A-62]SPS
 Fatome, Julien [8071-27]S8, [8073B-101]S10, [8073B-102]S10, [8073B-108]S12
 Fatoux, Marie [8073A-16]S3
 Faure, Jerome [8075-29]S7, [8079A-14]S4, [8079B-52]S14
 Fäustlin, Roland R. [8077-04]S2
 Fava, Claudio [8078-17]S5, [8078-33]SPS
 Fazio, Eugenio [8071-11]S3
 Fedotov, Alexander M. [8080B-53]S16
 Feigl, Torsten [8077-34]S9
 Felbacq, Didier 8070 ProgComm
 Feldbach, Eduard [8077-31]S9
 Fernandez, Elena [8074-40]SPS
 Fernandez, Juan C. [8079A-09]S3, [8079A-23]S6, [8079A-28]S7, [8079A-26]S6
 Fernández-Perea, Mónica [8076-12]S3, [8077-01]S1
 Ferrari, Maurizio [8070-47]SPS
 Ferrario, Massimo [8078-03]S1
 Février, Sébastien 8073B ProgComm
 Fiala, Jan [8070-22]S5

Fibrich, Martin [8073A-34]S8
 Fiedler, Fine [8079B-48]S12
 Fiedorowicz, Henryk 8077 ProgComm, [8077-18]S5
Fimia, Antonio 8074 ProgComm, 8074 S6 SessChr, [8074-12]S4, [8074-30]SPS, [8074-31]SPS, [8074-32]SPS, [8074-43]SPS, [8079A-27]S7
 Finot, Christophe [8071-17]S5, [8071-27]S8, [8071-30]S9, [8073B-108]S12
 Fischer, Ulrich C. [8070-04]S1
 Fitour, Romuald [8075-29]S7
 Fiurasek, Jaromir [8072B-25]S6, 8072 Chr, 8072B S5 SessChr, 8072B Chr
 Fiuza, Frederico [8075-14]S4, [8075-17]S4, [8079A-39]S9, [8080B-54]S16
 Flechsig, Uwe [8078-04]S1
 Fleckenstein, Holger [8078-08]S3
 Flippo, Kirk [8079A-38]S9
 Floquet, Vincent [8079A-30]S7
 Florya, Irina [8072A-01]S1, [8072A-17]S4
 Flöter, Bernhard 8077 S5 SessChr, [8077-12]S4, [8078-19]S5
 Fonseca, Ricardo A. [8075-14]S4, [8075-17]S4, [8075-27]S7
 Fonseca, Ricardo A. [8079A-32]S8, [8079A-39]S9, [8080B-46]S14, [8080B-54]S16, [8080B-55]S16
 Fontaine, Joël [8074-11]S3
 Forn-Diaz, Pol [8072A-15]S4
 Fort, Petr [8072A-10]S3
 Foster, Peta [8075-30]S8
 Foucar, L. [8078-27]SPS
 Foucar, Lutz [8078-08]S3
 Fournment, Claude [WS-13]S5, [WS-13]S5, [WS-21]SPS, [WS-21]SPS
 Frances, Jorge [8073B-109]S12
 Francesco, Stellato [8078-21]S6
 Francic, Nina [8073A-36]S7, [8073A-71]SPS
 Frank, Matthias A. [8078-08]S3
 Franke, Matthias [8073A-91]SPS
 Fraser, George W. 8076 ProgComm
 Frayssinet, Eric [8073A-01]S1
 Freiberger, Ralf [8076-19]S5, [8076-25]SPS
 Friedrich, Kathrin [8077-23]S6
 Fritz, David M. [8078-12]S4, [8078-18]S5
 Fritzsche, Wolfgang [8073A-18]S3, [8073B-104]S11
 Fuchs, Matthias [8079A-06]S2
 Fukuda, Mitsuo [8074-41]SPS
 Fukuda, Yuji [8079A-10]S3
 Fullmer, Rees [8073A-06]S1
 Fuse, Tomoko [8072A-15]S4

G

Gadret, Gregory [8073B-101]S10, [8073B-102]S10
 Gaebler, Daniel [8073A-91]SPS
 Gaggero, Alessandro [8072A-02]S1, [8072A-04]S1
 Gaillard, Sandrine [8079A-38]S9
 Galimberti, Marco [WS-21]SPS, [WS-21]SPS
 Gall, Brady [8079A-38]S9
 Gallego, Sergi [8073B-109]S12
 Galler, Nicole [8073A-15]S3, [8073A-19]S3
 Gantzounis, Giorgos [8071-35]S10
 Ganzherli, Nina M. [8074-28]SPS
 Gao, Jing [8072B-35]SPS
 Gao, Shiming [8071-42]SPS
 García de Abajo, Francisco Javier 8070 ProgComm
 García-Cortés, Sergio [8076-12]S3
 Garuccio, Augusto [8072B-27]S6
 Gaudin, Jerome [8077-05]S2, [8077-07]S3, [8077-22]S6, [8078-15]S4, 8077 ProgComm, 8077 S2 SessChr, [8077-02]S1, [8077-12]S4
 Gauduel, Yann A. [8079B-52]S14

Gautier, D. Cort [8079A-09]S3, [8079A-23]S6, [8079A-26]S6, [8079A-28]S7
 Gavrilov, Gennadiy A. [8073A-46]SPS, [8073A-49]SPS
 Geddes, Cameron G. [8079A-33]S8, [8075-18]S5, [8079A-01]S1
 Geissel, Matthias [8079A-38]S9, [8080A-13]S5
 Geloni, Gianluca [8078-25]S7, [8079A-21]S5
 Genty, Goery [8071-27]S8, [8073B-108]S12
 Geoffroy, G. [8077-22]S6
 Gerbier, Philippe [8073A-33]S8
 Gerbreeders, Vjaceslavs [8074-29]SPS, [8071-40]SPS, [8074-34]SPS
 Gerdev, Alex [8074-08]S3, [8074-35]SPS
 Gerasina, Simone [8078-17]S5
 Geurdes, Han [8072B-30]SPS
 Ghaedzadeh, Amir [8080A-25]SPS
 Ghelman, Max [8073A-55]SPS
 Ghini, Giacomo [8073A-25]S5
 Ghioni, Massimo [8072A-05]S2, [8072A-13]S3
 Ghojidoz, S. M. Mahdi [8072B-36]SPS
 Giambastiani, Giuliano [8073A-25]S5
 Giannetti, Ambra [8073A-09]S2, [8073A-25]S5
 Giannini, A. [WS-12]S4, [WS-12]S4
 Giessen, Harald W. 8070 ProgComm
 Giglia, Angelo [8077-38]SPS
 Gilbert, Gerald N. [8072B-28]S6
 Gillespie, Allan [8079A-02]S1
 Ginzburg, Dmitry [8072A-07]SPS, [8073A-55]SPS
 Ginzburg, Vladislav [8080B-38]S12
 Giordanengo, Boris [8073A-01]S1
 Girolami, Marco [8073A-81]SPS
 Giulietti, Antonio 8079A ProgComm, [8079B-51]S13, [WS-16]S5, [WS-16]S5
 Gizzi, Leonida A. 8080A ProgComm, [WS-13]S5, [WS-13]S5, [WS-16]S5, [WS-16]S5, [WS-19]SPS, [WS-19]SPS, [WS-20]SPS, [WS-20]SPS, [WS-21]SPS, [WS-21]SPS
 Gladkov, Petar [8071-36]SPS
 Gleeson, Anthony J. [8077-05]S2
 Gleeson, Michael R. [8074-15]S4, [8074-16]S4
 Gleeson, Michael A. [8077-40]SPS
 Gobessi, Riccardo [8078-17]S5
 Godard, Pierre [8071-33]S10
 Godnig, Roberto [8078-17]S5
 Goltsman, Gregory [8072A-01]S1, [8072A-17]S4
 Goltviansky, Yuriy V. [8071-02]S1
 Gonsalves, Anthony J. [8075-18]S5, [8079A-01]S1, [8079A-07]S2, [8079A-16]S4
 Gorajek, Lukasz [8080A-22]S7
 Gordon, Daniel F. [8079A-17]S4, [8079A-18]S5, [8079B-54]S14
 Gorelick, Sergey [8078-12]S4
 Gorke, Hubert [8078-32]SPS
 Goto, Shin-itiro [8072B-24]S5
 Goto, Shunji [8078-02]S1
 Gottschall, Thomas [8080A-07]S2
Grabovskis, Andris [8073A-76]SPS
 Graf, Alexander [8077-07]S3
 Grando, Daniela [8071-26]S8
 Grant, David [8075-23]S6, [8075-24]S6, [8079A-02]S1
 Gratus, Jonathan [8079A-20]S5
 Green, James S. [8079B-42]S10
 Gregoratti, Luca [8077-21]S6
 Gregori, Gianluca [WS-20]SPS, [WS-20]SPS
 Gremillet, L. [WS-13]S5, [WS-13]S5
 Gribkov, Boris A. [8076-21]S5
 Grimm, Stefan [8080A-03]S1
 Grisham, Michael E. [8077-33]S9
 Grisoni, Gabriele [8076-05]S1
 Grmela, Lubomir [8073A-31]S7
Grochowska, Paulina A. [8071-20]S6
 Grosjean, Thierry [8070-04]S1
 Gruber, Jonas [8073A-67]SPS
 Gruebel, Sebastian [8078-09]S3

Gruener, Florian J. [8075-18]S5, [8079A-06]S2, 8075 S5 SessChr, 8075 ProgComm, [8075-19]S5, 8079A S8 SessChr, 8079A ProgComm, [8079A-03]S1, [8080B-42]S13
Grünert, Jan [8078-12]S4, [8078-18]S5
Grzonka, Justyna [8077-07]S3
Guazzoni, Chiara [8078-29]S6
Guerin, Laurent [8077-12]S4
Guillaume, Didier [WS-11]S4, [WS-11]S4
Guizard, Stéphane [8077-22]S6
Gulinatti, Angelo [8072A-05]S2
Gullikson, Eric M. [8077-01]S1, [8077-30]S9, [8078-13]S4
Gulyaev, Sergey N. [8074-28]SPS
Gumprecht, Lars [8078-08]S3
Guo, Jinxin [8074-15]S4
Güther, Reiner [8071-22]S6
Guzenko, Vitaliy A. [8078-12]S4

H

Ha, Sangwoo [8070-06]S2
Habara, Hideaki [8079A-10]S3
Habib, Khaled J. [8074-25]S6
Habs, Dietrich [8075-06]S2, [8079A-09]S3, [8079A-11]S3, [8079A-23]S6, [8079A-26]S6, [8079B-49]S13, [8080B-31]S10
Hacizade, Fikret [8073A-65]SPS, [8073A-66]SPS
Hadden, J. P. [8072B-21]S5
Hafner, Christian [8070-29]S7
Hage, Charles-Henri [8071-17]S5
Hagen, Rainer [8074-17]S5
Hajdu, Janos [8077-04]S2, [8078-08]S3
Hajkova, Vera [8077-04]S2, [8077-05]S2, [8077-07]S3, [8077-22]S6, [8077-44]SPS, [8077-45]SPS
Hakala, Tommi [8070-11]S3
Halagacka, Lukas [8070-14]S8
Hamilton, David J. [8075-30]S8
Hammani, Kamal [8071-27]S8, [8073B-108]S12
Hampton, Christina Y. [8078-08]S3
Hanáček, František [8073A-52]SPS, [8073A-68]SPS, [8073A-69]SPS, [8073A-70]SPS, [8073A-72]SPS
Harman, Zoltán [8075-01]S1
Harrison, Joanne P. [8072B-21]S5
Hartmann, Andreas [8078-30]SPS, [8078-31]SPS, [8078-32]SPS
Hartmann, Elisabeth [8078-08]S3
Hartmann, Paul [8071-32]S9
Hartmann, Robert [8078-08]S3, [8078-22]S6, [8078-30]SPS, [8078-31]SPS, [8078-32]SPS
Hartung, Alexander [8073B-111]S12
Hascik, Stefan [8070-44]SPS
Hata, Eiji [8074-14]S4
Hatayama, Masatoshi [8077-30]S9
Hatsagortsyan, Karen Z. [8080B-63]S18
Hauck, Johannes [8076-19]S5, [8076-25]SPS
Hau-Riege, Stefan P. [8077-01]S1, [8077-05]S2, [8077-07]S3, [8077-44]SPS, [8078-08]S3
Haus, Joseph W. 8071 CoChr, 8071 S9 SessChr, 8071 S10 SessChr, [8071-01]S1
Hauser, Guenter [8078-30]SPS, [8078-08]S3, [8078-31]SPS, [8078-32]SPS
Havlikova, Radka [8076-30]S
Heathcote, Robert [WS-21]SPS, [WS-21]SPS
Heeres, Reinier [8072A-15]S4
Hegelich, Bjoen M. 8079A ProgComm, [8079A-09]S3, 8079A S6 SessChr, [8079A-11]S3, [8079A-23]S6, [8079A-28]S7, [8079A-26]S6
Heidmann, Samuel [8071-07]S2
Heidorn, Uwe [8078-15]S4
Heidt, Alexander M. [8073B-111]S12
Heigoldt, Matthias [8079A-03]S1, [8079A-06]S2, [8079A-15]S4
Heimann, Philip A. [8077-04]S2, [8077-05]S2

Hein, Joachim 8080 Chr, 8080A S1 SessChr, 8080A Chr, [8080A-01]S1, [8080A-02]S1, [8080A-04]S2, [8080A-07]S2, [8080A-12]S4, [8080A-14]S5, [WS-05]S1, [WS-05]S1
Heinbuch, Scott C. [8077-33]S9
Heiner, Zsuzsanna [8071-39]SPS
Hejduk, Stanislav [8073A-68]SPS
Helle, Michael H. [8079A-17]S4, [8079A-18]S5
Hellmann, Ralf [8073A-12]S2
Hendrych, Martin [8072B-23]S5
Henig, Andreas [8079A-11]S3, [8079A-26]S6
Henkel, Thomas [8073B-104]S11
Hennelly, Bryan M. [8074-03]S1
Hernandez, Raul J. [8074-21]S6
Hernandez-Gomez, Cristina 8080B ProgComm, [WS-04]S1, [WS-04]S1, [WS-27]SPS
Herrmann, Sven [8078-32]SPS
Herrwerth, O. [8078-27]SPS
Hertlein, Frank [8078-15]S4
Higashiguchi, Takeshi [8077-36]SPS
Hirano, Masahiro [8077-28]S8
Hitchcock, Adam P. [8077-24]S6
Hjörvarsson, Björgvin [8077-04]S2
Hlubina, Petr [8073B-106]S11
Hmima, Abdelhamid [8071-37]SPS
Höckel, David [8072A-16]S4
Hoek, Matthias [8075-30]S8
Hoekstra, Ronnie [8078-05]S1
Hoerlein, Rainer [8079A-09]S3
Hof, Martin 8073A ProgComm
Hoghoj, Peter [8076-13]S3
Höhm, Sandra [8077-08]S3
Holl, Peter [8078-08]S3, [8078-30]SPS, [8078-31]SPS, [8078-32]SPS
Holmberg, Anders P. [8077-11]S4
Holmstrom, Petter [8070-28]S7
Holybee, Brandon [8077-19]S5
Hömke, André [8078-08]S3
Homola, Jiri 8073 Chr, 8073A Chr, [8073A-19]S3, [8073A-79]SPS, [8073A-80]SPS
Hönel, Dennis [8074-17]S5
Hönig, Wolfgang [8080B-48]S14
Honrubia, J. J. [WS-13]S5, [WS-13]S5
Honzatko, Pavel [8071-36]SPS
Hooker, Simon M. 8079 Chr, 8079A S4 SessChr, 8079A Chr, [8079A-15]S4
Hoops, Geoffrey C. [8073A-22]S4
Hori, Toshihiko [8079A-10]S3, [8079B-46]S12, [8079B-57]SPS
Horiuchi, Shuma [8073A-56]SPS
Hörlein, Rainer [8079A-11]S3, [8079A-23]S6, [8079A-26]S6
Hornung, Marco [8080A-14]S5
Horstmann, Christian [8078-15]S4
Hosono, Hideo [8077-28]S8
Hrabovský, Miroslav SympChair, 8074 Chr
Hromčík, Martin [8073A-06]S1, [8076-11]S2
Huang, Chenkun [8079A-09]S3
Huang, Tsung-Yu [8070-18]S4
Hübner, Uwe [8070-24]S6
Hudec, Rene [8076-11]S2
Hudec, René 8076 ProgComm, 8076 Chr, [8076-03]S1, [8076-06]S2, [8076-08]S2, [8076-30]S
Hulin, Sébastien [WS-13]S5, [WS-13]S5, [WS-21]SPS, [WS-21]SPS
Hurta, Jan [8073A-69]SPS, [8073A-70]SPS
Hutchinson, Ian [8076-28]SPS
Huthmacher, Klaus [8077-43]SPS

I

Ichihashi, Yasuyuki [8074-05]S2
Ikonnikov, Anton A. [8071-19]S6
Inneman, Adolf J. [8076-03]S1, [8076-08]S2, [8076-11]S2, [8076-30]S
Inoue, Mitsuteru [8074-41]SPS
Inubushi, Yuichi [8078-02]S1
Iovu, Mihail S. [8071-21]S6

Irace, Andrea [8072A-08]S2
Irman, Arie [8075-28]S7, [8075-32]S8, [8080B-48]S14
Isaac, R. [8075-23]S6
Ishii, Norihiko [8074-18]S5
Ishikawa, Tetsuya [8077-68]S3, [8078-02]S1
Islam, M. R. [8075-23]S6
Islam, Mohammed R. [8075-30]S8, [8075-12]S3, [8075-25]S6, [8079A-02]S1, [8079A-08]S2, [8079A-20]S5
Israelashvili, Itamar [8072A-07]SPS
Issac, Riju [8075-15]S4, [8075-21]S5, [8075-22]S6, [8075-24]S6, [8075-30]S8, [8079A-02]S1, [8079A-08]S2
Isupova, Anastasiya [8072A-01]S1
Iwan, Bianca S. [8077-04]S2

J

Jabczynski, Jan K. [8080A-22]S7
Jacobo, Adrian [8080A-08]S3
Jancarek, Alexandr [8076-20]S5
Janot, Jean-Marc [8073A-33]S8
Jarocki, Roman [8077-18]S5
Jaroszynski, Dino A. 8075 Chr, 8075 S7 SessChr, 8075 S1 SessChr, [8075-12]S3, [8075-15]S4, [8075-16]S4, [8075-21]S5, [8075-22]S6, [8075-23]S6, [8075-24]S6, [8075-25]S6, [8075-30]S8, [8079A-02]S1, [8079A-08]S2, [8079A-20]S5
Javadi Dashcasan, Mohammad [8080A-23]S7, [8080A-24]S7
Jedrzejczyk, Daniel [8071-22]S6
Jedrzejewski, Kazimierz [8070-17]S4
Jelinek, Michal [8073A-34]S8, [8071-03]S1
Jeon, Sie-Wook [8073A-10]S2
Jeong, Young Uk [8075-33]S8, [8079A-29]S7
Jeschke, Harald O. [8077-26]S7
Jex, Igor [8072B-33]SPS
Jiang, Pisu [8072B-21]S5
Jiang, Weihua [8077-36]SPS
Jiang, Yuhai [8078-27]SPS, [8078-35]SPS
Jing, Feng [8080A-16]S6
Jirak, Stephan [8080A-04]S2
João, Celso P. [8080A-07]S2
Jochmann, Axel [8075-28]S7, [8075-32]S8, [8080B-48]S14
Jocou, Laurent [8071-07]S2
John, Joachim [8073A-01]S1
Johnson, I. [8073B-116]S13
Johnson, Nigel P. 8070 ProgComm, [8070-20]S5
Johnson, Randall P. [8079A-23]S6, [8079A-28]S7
Johnson, Randy [8079A-26]S6
Johnston, Nicholas S. [8073A-02]S1, [8073A-03]S1
Jonak-Auer, Ingrid [8073A-64]SPS
Jonak?, Alexandr [8073A-24]S5
Jonathan, Enock [8073A-28]S7
Jones, Bleddyn [8079B-55]S15
Jönson, Olof [8078-08]S3
Jorgensen, Matthew R. [8071-08]S2
Juckeland, Guido [8080B-48]S14
Juha, Libor 8077 Chr, 8077 S1 SessChr, [8077-04]S2, [8077-05]S2, [8077-07]S3, [8077-22]S6, [8077-32]S9, [8077-33]S9, [8077-42]SPS, [8077-44]SPS, [8077-46]SPS
Jules, Jean-Charles [8073B-101]S10, [8073B-102]S10
Jun, Zhang [8080A-16]S6
Jung, Daniel [8079A-09]S3, [8079A-11]S3
Jung, Daniel [8079A-23]S6
Jung, Daniel [8079A-26]S6
Jung, Daniel [8079A-28]S7
Jurbergs, David [8074-17]S5
Jurek, Marek [8077-05]S2, [8077-32]S9
Jurgilaitis, Andrius [8077-12]S4
Juschkin, Larissa [8076-19]S5, [8076-25]SPS

K

- Kaastra, Jelle S. [8076-09]S2
 Kacic, Alexandra [8077-19]S5
 Kadan, Viktor M. [8071-21]S6
 Kadulová, Miroslava [8073B-106]S11
 Kafesaki, Maria 8070 ProgComm
 Kaganovich, Dmitri [8079A-17]S4, [8079A-18]S5
 Kahle, Martin [8080A-02]S1, [8080A-07]S2, [8080A-12]S4
 Kaiser, Norbert [8077-34]S9
 Kajihara, Koichi [8077-28]S8
 Kalal, Milan [WS-08]S2, [WS-08]S2
 Kalaswan, Pruet [8072B-21]S5
 Kalinchenko, Galina A. [8079A-13]S3
 Kalli, Kyriacos 8073 Chr, 8073B S10 SessChr, 8073B Chr, [8073B-116]S13
 Kaluza, Malte C. [8079A-05]S2, [8079B-43]S10, [8079B-48]S12, [8080A-02]S1, [8080A-12]S4, [8080A-14]S5
 Kalvoda, Ladislav [8073A-58]SPS, [8073A-61]SPS
 Kalyoncu, Salih K. [8071-42]SPS
 Kamijo, Koji [8074-18]S5
 Kamp, Leon P. J. [8079A-21]S5, [8079A-34]S8
 Kamperidis, Christos [8075-20]S5, [WS-18]S6, [WS-18]S6
 Kanasaki, Masato [8079A-10]S3
 Kang, HanChul [8073A-78]SPS
Kanka, Jiri [8073A-63]SPS, 8073B ProgComm, 8073B S11 SessChr, [8073B-115]S13
 Kanno, Atsushi [8073B-114]S13
 Kanters, Joris H. M. [8079A-34]S8
 Kaplan, Alexander E. [8080B-60]S17
 Kapralov, Alexander A. [8073A-46]SPS, [8073A-49]SPS
Karachevtseva, Liudmyla A. [8071-02]S1
 Kardakova, Anna [8072A-01]S1
 Kargar, Zohreh [8073A-27]S5
 Karsch, Leonhard [8079B-41]S10, [8079B-43]S10
 Karsch, Stefan [8079A-03]S1, [8079A-06]S2, [8079A-15]S4, 8080A ProgComm, [8080B-45]S14
 Kasik, Ivan [8073A-44]SPS, [8073A-48]SPS
Kaskow, Mateusz [8080A-22]S7
 Kassemeyer, Stephan [8078-08]S3
 Katakura, Kiyoto [8074-39]SPS
 Katin, Eugeny [8080B-38]S12
 Kato, Makoto [8074-41]SPS
 Kaurova, Natalya [8072A-01]S1
 Kawaguchi, Tadahiko [8074-41]SPS
 Kawamoto, Ryusuke [8071-28]S9
 Kawanishi, Shunichi [8079A-10]S3
 Kawanishi, Tetsuya [8073B-114]S13
 Kawata, Shigeo [8079A-30]S7
 Kawata, Yoshimasa [8074-18]S5
 Kazak, Nikolai S. [8073A-84]SPS, [8073A-89]SPS
 Kazemian Abyaneh, Majid [8077-21]S6
 Kecskés, László [8072B-33]SPS
 Keitel, Barbara [8077-12]S4, [8078-19]S5
 Keitel, Christoph H. [8075-01]S1, [8075-07]S2, [8075-08]S2, [8080B-57]S15
 Kelez, Nicholas M. [8077-01]S1
 Kell, Gerald [8072A-06]S2
 Kelly, Damien P. [8074-44]S3
 Kemble, Camille K. [8076-14]S3
 Keppler, Sebastian [8080A-14]S5
 Keshavarz Akhlaghi, Mohsen [8072A-03]S1
Khazanov, Efim A. [8071-34]S10, [8080A-1]S4, [8080A-19]S6, [8080B-37]S12, [8080B-38]S12
 Khilo, Nikolai A. [8073A-47]SPS, [8073A-84]SPS
 Khilo, Piotr A. [8073A-84]SPS
 Khodabakhsh, Amir [8071-49]SPS
 Khoo, lam-Choon [8070-25]S6
 Khorsand, Ali R. [8077-05]S2
Khounsary, Ali M. 8076 ProgComm
 Khrennikov, Konstantin [8079A-03]S1, [8079A-06]S2, [8079A-15]S4
 Kibler, Bertrand [8071-17]S5, [8071-27]S8, [8071-30]S9, [8073B-101]S10, [8073B-102]S10, [8073B-108]S12
 Kiefer, Daniel [8079A-09]S3, [8079A-11]S3, [8079A-23]S6, [8079A-26]S6
Kieffer, Jean-Claude 8079B ProgComm, [8079B-50]S13
 Kienberger, Reinhard 8071 S6 SessChr, 8071 ProgComm, [8071-15]S5
 Kießling, Armin [8074-04]S2
 Kikuchi, Hiroshi [8074-18]S5
 Kilbane, Deirdre [8077-36]SPS
 Kim, Hyun Jin [8073A-78]SPS, [8073A-11]S2
 Kim, Kyung-Nam [8075-33]S8, [8079A-29]S7
 Kim, Youngbok [8073A-10]S2
 Kimmel, Mark W. [8080A-13]S5
 Kimmel, Nils J. [8078-08]S3, [8078-30]SPS, [8078-31]SPS, [8078-32]SPS
 Kimura, Hiroaki [8078-02]S1
 Kinoshita, Nobuhiro [8074-18]S5
 Kinoshita, Yuta [8073B-114]S13
 Kirchhoff, Johannes [8073B-100]S10, [8080A-03]S1
 Kirchner, Georg [8072A-12]S3
 Kirilovs, Georgs [8074-34]SPS
 Kiriya, Hiromitsu [8079A-10]S3
 Kirm, Marco 8077 S8 SessChr, [8077-31]S9, [8077-32]S9
 Kiskinova, Maya [8078-08]S3
 Kiss, Miklós [8071-39]SPS
 Kiss, Tamás [8072B-33]SPS
 Kitaev, Yuriy [8080B-38]S12
 Kivshar, Yuri S. 8070 ProgComm, [8070-06]S2, [8070-46]S2, 8071 S8 SessChr, 8071 ProgComm, [8071-23]S7
 Kiyan, Roman [8071-13]S4
 Kizhaev, Sergey [8073A-82]SPS
 Klapwijk, Teun [8072A-15]S4
 Klepáček, Rudolf [8073A-58]SPS, [8073A-61]SPS
Klimo, Ondrej [8079A-30]S7, [8079A-37]S9
 Kling, M. F. [8078-27]SPS
 Klinger, Dorota [8077-04]S2, [8077-05]S2, [8077-07]S3, [8078-13]S4
 Klueck, Evgeniy B. [8076-23]S5
 Kluge, Thomas [8079A-12]S3, [8079A-38]S9
 Kneip, Stefan [8075-26]S7
 Knight, Jonathan C. 8073B ProgComm
 Kobayashi, Mime [8070-10]S3
 Kobelke, Jens [8073B-100]S10, [8073B-107]S11
 Kocharyan, Vitali [8078-25]S7
 Kodet, Jan [8072A-09]S3, [8072A-10]S3, [8072A-11]S3
 Koenig, Michel [WS-13]S5, [WS-13]S5, [WS-21]SPS, [WS-21]SPS
 Koester, Petra [WS-13]S5, [WS-13]S5, [WS-16]S5, [WS-16]S5, [WS-19]SPS, [WS-19]SPS, [WS-20]SPS, [WS-20]SPS, [WS-21]SPS, [WS-21]SPS
 Koidl, Franz [8072A-12]S3
 Kokars, Valdis [8074-13]S4
Kolbjonoks, Vadims [8074-29]SPS
 Komarovskii, Ivan A. [8070-08]S2
 Kondo, Kiminori [8079A-10]S3, [8079B-46]S12, [8079B-57]SPS
Kong, Hong Jin [WS-08]S2, [WS-08]S2
 Konstantaki, Maria [8073B-113]S13
 Koo, Jae-Bon [8074-26]SPS
 Koo, Sangsool [8073A-91]SPS
 Kools, Jacques [8076-05]S1
 Kopecky, Milos 8074 ProgComm
Kopeika, Nathan [8073A-55]SPS
 Korent Urek, ?pela [8073A-29]S8, [8073A-32]S8, [8073A-35]SPS, [8073A-59]SPS, [8073A-71]SPS
 Korenyuk, Petro [8071-21]S6
 Koresheva, Elena R. [WS-08]S2, [WS-08]S2
 Korn, Georg 8080 Chr, 8080B Chr
 Korneev, Alexander [8072A-01]S1, [8072A-17]S4
 Korneeva, Yulia [8072A-01]S1, [8072A-17]S4
 Körner, Jörg [8080A-02]S1, [8080A-07]S2, [8080A-12]S4
 Korobeynikov, Igor V. [8070-08]S2
Korocinski, Jakub [8072B-34]SPS
 Ko?ak, Aljo?a [8073A-36]S7, [8073A-59]SPS, [8073A-60]SPS, [8073A-71]SPS
 Kostecki, Jerzy [8077-18]S5
 Kosterev, Anatoliy A. [8073A-41]S9
 Kostyukov, Igor [8075-03]S1
 Kotacka, Libor 8074 ProgComm, [8074-10]S3
Kotynski, Rafal [8070-36]S8
 Koudelka, Petr [8073A-13]S2, [8073A-52]SPS, [8073A-68]SPS, [8073A-69]SPS, [8073A-70]SPS, [8073A-72]SPS
 Kovac, Jaroslav [8070-43]SPS, [8070-44]SPS
 Kowarschik, Richard M. 8074 S3 SessChr, [8074-04]S2
 Kozhevato, Ilya E. [8074-23]S6
 Kozlova, Michaela [WS-13]S5, [WS-13]S5, [WS-16]S5, [WS-16]S5
 Kraft, S. D. [8079A-38]S9, [8075-32]S8, [8079A-12]S3, [8079B-41]S10, [8079B-43]S10
 Kraker, Elke [8073A-15]S3
 Krambrich, Dirk [8076-15]S3
 Krasniqi, Faton [8078-08]S3
 Krausz, Ferenc [8079A-03]S1, [8079A-05]S2, [8079A-06]S2, [8079A-15]S4
 Kravets, Yevgen [8075-12]S3, [8075-23]S6, [8079A-20]S5
 Krejci, F. [8077-22]S6
 Krenn, Joachim [8071-32]S9, [8073A-15]S3, [8073A-19]S3
 Kriese, Michael [8076-22]S5
 Krishna, M. Ghanashyam [8071-47]SPS
 Kroll, Franziska [8080A-03]S1, [8080A-20]S7, [8080A-21]S7
 Krüger, Jörg [8077-08]S3
 Krushelnick, Karl M. 8079A ProgComm, [8079A-13]S3
 Krzywinski, Jacek 8077 S7 SessChr, [8077-04]S2, [8077-05]S2, [8077-07]S3, [8077-32]S9, [8077-42]SPS, [8077-44]SPS, [8078-08]S3, [8078-12]S4, [8078-18]S5, 8077 ProgComm
 Kuba, Jaroslav [8077-22]S6
 Kube, Gero [8076-15]S3
 Kubecek, Vaclav [8073A-34]S8, [8071-03]S1, [8071-36]SPS
Kubicova, Ivana [8070-42]SPS, [8070-43]SPS, [8070-44]SPS
 Kuboyama, Hirotoshi [8074-41]SPS
 Kubsky, Stefan [8077-39]SPS
 Kucharski, Daniel [8072A-12]S3
 Kudo, Togo [8078-02]S1
 Kühlke, Dietrich [8073A-39]S9
 Kühnel, K. U. [8078-27]SPS
 Kuncová, Gabriela [8073A-51]SPS
 Kunttu, Henrik [8070-11]S3
 Kuntzsch, Michael [8075-32]S8
 Kurilkina, Svetlana N. [8073A-89]SPS
 Kurita, Taiichiro [8074-05]S2
 Kurka, M. [8078-27]SPS
 Kusko, Cristian [8074-02]S1
 Kuzmiak, Vladimir 8070 Chr, 8070 S1 SessChr, [8070-14]S8, [8070-15]S8
Kuzmin, Alexey A. [8080B-37]S12
 Kuznetsov, Alexey S. [8077-40]SPS
 Kuzyk, Anton [8070-11]S3
 Kvasnicka, Pavel [8073A-80]SPS
Kviesis-Kipge, Edgars [8073A-76]SPS
 Kwiatkowski, Jacek [8080A-22]S7
 Kwieciec, Pavel [8070-22]S5

L

La Rocca, Giuseppe C. [8071-06]S2
 Labanca, Ivan [8072A-13]S3
 Labate, Luca [WS-13]S5, [WS-13]S5, [WS-16]S5, [WS-16]S5, [WS-19]SPS, [WS-19]SPS, [WS-20]SPS, [WS-20]SPS, [WS-21]SPS, [WS-21]SPS
 Lahiri, Basudev [8070-20]S5
 Laing, Anthony [8072B-21]S5
Lalanne, Philippe 8070 S4 SessChr, [8070-05]S2
 Lambert, Guillaume [8075-29]S7
 Lamprecht, Bernd [8073A-15]S3
 Lancaster, Kate L. [8073-13]S5, [WS-13]S5, [WS-21]SPS, [WS-21]SPS
 Lancok, Jan [8077-46]SPS
 Landesman, Jean-Pierre [8080A-05]S2
 Landova, Martina [8076-30]S
 Lange, Volker [8073A-39]S9
 Larciprete, Maria Cristina C. [8071-11]S3
 Larger, Laurent [8071-03]S1, [8071-37]SPS
 Larruquert, Juan I. [8076-12]S3
 Laruelle, François J. [8080A-05]S2
 Laschinsky, Lydia [8079B-43]S10
 Last, Arndt [8076-17]S4
 Látal, Jan [8073A-13]S2, [8073A-52]SPS, [8073A-68]SPS, [8073A-69]SPS, [8073A-70]SPS, [8073A-72]SPS
 Latka, Ines [8073B-104]S11
 Laude, Vincent [8071-35]S10
 Lauritsen, Kristian [8071-22]S6
 Lauth, Werner [8076-15]S3
 Lavrinenko, Andrei V. 8070 S6 SessChr, [8070-06]S2, [8070-21]S5
 Lazar, Josef [8080A-18]S6
 Le Bouquin, Jean-Baptiste [8071-07]S2
 Le Garrec, Bruno 8080A ProgComm, EOO11WS S2 SessChr, WS CoChr, [WS-03]S1, [WS-03]S1
Leahy, Martin J. [8073A-28]S7
 Lechner, Peter H. [8078-29]S6
 LeClecH, Julien [8080A-05]S2
 Ledingham, Kenneth W. D. 8079 Chr, 8079B S13 SessChr, 8079B S10 SessChr, 8079B Chr
 Ledinsky, Martin [8077-22]S6
 Lee, Ho-Hyung [8075-33]S8
 Lee, Ji-Young [8075-33]S8, [8079A-29]S7
 Lee, Jongkil [8073A-78]SPS
 Lee, JuneHo [8073A-78]SPS
 Lee, Kitae [8075-33]S8, [8079A-29]S7
 Lee, Richard W. [8077-04]S2
 Leemans, Wim [8075-18]S5, 8079 Chr, 8079A S1 SessChr, 8079A Chr, [8079A-01]S1, [8079A-04]S1, [8079A-07]S2, [8079A-16]S4, [8079A-33]S8, [8079A-35]S8
 Lefebvre, Erik [8079A-14]S4
 Legkov, Maxim [8080B-53]S16
 Lehnert, Ulf [8075-32]S8
 Lemos, Nuno R. C. [8075-30]S8
 Lenski, Mathias [8080A-02]S1, [8080A-07]S2
 Leoni, Roberto [8072A-02]S1, [8072A-04]S1
 Leontowich, Adam F. G. [8077-24]S6
 Lessmann, Elisabeth [8079B-43]S10
 Letzring, Samuel A. [8079A-09]S3, [8079A-23]S6, [8079A-28]S7
 Leuchtmann, Pascal [8070-29]S7
 Levato, T. [WS-19]SPS, [WS-19]SPS, [WS-20]SPS, [WS-20]SPS
 Levin, Yeshayhu [8072A-07]SPS
 Lewicki, Rafal [8073A-38]S9
 Lezius, M. [8078-27]SPS
 Li, Chung Tien [8073A-20]S3
 Li, Mingzhong [8080A-16]S6
 Li, Rosamaria W. C. [8073A-67]SPS
 Li, Y. B. [WS-20]SPS, [WS-20]SPS
 Li, Yuelin [8077-13]S4
 Liang, Mengning [8078-08]S3, [8078-21]S6

Liang, Qiangbing [8072B-35]SPS
 Liao, Meisong [8073B-103]S10, [8073B-117]SPS
 Liao, Wen-Te [8075-07]S2
 Libura, Adam [8070-17]S4
Lieberman, Robert A. 8073 Chr, 8073A Chr
 Liebetrau, Hartmut [8080A-02]S1, [8080A-07]S2, [8080A-12]S4
 Liedberg, Bo 8073A ProgComm
 Light, Roger A. [8073A-02]S1, [8073A-03]S1
 Lim, Jaeku [8079A-14]S4
 Limpert, Jens [8080A-07]S2
Limpouch, Jiri [8079A-30]S7, [8079A-37]S9
 Lin, Chen [8075-18]S5, [8079A-01]S1, [8079A-07]S2, [8079A-16]S4
 Lin, Yuchi [8073A-88]SPS
 Lippens, Didier 8070 ProgComm
 Liseykina, Tatyana V. [8075-08]S2
 Litzkendorf, Doris [8073B-100]S10, [8080A-03]S1
 Liu, Jiansheng [8073A-87]SPS
 Liu, Lei [8073A-07]S1
 Liu, Shui [8074-15]S4
 Lobino, Mirko [8072B-21]S5
 Lobnik, Aleksandra 8073A ProgComm, [8073A-29]S8, [8073A-32]S8, [8073A-35]SPS, [8073A-36]S7, [8073A-59]SPS, [8073A-60]SPS, [8073A-71]SPS
 Locatelli, Massimiliano [8072B-25]S6
 Loch, Rolf A. [8077-07]S3, [8078-13]S4
 Lockard, Tom [8079A-38]S9
 Loeser, Markus [8080A-02]S1, [8080A-03]S1, [8080A-12]S4, [8080A-20]S7, [8080A-21]S7
 Lomb, Lukas [8078-08]S3
 London, Richard A. 8077 Chr, [8077-07]S3
 Lopatin, Alexey Y. [8076-23]S5
 Lopes, Nelson 8080B ProgComm, [8080B-39]S12
 Lorenc, Michal [8076-03]S1
 Louis, Eric 8077 S6 SessChr, [8077-07]S3, [8078-13]S4
 Lozhkarev, Vladimir [8080B-38]S12
 Lozovski, Valeri Z. [8070-45]SPS, [8073A-45]SPS
 Luchin, Valery I. [8076-23]S5
 Lucianetti, Antonio 8080A S2 SessChr, [8080A-29]S7, [WS-02]S1, [WS-02]S1, [WS-26]SPS
 Lucki, Michal [8073B-110]S12
 Luconi, Lapo [8073A-25]S5
 Ludvigsen, Hanne 8073B ProgComm
 Luiten, Jom [8079A-21]S5, [8079A-31]S7, [8079A-34]S8
 Luká?ová, Petra [8073A-61]SPS
 Lundh, Olle [8079A-14]S4, [8079B-52]S14
 Lushnikov, Dmitry S. [8074-19]S5, [8074-36]SPS, [8074-42]SPS
 Lutz, Gerhard [8078-29]S6
 Luzzi, Roberto [8077-10]S4
Lvovsky, Alexander I. 8072B ProgComm
 Lyagin, Ilya V. [8073A-36]S7
 Lynch, Susanna K. [8076-14]S3
 Lytvynenko, Oleg A. [8071-02]S1

M

Ma, Chang-Ming C. [8079B-44]S11, 8079B ProgComm
 Macchi, Andrea [8075-08]S2
 MacLeod, Allan [8079A-02]S1
 Madrigal, Roque Fernando [8074-12]S4, [8074-30]SPS, [8074-31]SPS, [8074-32]SPS, [8074-43]SPS
 Maeda, Koji [8077-20]S6
 Maeda, Takuya [8079B-46]S12, [8079B-57]SPS
 Magnani, Piergiorganni [8073A-05]S1
 Mahne, Nicola [8077-38]SPS
 Maia, Filipe R. [8078-08]S3
 Maier, Andreas [8079A-06]S2
 Majedi, A. Hamed [8072A-14]S4, [8072A-03]S1

Major, Zsuzsanna [8079A-03]S1
 Makara, Mariusz [8073B-105]S11
 Makimura, Tetsuya [8077-16]S5, [8077-41]SPS
 Makita, M. [WS-20]SPS, [WS-20]SPS
 Maksimchuk, Anatoly M. [8079A-13]S3
Malinowski, Pawel E. [8073A-01]S1
 Malka, Victor [8075-29]S7, 8079A ProgComm, [8079A-14]S4, 8079B ProgComm, [8079B-52]S14
 Malsch, Daniell [8073B-104]S11
 Malureanu, Radu I. [8070-21]S5
 Manahan, Grace [8075-23]S6, [8075-24]S6, [8075-30]S8, [8079A-02]S1, [8079A-08]S2
 Mandon, Céline [8073A-16]S3
 Maneuski, Dzmitry [8075-30]S8
 Mann, Klaus 8077 ProgComm, [8077-12]S4, 8078 ProgComm, 8078 S4 SessChr, [8078-19]S5
 Manor, Avi [8073A-55]SPS
 Manova, Nadezhda [8072A-01]S1
 March, Anne Marie [8077-13]S4
 Marchesini, Stefano [8078-08]S3
 Marciniak, Alexandre [8075-29]S7
 Maresca, Luca [8072A-08]S2
 Margarone, Daniele [WS-16]S5, [WS-16]S5
 Margulis, Walter [8073B-113]S13
 Maria, Jean-Luc [8076-10]S2
 Marinangeli, Lucia [8076-28]SPS
 Marioni, Fabio [8076-05]S1
 Mariscal, Jean Francois [8076-10]S2
 Markin, Vladimir V. [8074-19]S5, [8074-42]SPS
 Marklund, Mattias 8080B ProgComm, [8080B-51]S15
 Markos, Peter 8070 S8 SessChr, 8070 Chr
 Marocchino, A. [WS-12]S4, [WS-12]S4
 Marquette, Christophe A. [8073A-16]S3
Marquez, Andres [8074-40]SPS
 Marseglia, Luca [8072B-21]S5
 Marsik, Jiri [8076-08]S2, [8076-11]S2
 Marsikova, Veronika [8076-08]S2, [8076-11]S2, [8076-30]S
 Martan, Jiri [8077-14]S4
 Martan, Tomas [8073A-44]SPS, [8073A-48]SPS, [8073A-63]SPS, [8074-37]SPS
 Martella, Christian [8071-11]S3
 Marti, Michael [8079A-39]S9, [8080B-54]S16
 Martin, Andrew V. [8078-08]S3
 Martin, Guillermo [8071-07]S2
 Martincek, Ivan [8070-43]SPS, [8070-44]SPS
 Martinez, Alejandro [8071-35]S10
 Martins, Joana L. [8075-27]S7
 Martins, Joana L. [8080B-55]S16
 Martins, Samuel F. [8075-27]S7, [8079A-32]S8, [8080B-55]S16
 Martynov, Mikhail [8080B-38]S12
 Martynkien, Tadeusz [8073B-105]S11, [8073B-106]S11
 Martynov, Vladimir [8076-22]S5
Maryasov, Aleksey P. [8074-24]S6
 Maryasov, Nicolay P. [8074-24]S6
 Maryasov, Tatiana I. [8074-24]S6
 Maschenko, Alexander G. [8073A-47]SPS
 Mashaiekhly Asl, Iraj [8080A-25]SPS
 Mason, Paul D. [WS-04]S1, [WS-04]S1, [WS-27]SPS
 Mataloni, Paolo [8072B-26]S6
 Matejec, Vlastimil [8073A-34]S8, [8073A-44]SPS, [8073A-48]SPS, [8073A-63]SPS
Mathew, Jinesh [8073A-43]SPS
 Matlis, Nicholas H. [8075-18]S5, [8079A-07]S2, [8079A-16]S4
 Matsuoka, Takeshi [8079A-13]S3
 Matthews, Jonathan C. F. [8072B-21]S5
 Mattioli, Francesco [8072A-02]S1, [8072A-04]S1
 Matulewski, Jacek [8071-38]SPS
 Maurer, Irina A. [8074-28]SPS
 May, Josh [8079A-39]S9, [8080B-54]S16
 Mazor, Tzachi [8072A-07]SPS, [8073A-55]SPS
 McCanny, Tom [8075-22]S6, [8075-30]S8

McEntaffer, Randall L. [8076-26]SPS
 McGuffey, Chris [8079A-13]S3
 McKenna, Paul [8079 CoChr, 8079B S14
 SessChr, 8079B S11 SessChr, 8079B CoChr
 Meda, Alice [8071-29]S9
 Medvedev, Nikita A. [8077-27]S7, [8077-43]SPS
 Mehrling, T. [8079A-03]S1
 Meidinger, Norbert [8078-32]SPS
 Meinecke, Jasmin [8072B-21]S5
 Mendes, Sergio B. [8073A-22]S4
 Méndez, José A. [8076-12]S3
 Mensel, Karsten [8080A-04]S2
 Merdji, Hamed [8077-22]S6
 Mergo, Pawel [8073B-105]S11, [8073B-106]
 S11, [8073B-107]S11
 Mero, Mark [8071-39]SPS
 Mertens, Robert [8073A-01]S1
 Messaddeq, Younes [8073B-102]S10
 Messerschmidt, Marc [8077-05]S2, [8077-07]
 S3, [8078-08]S3
 Mettendorf, Kai Uwe [8076-17]S4
 Metzkes, Josefine [8079A-12]S3, [8079A-38]S9,
 [8079B-41]S10, [8079B-43]S10
 Mezentsev, Vladimir K. [8071-41]SPS
 Mezza, Davide [8078-29]S6
 Michalek, Vojtech [8072A-11]S3
 Michette, Alan G. 8076 ProgComm
 Midorikawa, Katsumi [8077-30]S9
Mihalescu, Mona [8074-02]S1
 Mihailova, Irena [8071-40]SPS
 Mika, Martin [8076-30]S
 Mikhailova, J. [8079A-05]S2
Miler, Miroslav 8074 Chr, [8074-37]SPS
 Miller, Casey [8080A-08]S3
 Millot, Guy [8071-17]S5, [8071-27]S8
 Mineo, Teresa [8076-09]S2
 Minoglou, Kyriaki [8073A-01]S1
 Minzioni, Paolo [8071-26]S8
 Miret, Juan J. [8070-39]SPS, [8070-41]SPS,
 [8070-34]S4
 Miridonov, Sergei V. [8073A-73]SPS
 Mishakova, Tetiana O. [8070-45]SPS, [8073A-
 45]SPS
 Missaglia, Nadia [8076-05]S1
 Mithen, J. [WS-20]SPS, [WS-20]SPS
 Mitsube, Ken [8074-14]S4
 Mittal, Rohan [8075-18]S5, [8079A-07]S2
 Mitus, Antoni C. [8070-25]S6
 Mivelle, Mathieu [8070-04]S1
Mizunami, Toru [8071-28]S9
 Mocek, Tomas [8080A-11]S4, 8077 ProgComm
 Moeller, Stefan P. [8077-05]S2, [8077-07]S3
 Moerland, Robert J. [8070-11]S3
 Mohr, Gerhard J. 8073A ProgComm
 Mohr, Jürgen [8076-17]S4
 Molchanov, Sergey [8073A-82]SPS
 Molchanov, Vladimir [8080B-38]S12
 Möller, Robert [8073B-104]S11
 Monaco, Gianni G. [8076-07]S2, [8077-15]S4,
 [8078-14]S4, [8078-34]SPS
 Monroe, Tanya M. [8073A-08]S2
 Montgomery, Rachel [8075-30]S8
 Morace, A. [WS-13]S5, [WS-13]S5
 Morawe, Christian [8077-23]S6
 More, Rene [8078-09]S3
 Morgan, Nicole Y. [8076-14]S3
 Mori, Warren [8079A-32]S8, [8079A-39]S9,
 [8080B-54]S16
 Moriyama, Kenta [8074-41]SPS
 Moshhammer, R. [8078-27]SPS, [8078-07]S2,
 [8078-35]SPS
 Mottay, Eric [8071-17]S5
 Moulin, Thibaut [8071-07]S2
 Mrazek, Jan [8073A-44]SPS, [8073A-48]SPS,
 [8073A-63]SPS
 Mugnuolo, Raffaele [8073A-05]S1
 Mukhin, Ivan B. [8071-34]S10, [8080A-10]S4,
 [8080A-19]S6
 Mukhurov, Nikolai I. [8073A-47]SPS

Müller, Carsten [8075-01]S1
 Murakami, Kouichi [8077-16]S5, [8077-41]SPS
 Murakami, Masao [8079B-57]SPS
 Murciano, Angel [8074-12]S4, [8074-30]SPS,
 [8074-31]SPS, [8074-43]SPS, [8079A-27]S7
 Murciano Cases, Angel [8074-32]SPS
 Muroi, Tetsuhiko [8074-18]S5
 Murphy, C. [WS-20]SPS, [WS-20]SPS
 Myoren, Hyroaki [8072A-18]S4

N

Nadgaran, Hamid [8073A-27]S5
 Nagasono, Mitsuru [8077-06]S3
 Nagel, Wolfgang [8080B-48]S14
 Nagirnyi, Vitali [8077-31]S9
 Nagler, Bob [8077-04]S2, [8077-05]S2
 Nahon, Laurent [8077-39]SPS
 Najmudin, Zulfikar 8079A ProgComm, [8079A-
 22]S6, [8079B-53]S14
 Nakajima, Akihito [8074-39]SPS
Nakamura, Daisuke [8077-16]S5, [8077-41]
 SPS
 Nakamura, Kei [8075-18]S5, [8079A-01]S1,
 [8079A-07]S2, [8079A-16]S4
 Nannarone, Stefano [8077-38]SPS
 Narayanaswamy, Ramaier 8073A ProgComm
 Narozhny, N. B. 8080B ProgComm, [8075-09]S3
 Nashchekin, Alexei V. [8073A-83]SPS
 Nasibov, Adalat [8073A-65]SPS, [8073A-66]SPS
 Nasibov, Humbat [8073A-65]SPS, [8073A-66]
 SPS
 Nass, Karol [8078-08]S3, [8078-21]S6
 Natura, Ute [8080A-01]S1
 Naumburger, Doreen [8079B-43]S10
 Naumenko, Gennady [8070-12]S3
 Naumova, Natalia [8080B-52]S16
 Nava, Giovanni [8071-26]S8
 Navratil, Petr [8071-36]SPS
 Nazari, Marziyeh [8080A-28]SPS
 Nazarov, Wigen [WS-13]S5, [WS-13]S5
 Nazmov, Vladimir P. [8076-17]S4
 Nedbal, Ladislav [8073A-24]S5
 Nedeljko, Polonca [8073A-60]SPS
 Neely, David 8080B ProgComm, [8080B-62]S18
 Neftalí, Jose [8074-12]S4
 Negoita, F. 8080B ProgComm, [8079B-49]S13,
 [8080B-31]S10
 Negri, Barbara [8076-05]S1
 Negri, Riccardo [8076-05]S1
 Nejdí, Jaroslav [WS-13]S5, [WS-13]S5, [WS-16]
 S5, [WS-16]S5, [WS-17]S5, [WS-17]S5
 Nekola, Josef [8073A-44]SPS
 Nelson, Art J. [8077-04]S2
 Nerush, Evgeny N. [8075-02]S1
 Nesterenko, Viatcheslav [8077-34]S9
 Nevedomskiy, Vladimir N. [8073A-83]SPS
 Nevrlka, Michal [8076-20]S5
 New, Geoffrey H. C. 8071 ProgComm
 Nickles, Peter V. [8079A-11]S3
 Nicolai, Maria [8079A-05]S2, [8079B-43]S10
 Nicolai, Philippe [WS-13]S5, [WS-13]S5, [WS-21]
 SPS, [WS-21]SPS
 Nicolas, Francois [8077-39]SPS
 Nicolet, André [8070-27]S6, [8071-33]S10
 Nicolosi, Piergiorgio [8076-07]S2, [8076-10]S2,
 [8077-15]S4, [8078-14]S4, [8078-34]SPS
 Nielsen, Kristian [8073B-116]S13
 Niino, Hiroyuki [8077-16]S5, [8077-41]SPS
 Nikolaev, Alex [8074-19]S5
 Nilsson, Daniel [8077-11]S4
 Nishiuchi, Mamiko [8079A-10]S3, [8079B-46]
 S12
 Nisoli, Mauro [8071-16]S5
 Noble, Adam [8075-12]S3, [8075-23]S6, [8079A-
 20]S5
 Nollot, Axelle [8071-07]S2
 Norreys, Peter A. [8075-14]S4, [8075-17]S4
 Notley, M. M. [WS-20]SPS, [WS-20]SPS

O

Notsu, Masakazu [8074-22]S6
 Novak, Jakob [8080A-11]S4
 Novak, Jan [8076-20]S5
 Novak, Jozef [8070-43]SPS, [8070-44]SPS
 Nováková, Eva [8077-33]S9
 Novo, Thierry [8080A-29]S7, [WS-02]S1, [WS-
 02]S1
 Nowak, Grzegorz [8070-17]S4
 Nüske, Ralf [8077-12]S4
 Nuzhdin, Vladimir [8071-13]S4

O' Gorman, Colm [8077-36]SPS
 O' Sullivan, Gerry [8077-36]SPS
 Oakley, Phil H. [8076-26]SPS
 Obaton, Anne-Francoise [8073A-21]S4
 Oberta, Peter [8078-04]S1
 O'Brien, Jeremy L. 8072B ProgComm, [8072B-
 21]S5
 Odic, Du?ko [8078-08]S3
 Odinkov, Sergey B. [8074-08]S3, [8074-19]S5,
 [8074-35]SPS, [8074-36]SPS, [8074-42]SPS
 Offermann, D. T. [8079A-38]S9
 Ogura, Koichi [8079A-10]S3, [8079B-46]S12
 Ogurcovs, Andrejs [8071-40]SPS
 Ohashi, Haruhiko [8077-06]S3, [8078-02]S1
 Ohishi, Yasutake [8073B-103]S10, [8073B-117]
 SPS
 Oi, Ryutarō [8074-05]S2
Okada, Tatsuo [8077-16]S5, [8077-41]SPS
Okazaki, Kota [8077-16]S5, [8077-41]SPS
 Okazaki, Kyouhei [8071-28]S9
 Oliva, Eduardo [8080B-43]S13
 Oliva, Piernicola [8079B-53]S14
 Olszewski, Jacek [8073B-105]S11
 Omigawa, Yu [8073B-114]S13
Önal Tayyar, Duygu [8074-07]S2
Ono, Yuzo [8074-22]S6
 Orabona, Emanuele [8073A-26]S5
 Orellana, Guillermo 8073A ProgComm
 Orlandi, Alessandro [8076-05]S1
 Orlovska, Madara [8073A-42]SPS
 Ormos, Pál [8071-39]SPS
Orquiza de Carvalho, Daniel [8073A-67]SPS
 Ortuño, Manuel [8073B-109]S12
 Osellame, Roberto [8072B-26]S6
 Osovizky, Alon [8072A-07]SPS, [8073A-55]SPS
 Osterhoff, Jens [8075-18]S5, [8079A-03]S1,
 [8079A-16]S4
Osterhoff, Markus [8077-23]S6
Osvay, Károly [8071-39]SPS
 Otsuka, Takamitsu [8077-36]SPS
Oulehla, Jindrich [8080A-18]S6
 Ovsyannikov, Sergey V. [8070-08]S2
Ozbay, Ekmel 8070 S2 SessChr, [8070-19]S5
Ozols, Andris [8074-13]S4

P

Padilla, Javier [8074-40]SPS
 Paeglis, Roberts [8073A-42]SPS
 Pagano, Sergio [8072A-02]S1, [8072A-04]S1
 Pagliarulo, Vito [8072A-18]S4
 Pagliusi, Pasquale [8074-21]S6
 Palaniyappan, Sasikumar [8079A-09]S3,
 [8079A-23]S6, [8079A-26]S6, [8079A-28]S7
 Palashov, Oleg V. [8071-34]S10, [8080A-10]S4,
 [8080A-19]S6
 Palfy, Adriana [8075-07]S2
 Palmer, Charlotte A. J. [8079A-22]S6
 Palsson, Gunnar K. [8077-04]S2
 Pamplona Rehder, Gustavo [8073A-67]SPS
 Pan, Jiangyou [8072B-37]SPS
 Panasenka, Dmitriy [8079A-01]S1
Pandey, Nitesh [8074-03]S1
 Panzeri, Francesco [8072A-05]S2
 Paolinetti, Riccardo [8073A-05]S1

Papadogiannis, Nektarios [8075-20]S5, [WS-18]S6, [WS-18]S6
 Papanikolaou, Nikos [8071-35]S10
 Pareschi, Giovanni 8076 ProgComm, [8076-05]S1
 Park, Chang-Soo [8073A-10]S2
 Park, Sangwoo [WS-08]S2, [WS-08]S2
 Park, Seong Hee [8075-33]S8, [8079A-29]S7
 Parlato, Loredana [8072A-18]S4
 Parmigiani, Fulvio [8078-17]S5
 Parshyn, Konstantin A. [8071-02]S1
 Paschke, Katrin [8071-22]S6
Pascual, Inmaculada [8074-40]SPS
 Pasley, J. [WS-13]S5, [WS-13]S5
 Pastor, David [8070-34]S4, [8070-39]SPS, [8070-41]SPS
 Pastrik, S. [8080A-07]S2
 Pathak, Vishwa B. [8075-34]S8, [8080B-46]S14
 Patria, A. [WS-16]S5, [WS-16]S5
 Pattathil, Rajeev P. [WS-20]SPS, [WS-20]SPS
 Patton, Brian R. [8072B-21]S5
 Pavlov, Alex Y. [8074-19]S5, [8074-36]SPS
 Pavlyuchenko, Ekaterina [8071-37]SPS
 Pawelke, Joerg [8079B-43]S10, [8079B-41]S10, [8079B-48]S12
 Pawlak, Dorota 8070 ProgComm
 Pawlik, Grzegorz [8070-25]S6
 Peach, Ken [8079B-56]S15
 Peca, Marek [8072A-11]S3
 Pedersen, Thomas [8073A-65]SPS, [8073A-66]SPS
 Pedersoli, Emanuele [8078-08]S3
 Peffen, Jean-Christophe [8077-23]S6
 Pegoraro, Francesco [8075-08]S2
 Pelizzo, Maria G. [8076-07]S2, [8077-15]S4, [8076-10]S2, [8078-14]S4, [8078-34]SPS
 Pellicciari, Carlo [8076-28]SPS
 Penco, Giuseppe [8078-01]S1
 Peng, Kunchi [8072B-35]SPS
 Pepe, Giovanni P. [8072A-18]S4
Perevezentsev, Evgeniy A. [8080A-10]S4
 Perez, Frederic [WS-21]SPS, [WS-21]SPS
 Pérez-Molina, Manuel [8073B-109]S12
 Perina, Jan SympChair, 8071 ProgComm
 Perina, Jan [8071-04]S2
 Perlado, Manolo EOO11WS S1 SessChr, [WS-06]S2, [WS-06]S2
 Pertsch, Thomas [8070-24]S6
 Peruzzo, Alberto [8072B-21]S5
 Pestov, Alexey E. [8076-21]S5, [8076-24]S5
 Peterka, Pavel [8071-36]SPS
 Petkovsek, Rok [8080A-17]S6
 Petri, Marcel [8078-09]S3
 Petrov, George M. [8079A-13]S3
 Petrova, Elena [8073A-84]SPS
 Petschulat, Jörg [8070-24]S6
 Pettersson, Mika [8070-11]S3
 Pfeifer, Thomas [8078-35]SPS
 Pfeiffer, Franz 8079B ProgComm
 Phillips, Jonathan [WS-27]SPS
 Phillips, Paul J. [WS-04]S1, [WS-04]S1
 Pickova, Veronika [8076-29]SPS
 Pikuz, Sergey A. [8079B-54]S14
 Pílát, Zdenek [8073A-24]S5
 Piliarik, Marek [8073A-19]S3
Pina, Ladislav 8076 ProgComm, 8076 Chr, [8076-03]S1, [8076-08]S2, [8076-11]S2, [8076-30]S, 8077 ProgComm
 Piñol, Diego [8074-40]SPS
 Pira, Peter [8077-46]SPS
 Piro, Luigi [8076-09]S2
 Pirozhkov, Alexander [8079A-10]S3
 Pisarkiewicz, Tadeusz [8073A-82]SPS
 Pissadakis, Stavros [8073B-113]S13
 Pitter, Mark [8073A-02]S1, [8073A-03]S1
 Plata Sanchez, Marcos [8071-46]SPS
 Platonenko, Viktor T. [8079A-22]S6
Platonov, Yuriy Y. 8076 ProgComm, [8076-21]S5, [8076-22]S5

Plocinski, Tomasz [8077-07]S3
 Plönjes, Elke [8078-19]S5
 Podrazky, Ondrej [8073A-44]SPS, [8073A-63]SPS
 Podsvirov, Oleg A. [8073A-83]SPS
 Pogorelsky, Igor V. 8079A S3 SessChr, [8079A-22]S6, [8079B-53]S14
 Pogurmiskiy, Maxim [8071-03]S1
 Pöhl, Karin [8080A-01]S1
 Pokorny, Pavel [8080A-18]S6
 Politi, Alberto 8072B S6 SessChr, [8072B-21]S5
 Polyakov, Alexandre V. [8073A-86]SPS
 Polyanskiy, Mikhail N. [8079A-22]S6, [8079B-53]S14
 Polycarpou, Constantina [8072B-25]S6
 Poole, Mike [8075-22]S6
 Popov, Yuriy [8070-12]S3, [8076-15]S3
 Popp, Antonia [8079A-03]S1, [8079A-06]S2, [8079A-15]S4
 Poppe, Andreas 8072B ProgComm
 Porro, Matteo [8078-23]S6
 Pospelov, Gennadiy I. [8071-19]S6
 Pospisilova, Marie [8073A-44]SPS, [8073A-48]SPS, [8073A-51]SPS
 Postava, Kamil [8070-14]S8
 Potylitsyn, Alexander [8070-12]S3, [8076-15]S3
 Poullos, Kostantinos [8072B-21]S5
 Pozdnyakov, Vadim V. [8074-35]SPS
 Preininger, Claudia 8073A ProgComm
 Principi, Emiliano [8077-03]S1
 Prochazka, Ivan 8072 Chr, 8072A Chr, [8072A-09]S3, [8072A-10]S3, [8072A-11]S3
 Proier, Pirmin [8071-32]S9
 Proska, Jan [8079A-30]S7
 Provenzano, Clementina [8074-21]S6
 Pryde, Geoff J. 8072B ProgComm
 Psarobas, Ioannis E. [8071-35]S10
 Pshenay-Severin, Ekaterina [8070-24]S6
Psikal, Jan [8079A-30]S7, [8079A-37]S9
 Pudis, Dusan [8070-42]SPS, [8070-43]SPS, [8070-44]SPS
 Pukhov, Alexander 8075 ProgComm, 8075 S6 SessChr, [8075-11]S3, 8080B ProgComm
 Pushkarsky, Vitaly [8072A-07]SPS, [8073A-55]SPS

Q

Qiao, Bin [8079A-25]S6
 Qin, Guanshi [8073B-103]S10
 Qiu, Min [8070-28]S7
 Quémerais, Enrique [8076-10]S2
 Quevedo, Wilson [8078-09]S3

R

Raczynski, Andrzej [8071-06]S2, [8071-20]S6
 Rafelski, Johann 8080B ProgComm
 Raguin, Ludmila [8070-29]S7
 Rahbar, Mitra [8071-43]SPS
Rahman, B. M. Azizur 8073B ProgComm
 Raimondi, Lorenzo [8076-05]S1
 Raineri, Fabrice 8071 ProgComm
 Raith, Sebastian [8079A-06]S2
 Raj, Gaurav [8075-12]S3, [8075-15]S4, [8075-16]S4, [8075-23]S6, [8079A-02]S1, [8079A-08]S2, [8079A-20]S5
 Rajabpour Niknam, Marzieh [8071-49]SPS
 Rajan, Ginu [8073A-43]SPS
 Rajeev, Pattathil P. [8075-30]S8
 Rajh, Eva [8073A-35]SPS, [8073A-59]SPS
 Rajkovic, Ivan [8078-09]S3
 Raju, K. C. James [8071-47]SPS
 Rambo, Patrick K. [8080A-13]S5
 Ramponi, Roberta [8072B-26]S6
 Ranson, Willy [8070-26]S6
 Rapaport, Ronen [8071-14]S4
 Rarity, John G. [8072B-21]S5

Rasmussen, Henrik K. [8073B-116]S13
 Re, Edoardo [8073A-05]S1
 Rea, Ilaria [8073A-26]S5
Rech, Ivan 8072A S2 SessChr, [8072A-05]S2, [8072A-13]S3
 Rechatin, Clement [8075-29]S7, [8079A-14]S4, [8079B-52]S14
 Regan, C. [WS-21]SPS, [WS-21]SPS
 Reich, Christian [8078-08]S3, [8078-30]SPS, [8078-31]SPS, [8078-32]SPS
 Reichelt, Almud [8080A-03]S1
 Reid, Paul B. 8076 ProgComm
 Reininghaus, Martin [8076-19]S5
 Reitsma, Albert [8075-22]S6
 Reitze, David [8071-34]S10
 Rendina, Ivo [8073A-26]S5
 Renversez, Gilles [8073B-101]S10, [8073B-102]S10
 Rethfeld, Baerbel [8077-27]S7, [8077-43]SPS
 Rhee, Yongjoo [WS-15]S5, [WS-15]S5
 Rhodes, Charles K. [8080A-08]S3
 Riah, Mohammadreza [8071-49]SPS
 Ribeyre, Xavier [WS-13]S5, [WS-13]S5
 Ricard-Blum, Sylvie [8073A-16]S3
 Riccio, Michele [8072A-08]S2
 Richetta, Maria [WS-13]S5, [WS-13]S5, [WS-21]SPS, [WS-21]SPS
 Richter, Christian [8079B-41]S10, [8079B-43]S10
 Richter, Ivan [8070-22]S5
 Ridky, Jan SympChair
 Riecke, Sina [8071-22]S6
 Riedel, Robert [8075-20]S5
 Rigneault, Hervé [8071-17]S5
 Riley, David [WS-20]SPS, [WS-20]SPS
 Ritucci, Antonio [8076-05]S1
 Robb, Gordon [8075-25]S6
 Robinson, Jeff C. [8077-01]S1
 Rocca, Jorge J. 8077 ProgComm, [8077-33]S9, [8077-46]SPS
 Rodas Verde, Maria [8072B-21]S5
 Rodrigues, Alberto [8073A-39]S9
Rodriguez, Jim [8076-22]S5
 Rodríguez-de Marcos, Luis [8076-12]S3
 Roeser, Fabian [8080A-20]S7, [8080A-21]S7
 Rogachev, Denis N. [8076-21]S5
 Rogers, Thomas [8076-26]SPS, [8076-27]SPS
 Rohloff, Marcus [8077-08]S3
 Rokusek, Daniel [8077-19]S5
 Rölle, Thomas [8074-17]S5
 Rolles, Daniel [8078-08]S3, [8078-20]S6, [8078-28]SPS, [8078-30]SPS, [8078-31]SPS, [8078-32]SPS
 Ropot, Piotr I. [8073A-47]SPS
 Roque, Madrigal [8079A-27]S7
 Ros, David R. [8080B-36]S12, [8080B-43]S13
 Rosenberger, Manuel [8073A-12]S2
 Rosenfeld, Arkadi [8077-08]S3
 Röser, Fabian [8080A-03]S1
 Rossbach, Jörg [8075-20]S5
 Roth, Markus 8079B ProgComm
 Rottwitz, Karsten 8073B ProgComm
 Rouanet, Nicolas [8076-10]S2
 Rousse, Antoine 8075 CoChr, [8075-29]S7
 Rovsky, Vladimir E. [8071-19]S6
 Rowen, Michael [8077-05]S2
Rubins, Uldis [8073A-76]SPS
 Rudek, Benedikt [8078-08]S3
 Rudenko, A. [8078-27]SPS, [8078-08]S3
 Ruhl, Hartmut [8080B-59]S17
 Rumiz, Luca [8078-17]S5, [8078-33]SPS
 Rus, Bedrich 8076 ProgComm, 8080A ProgComm, [8080A-11]S4, 8080B ProgComm, [8080B-34]S11, EOO11WS SKS SessChr, EOO11WS S SessChr, [WS-07]S2, [WS-07]S2, [WS-13]S5, [WS-13]S5
 Rutishauser, Simon [8078-12]S4, [8078-18]S5
 Rykovanov, Sergey G. [8079A-11]S3

S

- Sabaeian, Mohammad [8073A-27]S5
 Sabbaghzadeh, Jamshid [8080A-25]SPS
 Sabol, Dusan [8074-16]S4
 Sada, Cinzia [8071-26]S8
 Sagisaka, Akito [8079A-10]S3, [8079B-46]S12
 Sakaki, Hironao [8079A-10]S3, [8079B-46]S12, [8079B-57]SPS
 Salashchenko, Nikolay N. [8076-21]S5, [8076-23]S5, [8076-24]S5
 Saldin, Evgeni [8078-25]S7
 Saleh, Bahaa SympChair
 Salmaso, Bianca [8076-05]S1
 Salvatori, Stefano [8073A-81]SPS
 Salzenstein, Patrice [8071-03]S1, [8071-37]SPS
 Samek, Ota [8073A-24]S5
 Samoylova, Liubov [8078-12]S4, [8078-18]S5
 Sandner, Wolfgang SympChair, [8079A-11]S3, [8079A-26]S6, [8080B-49]S17
 Sandoghdar, Vahid [8071-18]S6
 Sansoni, Linda [8072B-26]S6
 Santos, Joao J. [WS-13]S5, [WS-13]S5, [WS-21]SPS, [WS-21]SPS
 Saraç, Zehra [8073A-54]SPS, [8074-07]S2
 Saravanamuttu, Kalaichelvi 8074 S4 SessChr, [8074-45]S6
 Saravanan, K. Venkata [8071-47]SPS
 Sato, Hidetoshi [8071-28]S9
 Sato, Takashiro [8078-02]S1
 Sauerbrey, Roland [8075-28]S7, [8075-32]S8, [8079A-38]S9, [8079B-41]S10, [8079B-43]S10, [8079B-48]S12
 Savellii, Inna [8073B-101]S10
 Sävvert, Alexander [8079A-05]S2, [8080A-14]S5
 Sawicka, Magdalena 8080A S3 SessChr, [8080A-11]S4
 Schäfer, Bernd [8078-19]S5
 Schiavi, A. [WS-12]S4, [WS-12]S4
 Schietinger, Stefan [8072A-16]S4
 Schiopu, Paul I. [8074-02]S1
 Schlegel, Theodor [8080B-61]S18
 Schleich, Wolfgang P. [8072B-27]S6
 Schleifer, Elad [8079B-54]S14
 Schlenvoigt, Hans-Peter [8079B-43]S10
 Schlichting, Ilme [8078-08]S3
 Schlotter, William F. [8077-05]S2
 Schmid, K. [8079A-05]S2
 Schmidt, Carlo [8078-08]S3
 Schmidt, Volker [8071-32]S9
 Schmitt, Felix [8080B-48]S14
 Schmitz, Holger [8071-41]SPS
Schnieper, Marc [8073A-40]S9
 Schnürer, Matthias [8079A-11]S3, [8079A-26]S6
 Schollmeier, Marius [8079A-38]S9, [8080A-13]S5
 Scholz, Mirko [8078-09]S3
 Schorb, Sebastian [8078-06]S2
 Schramm, Ulrich [8075-28]S7, [8075-32]S8, [8079A-12]S3, [8079A-38]S9, [8079B-41]S10, [8079B-43]S10, [8079B-48]S12, [8080A-03]S1, [8080A-20]S7, [8080A-21]S7, [8080B-48]S14
 Schreiber, Joerg [8079A-09]S3, [8079A-26]S6
 Schreiber, Jörg [8079A-11]S3
 Schreiber, Ulrich 8072A ProgComm, 8072A S3 SessChr
 Schröder, Kerstin [8073B-104]S11
 Schroeder, Carl [8075-18]S5, 8079A S5 SessChr, [8079A-01]S1, [8079A-04]S1, [8079A-07]S2, [8079A-16]S4, [8079A-33]S8, [8079A-35]S8
 Schröter, C. D. [8078-27]SPS
 Schultz, Joachim [8078-08]S3
 Schultz, Ted [8076-26]SPS
 Schulz, Michael [8075-20]S5
 Schürer, Michael [8079B-43]S10
 Schürmann, Mark [8077-34]S9
 Schürmann, Max C. [8077-34]S9
 Schurtz, G. [WS-09]S4, [WS-09]S4, [WS-13]S5, [WS-13]S5, [WS-14]S5, [WS-14]S5, [WS-16]S5, [WS-16]S5
 Schuster, Kay 8073B ProgComm, [8073B-100]S10, [8073B-104]S11, [8073B-107]S11
 Schwarz, Jens 8080A S7 SessChr, [8080A-13]S5
 Schwuchow, Anka [8073B-100]S10, [8073B-104]S11
 Sciarrino, Fabio 8072B ProgComm, [8072B-22]S5, [8072B-26]S6
 Sears, Christopher M. S. [8079A-05]S2
 Sebban, Stéphane [8075-29]S7, [8080B-43]S13
 Seibert, Marvin M. [8077-04]S2, [8078-08]S3, [8078-11]S4
 Seifert, Ruediger [8080A-07]S2
 Seleznev, Vitaliy [8072A-01]S1
 Semencova, Veronika [8076-03]S1
 Semenova, Yuliya [8073A-43]SPS, [8073A-62]SPS
 Semmar, Nadjib [8077-14]S4
 Semond, Fabrice [8073A-01]S1
 Senba, Yasunori [8077-06]S3
Senderáková, Dagmar 8074 ProgComm
 Senica, Heda [8073A-71]SPS
 Senoh, Takanori [8074-05]S2
 Sentoku, Y. [8079A-38]S9
 Sergeev, Alexander M. [8080B-41]S13
Ser?, Mojmir [8073A-24]S5
 Sevcu, Veronika [8073A-79]SPS
 Sgattoni, Andrea [WS-21]SPS, [WS-21]SPS
 Shadbolt, Pete [8072B-21]S5
 Shah, Rahul C. [8079A-09]S3, [8079A-23]S6, [8079A-26]S6, [8079A-28]S7
 Shahbazyan, Tigran V. [8070-03]S1
 Shakir, Sami A. [8080A-08]S3
 Shanks, Richard P. [8075-21]S5, [8075-22]S6, [8075-23]S6, [8075-30]S8, [8079A-02]S1, [8079A-08]S2
 Sharma, Gaurav [8070-11]S3
 Shaw, Brian [8075-18]S5, [8079A-07]S2
 Shaykin, Andrey A. [8080B-37]S12
 Shchennikov, Vladimir V. [8070-08]S2
 Shchennikov, Vsevolod V. [8070-08]S2
 Shea, Val O. [8075-30]S8
 Sheikhi, Samira [8073A-27]S5
 Shen, Baifei 8079A S7 SessChr, [8079A-36]S9
 Shen, Xiaoyan [8073A-88]SPS
 Sheng, Zheng-Ming 8079A ProgComm
 Shepherd, Ben [8075-22]S6
Sheridan, John T. 8074 ProgComm, 8074 Chr, 8074 S1 SessChr, [8074-15]S4, [8074-16]S4
 Shevelev, Mikhail [8070-12]S3
 Shiba, Kiyotaka [8070-10]S3
 Shields, Andrew J. 8072B ProgComm
 Shih, Yanhua [8072B-27]S6
 Shimada, Tsutomu [8079A-23]S6, [8079A-26]S6, [8079A-28]S7
 Shimomura, Takuya [8079A-10]S3
Shipley, Ann F. [8076-08]S2, [8076-26]SPS, [8076-27]SPS
 Shiraishi, Satomi [8075-18]S5, [8079A-01]S1, [8079A-07]S2, [8079A-16]S4
 Shiu, Min-Tzung [8074-38]SPS
 Shkolnikov, Peter [8079A-22]S6, [8079B-53]S14
 Shlyagin, Mikhail G. [8073A-73]SPS
 Shlyagina, Anna [8071-46]SPS
 Shmaenok, Leonid A. [8076-23]S5
 Shoeman, Robert L. [8078-08]S3
 Shohet, J. Leon [8077-29]S8
 Shpotyuk, Oleh I. [8071-21]S6
 Shu, Deming [8077-13]S4
 Shvyd'ko, Yuri [8077-13]S4
Sibilia, Concita 8070 ProgComm, [8071-10]S3, [8071-11]S3
 Sidorov, Alexander I. [8073A-83]SPS
 Sidorov, Nicolay V. [8074-20]S5, [8071-31]S9
 Siebold, Mathias 8080A ProgComm, 8080A S5 SessChr, 8080A S4 SessChr, [8080A-01]S1, [8080A-02]S1, [8080A-03]S1, [8080A-12]S4, [8080A-20]S7, [8080A-21]S7, [8075-28]S7
 Sierra, Raymond [8078-08]S3
 Siewert, Frank [8078-13]S4, [8078-15]S4
 Sik, Jan [8076-03]S1
 Silin, Dmitry E. [8074-23]S6
 Silva, Luis O. 8075 ProgComm, 8075 S4 SessChr, [8075-14]S4, [8075-17]S4, [8075-27]S7, [8075-30]S8
 Silva, Luis O. 8079A ProgComm, [8079A-39]S9, 8080 Chr, 8080B Chr, [8080B-46]S14, [8080B-54]S16, [8080B-55]S16, [8079A-32]S8
 Simon, Markus [8076-17]S4
 Singer, Waldemar [8077-04]S2
 Sinn, Harald [8077-11]S4, [8077-12]S4, [8078-12]S4, [8078-15]S5
 ?inor, Milan [8070-22]S5
 Sipova, Hana [8073A-19]S3
 Sironi, Giorgia [8076-05]S1
 Sirotti, Fausto [8077-39]SPS
 ?i?ka, Petr [8073A-13]S2, [8073A-68]SPS, [8073A-69]SPS, [8073A-70]SPS, [8073A-72]SPS
Sizov, Fedir F. [8071-02]S1
 Skapa, Jan [8073A-52]SPS, [8073A-68]SPS, [8073A-69]SPS, [8073A-70]SPS, [8073A-72]SPS
 Skorupski, Krzysztof [8073B-105]S11
 Skriniarova, Jaroslava [8070-42]SPS, [8070-43]SPS, [8070-44]SPS
 Skryabin, Dmitry V. 8073B ProgComm
 Skuja, Linards [8077-28]S8
 Skulinova, Michaela [8076-03]S1, [8076-30]S3
 Slabeyciusova, Sofia [8070-42]SPS
 Slabko, Vitaliy [8071-19]S6
 Sledevskis, Eriks [8071-40]SPS
 Slesinski, Robert [8070-17]S4
 Slezak, Ondrej [WS-08]S2, [WS-08]S2
Slowik, Karolina [8071-06]S2
 Slysz, Wojciech 8072A ProgComm, 8072A S4 SessChr, [8072A-20]SPS
 Smektala, Frédéric [8073B-101]S10, [8073B-102]S10
 Smirnov, Konstantin [8072A-01]S1
 Smith, Gary [8075-30]S8
 Smith, Ian C. [8080A-13]S5
 Smith, Richard J. [8073A-03]S1
 Smorenburg, Peter [8075-25]S6, [8079A-21]S5, [8079A-34]S8
Snetkov, Ilya L. [8080A-19]S6
 Snigirev, Anatoly A. 8076 ProgComm, [8076-16]S4, [8076-18]S4
 Snigireva, Irina I. [8076-18]S4
 Sobiella, Manfred [8079B-43]S10
 Sobierajski, Ryszard [8077-04]S2, [8077-07]S3, [8077-32]S9, [8077-42]SPS, [8078-13]S4
 Sobków, Zbigniew S. [8073A-82]SPS
 Sobolewski, Roman 8072 CoChr, 8072A S1 SessChr, 8072A CoChr, [8072A-18]S4
 Sokollik, Thomas [8075-18]S5, [8079A-01]S1, [8079A-07]S2, [8079A-11]S3, [8079A-16]S4, [8079A-26]S6
 Sokolov, Roman V. [8073A-83]SPS
 Solodovnikov, Nikolay [8080B-38]S12
 Soltani, Arman [8071-49]SPS
 Soltau, Heike [8078-08]S3, [8078-22]S6, [8078-32]SPS
 Somekh, Michael G. [8073A-03]S1, [8073A-02]S1
 Song, Minho [8073A-11]S2, [8073A-77]SPS, [8073A-78]SPS
 Sostero, Giovanni [8078-33]SPS
 Sotnikova, Galina Y. [8073A-46]SPS, [8073A-49]SPS, [8074-28]SPS
Sotobayashi, Hideyuki [8073B-114]S13
 Soufil, Regina 8077 S3 SessChr, [8077-01]S1

Soukoulis, Costas M. 8070 ProgComm
Spagnolo, Nicolò [8072B-22]S5
Spagnolo, Vincenzo [8073A-41]S9
Specka, Arnd [8075-29]S7
Spiga, Daniele [8076-05]S1, [8076-09]S2
Spigulis, Janis [8073A-76]SPS
Spindloe, Chris [WS-13]S5, [WS-13]S5, [WS-21]SPS, [WS-21]SPS
Spittel, Ron [8073B-100]S10
Spohr, Klaus 8079 CoChr, 8079B S12 SessChr, 8079B S15 SessChr, 8079B CoChr
Srivastava, Puneet [8073A-01]S1
Stäblein, Jörg [8080A-01]S1
Stadlober, Barbara [8071-32]S9
Stanley-Clarke, Antony [8071-46]S5
Starodub, Dmitri [8078-08]S3
Startsev, Sergey A. [WS-08]S2, [WS-08]S2
Statkiewicz-Barabach, Gabriela [8073B-105]S11
Stefanak, Martin [8072B-33]SPS
Stefani, Alessio [8073B-116]S13
Stefaniuk, Tomasz [8070-36]S8
Stefanou, Nikos [8071-35]S10
Steinke, Sven [8079A-11]S3, [8079A-26]S6
Stellato, Francesco [8078-08]S3
Stepanov, Anatoly V. [8070-40]SPS
Stepanov, Andrey L. [8071-13]S4
Stepanov, Serguei [8071-46]SPS
Sterner, Carola [8073B-113]S13
Stuedle, Gesine [8072A-16]S4
Stiens, Johan [8070-26]S6
Stockman, Mark I. 8071 ProgComm, 8071 S4 SessChr, [8071-09]S3
Stordeur, Adrien [8075-29]S7
Störmer, Michael 8077 ProgComm, [8077-05]S2, [8078-15]S4
Stoupin, Stanislav [8077-13]S4
Stoyanov, Nikolay [8073A-82]SPS
Stragier, X. F. D. [8079A-31]S7
Strelau, Katharina [8073B-104]S11
Strizik, Michal [8077-46]SPS
Stronska, Olena J. [8071-02]S1
Strüder, Lothar [8078-08]S3, [8078-31]SPS, [8078-32]SPS, [8078-22]S6, [8078-30]SPS
Stupakov, Gennady [8078-24]S7
Su, Jingqin [8080A-16]S6
Subiel, Anna [8075-23]S6, [8075-24]S6, [8079A-02]S1
Subranni, Roberto [8076-05]S1
Suchanov, Vladislav L. [8073A-49]SPS
Suchanska, Malgorzata [8070-47]SPS
Sukhikh, Leonid [8076-15]S3
Sukhorukov, Andrey A. [8070-06]S2
Suslik, Lubos [8070-42]SPS, [8070-43]SPS, [8070-44]SPS
Suzuki, Takenobu [8073B-103]S10, [8073B-117]SPS
Svanberg, Sune 8079B ProgComm
Sveda, Libor [8076-30]S
Svenda, Martin [8078-08]S3
Svetina, Cristian [8077-38]SPS, [8078-17]S5, [8078-33]SPS
Svozilik, Jiri [8072B-23]S5, [8071-04]S2
Swiggers, Michele L. [8077-05]S2
Symes, Dan [8075-30]S8
Szcurek, Anna [8077-18]S5
Szcurek, Miroslaw [8077-18]S5
Szoplik, Tomasz 8070 Chr, 8070 S7 SessChr, [8070-16]S8, [8070-17]S4, [8070-33]S4, [8070-35]S8

T

Ta Phuoc, Kim [8075-29]S7
Taccetti, Francesco [8078-29]S6
Tagliaferri, Gianpiero [8076-05]S1
Tajima, Toshi 8075 ProgComm, 8080B ProgComm
Tajima, Toshiaki 8075 S2 SessChr, [8075-05]S2, [8079A-09]S3

Tajima, Toshiaki [8079A-11]S3
Takacs, Peter Z. 8076 ProgComm
Takahashi, Akihiko [8077-16]S5, [8077-41]SPS
Takahashi, Eiji J. [8077-30]S9
Takahashi, Sunao [8078-02]S1
Takeda, Mitsuo 8074 ProgComm
Takenaka, Hisataka [8077-30]S9
Tamanis, Edmunds [8071-40]SPS
Tamburini, Matteo [8075-08]S2
Tamma, Vincenzo [8072B-27]S6
Tampo, Motonobu [8079A-10]S3
Tanaka, Kazuo [8079A-10]S3
Tanimoto, Tsuyoshi [8079A-10]S3
Tarkhov, Michael [8072A-01]S1
Tarnowski, Karol [8071-30]S9
Taskin, Halit [8073A-54]SPS
Tatarakis, Michael [8075-20]S5, [WS-18]S6, [WS-18]S6
Tavella, Franz [8075-20]S5
Taya, Sofyan A. [8073A-90]SPS
Techert, Simone [8078-09]S3
Teteris, Janis [8074-29]SPS
Teva, Jordi [8073A-64]SPS
Tewari, Surya Prakash [8071-47]SPS
Thami, Thierry [8073A-33]S8
Thaury, Cédric [8075-29]S7
Thomas, Alexander G. R. [8079A-13]S3
Thomasset, Muriel [8077-39]SPS
Thomazy, David [8073A-41]S9
Thompson, Mark G. [8072B-21]S5
Thylén, Lars H. [8070-28]S7
Tichy, Vladimir [8073A-06]S1, [8076-11]S2
Tiedtke, Kai [8077-05]S2, [8077-12]S4, [8077-32]S9, 8078 ProgComm, 8078 S5 SessChr, [8078-19]S5
Tien, En-Kuang [8071-42]SPS
Tikhonchuk, Vladimir 8079A ProgComm, [8080B-50]S15
Timneanu, Nicusor [8077-04]S2
Ting, Antonio C. 8079A ProgComm, [8079A-17]S4, [8079A-18]S5
Tittel, Frank K. [8073A-38]S9, [8073A-41]S9
Tkachenko, Boris [8077-34]S9
Toanca, Flori [8074-02]S1
Tobias, Herbert J. [8078-08]S3
Todorov, Filip [8073A-34]S8
Toffoli, Lorenzo [8072B-22]S5
Togashi, Tadashi [8077-06]S3, [8078-02]S1
Toleikis, Sven [8077-04]S2, [8077-05]S2
Tolley, Martin K. [WS-10]S4, [WS-10]S4, [WS-21]SPS, [WS-21]SPS
Toma, Andrea [8071-11]S3
Tománek, Pavel [8073A-31]S7
Tomita, Satoshi [8070-10]S3
Tomita, Yasuo [8074-14]S4
Tomizawa, Hiromitsu [8078-02]S1
Tomoe, Yusuke [8079B-57]SPS
Tonge, John [8079A-39]S9, [8080B-54]S16
Tono, Kensuke [8077-06]S3, [8078-02]S1
Töpfer, Thomas [8080A-01]S1, [8080A-04]S2
Toppari, Jussi [8070-11]S3
Torii, Shuichi [8077-16]S5, [8077-41]SPS
Törmä, Päivi [8070-11]S3
Toropov, Mikhail N. [8076-24]S5
Torres, Juan P. 8072B ProgComm, [8072B-23]S5
Toru, Taino [8072A-18]S4
Toth, Csaba [8075-18]S5, [8079A-01]S1
Toufarova, Martina [8077-44]SPS
Trapp, Antje [8077-12]S4
Travish, Gil [8079A-19]S5
Tretyakov, Sergei 8070 ProgComm
Treich, R. [8078-27]SPS
Trines, Raoul M. G. M. [8075-14]S4, [8075-17]S4
Trofimov, Vladislav V. [8071-05]S2
Trofimov, Vyacheslav A. [8071-05]S2
Troles, Johann [8073B-101]S10, [8073B-102]S10

Trono, Cosimo [8073A-09]S2, [8073A-25]S5
Trovo, Mauro [8078-01]S1
Trtilek, Martin [8073A-24]S5
Tsai, Ko-Fan [8080A-26]SPS
Tschentscher, Thomas [8077-04]S2, [8077-12]S4, 8078 Chr
Tsiganov, Ivan K. [8074-35]SPS
Tsybin, Nikolay N. [8076-23]S5
Tuan, Tonghoang [8073B-117]SPS
Tucker, Robin [8072B-24]S5
Tümmler, Johannes F. 8080A ProgComm
Tünnermann, Andreas [8070-24]S6, [8079B-48]S12
Turel, Matejka [8073A-32]S8, [8073A-35]SPS, [8073A-59]SPS, [8073A-71]SPS
Turner, Joshua J. [8077-05]S2
Turoverov, Konstantin K. [8073A-83]SPS
Twardowski, Patrice J. [8074-11]S3
Tyldesley, Mike [WS-03]S1, [WS-03]S1

U

Ueda, K. [8078-27]SPS
Uesaka, Mitsuru 8079A ProgComm
Ullrich, J. [8078-27]SPS, [8078-08]S3, [8078-22]S6, [8078-30]SPS, [8078-31]SPS, [8078-32]SPS, [8078-35]SPS
Ulmer, Melville P. 8076 ProgComm, [8076-04]S1
Umstadter, Donald P. [8080B-47]S14
Uraoka, Yukiharu [8070-10]S3
Urbanczyk, Wacław [8071-30]S9, 8073B ProgComm, [8073B-105]S11, [8073B-106]S11
Ursescu, Daniel [8080B-33]S11
Ushiyama, Zenta [8073A-56]SPS
Usov, Oleg A. [8073A-83]SPS

V

Vacek, Michael [8072A-10]S3, [8072A-11]S3
Vachtomin, Yury [8072A-01]S1
Vadimova, Olga [8080A-10]S4
Vainer, Yuliy A. [8076-21]S5
Vakevainen, Aaro [8070-11]S3
Vala, Milan [8073A-80]SPS
Valeev, Valery [8071-13]S4
Vallone, Giuseppe [8072B-26]S6
Valsecchi, Giuseppe [8076-05]S1
van Baren, Coen [8076-09]S2
van de Kruijs, Robbert W. E. [8077-40]SPS, [8078-13]S4
van der Drift, Don [8075-18]S5
van der Geer, Bas [8075-22]S6, [8079A-31]S7
van der Wiel, Marnix J. [8079A-31]S7
van Hattum, Eddie [8077-07]S3
Van Hoof, Chris [8073A-01]S1
van Tilborg, J. [8078-27]SPS, [8075-18]S5, [8079A-01]S1, [8079A-07]S2, [8079A-16]S4
Vanwolleghe, Mathias [8070-14]S8, [8070-15]S8
Varisco, Salvatore [8076-11]S2
Vasconcellos, Aurea R. [8077-10]S4
Va?inek, Vladimir [8073A-13]S2, [8073A-52]SPS, [8073A-68]SPS, [8073A-69]SPS, [8073A-70]SPS, [8073A-72]SPS
Vauzour, Benjamin [WS-21]SPS, [WS-21]SPS
Veis, Martin [8070-07]S2
Veisz, Laszlo [8079A-05]S2
Velarde, Pedro [8080B-43]S13
Venediktov, Vladimir Y. 8074 ProgComm
Venugopal Rao, Soma [8071-44]SPS, [8071-47]SPS
Vernani, Dervis [8076-05]S1
Vidal-Dasilva, Manuela [8076-12]S3
Vieira, Jorge M. [8075-27]S7, [8079A-32]S8, [8080B-46]S14
Vielhauer, Sebastian [8077-31]S9

Vieux, Gregory [8075-15]S4, [8075-23]S6, [8075-30]S8, [8079A-08]S2
 Vincent, Benedicte [8080A-29]S7
 Vinko, Sam M. [8077-04]S2
 Vit, Létal [8077-42]SPS
Vitasek, Jan [8073A-13]S2, [8073A-52]SPS, [8073A-68]SPS, [8073A-69]SPS, [8073A-70]SPS, [8073A-72]SPS
 Vitelli, Chiara [8072B-22]S5
 Vízdal, Petr [8074-10]S3
 Vo-Dinh, Tuan [8073A-23]S5
 Vogt, Harald [8076-17]S4
 Vogt, Ulrich [8077-11]S4
 Volodin, Boris A. [8076-23]S5
 Volpe, L. [WS-13]S5, [WS-13]S5
 Volpe, Luca [WS-21]SPS, [WS-21]SPS
 von der Gönna, Gordon [8080A-01]S1
 Voronov, Boris [8072A-01]S1
 Vorontsov, Grigory V. [8070-08]S2
 Vounckx, Roger [8070-26]S6
 Vranic, Marija [8080B-55]S16
 Vrbová, Hana [8073A-51]SPS
 Vukicevic, Dalibor [8074-11]S3
Vyatkin, Anton G. [8080A-10]S4
 Vyhliadal, David [8072A-19]SPS
 Vysin, Ludek [8077-05]S2, [8077-33]S9, [8077-42]SPS
 Vyunishev, Andrey M. [8071-19]S6

W

Wabnitz, Hubertus [8077-05]S2
 Wabnitz, Stefano [8071-42]SPS
 Wachulak, Przemyslaw W. 8074 ProgComm, [8077-18]S5
 Wahlström, Claes-Goran 8079A ProgComm
 Walasik, Wiktor [8070-25]S6
 Walko, Donald [8077-13]S4
 Walton, Timothy [8072B-24]S5
 Wandt, Christoph 8080A S6 SessChr, [8080A-06]S2
Wang, Dayong [8080A-09]S3
 Wang, Guanjun [8073A-87]SPS
 Wang, Junmin [8072B-35]SPS
Wang, Pengfei [8073A-62]SPS
 Wang, Xin [8073A-07]S1
 Wawro, Andrzej [8077-07]S3, [8078-13]S4
 Webb, David J. 8073B ProgComm, 8073B S12 SessChr, [8073B-116]S13
 Weber, Karina [8073B-104]S11
 Wegener, Martin 8070 ProgComm
 Weidenspointner, Georg [8078-08]S3, [8078-30]SPS, [8078-31]SPS, [8078-32]SPS
 Weingartner, Raphael [8079A-03]S1, [8079A-06]S2, [8079A-15]S4
 Weinstein, Yaakov S. [8072B-28]S6
 Weiser, Marc-Stephan [8074-17]S5
 Weisleder, Andreas [8080A-01]S1
 Wejrzanowski, Tomasz [8070-17]S4
 Welsh, Gregor [8075-15]S4, [8075-21]S5, [8075-22]S6, [8075-23]S6, [8075-24]S6, [8075-30]S8, [8079A-02]S1, [8079A-08]S2
 Wen, Haidan [8077-13]S4
 Wen, Harold H. [8076-14]S3
 Wenz, Johannes [8079A-03]S1, [8079A-06]S2, [8079A-15]S4
 Wernicke, Günther K. G. 8074 ProgComm
 Westphal, Daniel [8078-08]S3
 Wetzel, Benjamin [8073B-108]S12
 White, John [8077-36]SPS
 White, Thomas A. [8078-08]S3
 Widera, René [8080B-48]S14
 Wiederkehr, Rodrigo S. [8073A-22]S4

Wiggins, Mark 8075 ProgComm, [8075-15]S4, [8079A-02]S1, [8079A-08]S2, 8075 S8 SessChr, [8075-22]S6, [8075-23]S6, [8075-24]S6, [8075-21]S5, [8075-30]S8
 Wild, Jan [8077-46]SPS
 Williams, Garth [8078-08]S3, [8078-11]S4
 Willingale, Louise [8079A-13]S3
 Willner, Arik [8075-20]S5
 Willner, Itamar MeetingVIP
 Willsch, Reinhardt 8073A ProgComm, [8073A-18]S3
 Wilson, Puretherampil [8079B-55]S15
 Windt, David L. D. 8076 ProgComm, [8076-07]S2, [8077-15]S4
 Witteveen, Maaike [8072A-15]S4
 Woithe, Julia [8079B-43]S10
 Wolff, Elmar K. [8071-39]SPS
 Wolff, Marcus [8073A-37]S8
 Woolsey, N. C. [WS-20]SPS, [WS-20]SPS
 Wortmann, Dirk [8076-19]S5
 Wróbel, Piotr [8070-16]S8, [8070-17]S4, [8070-33]S4, [8070-35]S8
 Wu, Dengsheng [8080A-16]S6
 Wu, Hui-chun [8079A-09]S3, [8079A-28]S7
 Wu, Qiang [8073A-62]SPS
 Wulff, Michael [8077-12]S4

Y

Yabashi, Makina [8077-06]S3, 8078 S6 SessChr, 8078 ProgComm, [8078-02]S1
 Yakimenko, Vitaly [8079A-22]S6, [8079B-53]S14
 Yakovlev, Ivan V. [8071-34]S10, [8080B-38]S12
 Yakovlev, Vladislav [8075-20]S5
 Yamada, Takefumi [8074-39]SPS
 Yamaguchi, Kenzo [8074-41]SPS
 Yamamoto, Kenji [8074-05]S2
Yamamoto, Manabu [8073A-56]SPS, [8074-39]SPS
 Yamamoto, Naokatsu [8073B-114]S13
 Yamashita, Ichiro [8070-10]S3
Yamauchi, Kazuto [8078-10]S4
 Yan, Wenbo [8071-26]S8
 Yan, Xin [8073B-103]S10, [8073B-117]SPS
 Yan, Xueqing [8079A-11]S3
 Yan, Xueqing [8079A-26]S6
 Yang, Baodong [8072B-35]SPS
 Yang, Dengcai [8080A-09]S3
 Yang, Fan [8077-12]S4
Yang, Li [8072B-37]SPS
 Yang, Xue [8075-15]S4, [8075-23]S6, [8075-30]S8
 Yang, Yi [8073A-87]SPS
 Yang, Yong Suk [8074-26]SPS
 Yanichev, Alexander [8071-31]S9, [8074-20]S5
 Yanovsky, Victor P. [8079A-13]S3
 Yao-Leclerc, Isabelle [8077-39]SPS
 Yasui, Satoru [8074-14]S4
Yatagai, Toyohiko [8077-36]SPS
Yen, Ta Jen [8073A-20]S3, [8070-18]S4, [8070-30]S7
 Yeshchenko, Oleg [8070-37]SPS
 Yeung, Mark [8075-20]S5
 Yildirim, Yilmaz [8073A-54]SPS
 Yin, Lin [8079A-09]S3, [8079A-23]S6, [8079A-28]S7
 Yogo, Akifumi [8079A-10]S3, 8079B ProgComm, [8079B-46]S12, [8079B-57]SPS
Yoshida, Shuhei [8073A-56]SPS, [8074-39]SPS
 You, In-Kyu [8074-26]SPS
Yu, Qiuming [8073A-14]S3
 Yuan, Jun [8070-28]S7
 Yuan, Wu [8073B-116]S13
 Yugami, Noboru [8077-36]SPS
 Yulin, Sergiy A. [8077-34]S9

Z

Zabierowski, Pawel [8077-07]S3
 Zaitsev, Aleksandre I. [8071-19]S8
 Zalkovskij, Maksim [8070-21]S5
 Zaltron, Anna Maria [8071-26]S8
 Zamfir, Nicolae-Victor 8075 ProgComm, [8079B-49]S13, [8080B-31]S10
 Zangrando, Marco [8078-17]S5
 Zapata-Rodriguez, Carlos J. [8070-34]S4, [8070-39]SPS, [8070-41]SPS
 Zaremba, Jaroslaw [8071-06]S2, [8071-20]S6
 Zarins, Elmars [8074-13]S4
 Zarubin, Mikhail [8071-37]SPS
 Zavatta, Alessandro [8072B-25]S6
Zayats, Anatoly V. [8070-32]S4, 8071 S3 SessChr, [8071-12]S4
Zeiger, Ben [8076-08]S2, [8076-26]SPS, [8076-27]SPS
 Zeil, Karl [8079A-12]S3, [8079A-38]S9, [8079B-41]S10, [8079B-43]S10
 Zeitoun, Philippe 8077 ProgComm, 8078 ProgComm, 8078 S7 SessChr, [8080B-43]S13
 Zelenogorsky, Victor V. [8071-34]S10
 Zelinger, Zdenek [8077-46]SPS
 Zemánek, Pavel [8073A-24]S5
 Zenzian, Waldemar [8080A-22]S7
 Zepf, Matthew 8075 ProgComm, [8075-20]S5, 8079A ProgComm, [8079A-25]S6, 8080B ProgComm
Zghal, Mourad [8073B-112]S12
 Zhang, Ce [8070-20]S5
 Zhang, Jing [8073A-02]S1
 Zhang, Tiancai [8072B-35]SPS
 Zhang, Wenyi [8073A-37]S8
 Zhang, William W. 8076 ProgComm, [8076-01]S1
 Zhang, Xiaofei [8080A-09]S3
 Zhang, Xiongjun [8080A-16]S6
 Zheltikov, Alexei M. 8071 CoChr, 8073B ProgComm
 Zheludev, Nikolay I. 8070 ProgComm
 Zheng, Jiangang [8080A-16]S6, [8080A-27]SPS
 Zheng, Kuixing [8080A-16]S6
 Zhokhova, Anastasiya A. [8071-19]S6
 Zhou, Xiao-Qi [8072B-21]S5
 Ziaja-Motyka, Beata 8077 ProgComm, [8077-25]S7
 Zielinska-Kaniasty, Sylwia [8071-06]S2, [8071-20]S6
 Zigler, Arie [8079B-54]S14
 Zijlstra, Tony [8072A-15]S4
 Ziolkowski, Richard W. 8070 ProgComm
 Zolla, Frederic [8070-27]S6, [8071-33]S10
 Zorina, Maria V. [8076-21]S5
 Zuppella, Paola [8076-07]S2, [8076-10]S2, [8077-15]S4, [8078-14]S4, [8078-34]SPS

Registration

Full symposium registration includes: Admittance to all conferences, all plenary sessions, exhibition, welcome reception, poster receptions, coffee breaks, and Proceedings of SPIE as applicable under the specific registration plan (see registration form for details).

Proceedings of SPIE and CD-ROMs purchased as part of your registration plan include shipping charges. Student author registration plans do not include Proceedings of SPIE.

Registration Hours

Congress Hall Foyer A – 1st Floor

Sunday 17 April	15.00 – 18.00 hrs.
Monday 18 April	07.30 – 18.30 hrs.
Tuesday 19 April	08.00 – 17.00 hrs.
Wednesday 20 April	08.00 – 17.00 hrs.
Thursday 21 April	08.00 – 16.00 hrs.

Exhibition Hours

Congress Hall Foyer B – 1st Floor

Tuesday 19 April	10.00 – 17.00 hrs.
Wednesday 22 April	10.00 – 16.00 hrs.

Onsite Services

Cashier Services

The Conference Partner cashier can assist with registration payments, receipts, and badge corrections.

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Messages for attendees can be left by calling the Prague Congress Centre and asking for the Conference Partners CZ – Conference and Registration Desk. Messages will be taken during registration hours Monday – Thursday. It is the attendee's responsibility to check the message boards on a daily basis.

Speaker Services

Speaker Check In Desk

All conference rooms will have a computer workstation, LCD projector, screen, lapel microphone, and laser pointer. All presenters are requested to use the rooms of their conference in the breaks or in the mornings to test their presentation.

Interactive Poster Sessions Setup Instructions

Conference Area Hallway

Monday 18 April 16.15 to 17.30
Poster presenters may post their poster papers starting at 16.15 hrs on Monday in the Conference Area Hallway. Any papers left on the boards following the end time of the poster session will be considered unwanted and will be discarded. SPIE assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 16.15 to 17.30 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

Wednesday 20 April 17.40 – 19.15
Poster presenters may post their poster papers starting at 10.00 hrs on Wednesday in the Conference Area Hallway. Any papers left on the boards following the end time of the poster session will be considered unwanted and will be discarded. SPIE assumes no responsibility for posters left up after the end of the poster session. Poster authors should be at their papers from 17.45 to 19.15 hrs to answer questions from attendees. Attendees are requested to wear their conference registration badges to the poster sessions.

Internet Access / WiFi

Internet Access via WiFi will be available; speeds may vary depending on the number of users.

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A cloakroom is located near the Forum Hall Foyer 1 on the first floor of the Congress Centre. Opening times are from Monday to Friday from 8.00 to 17.00 hrs.

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The SPIE Marketplace is your source for the latest SPIE Press books, Proceedings, and Education and Professional Development materials. A display will be available for you to browse in the exhibition area.

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SPIE Career Center, was developed to serve the career needs of optics and photonics professionals. Whether you are actively seeking a new position or just want to keep track of the scientific job market, you can search by region, technology, and keywords, set up email alerts or RSS feeds, and research companies of interest.

General Information

Catering

Coffee Breaks

Exhibition Hall Foyer B, 1st Floor

Coffee will be served during the appropriate breaks. For exact times and location please check the programme of your conference.

Welcome Reception

Tuesday 19 April 18.30 – 20.30 hrs

All registered attendees are invited to relax, socialize and enjoy light refreshments. Please remember to wear your conference registration badge. Dress is casual.

Policies

Audio/Video/Digital Recording Policy

Because of copyright restrictions, video or digital recording of any conference session or poster is strictly prohibited without written prior consent from each specific presenter to be recorded. Individuals not complying with this policy will be asked to leave a given session and to surrender their film or disc. It is the responsibility of the presenter to notify SPIE if consent is given.

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SPIE uses tested and safety-approved laser pointers for all conference and course rooms. For safety reasons, SPIE requests that presenters use our provided laser pointers. Use of a personal laser pointer at an SPIE event represents user's acceptance of liability for use of a non-SPIE Europe-supplied laser pointer device. Misuse of any laser pointer could lead to eye damage.

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Personal belongings such as briefcases, backpacks, coats, book bags, etc., should not be left unattended in meeting rooms or public areas. These items will be subject to removal by security upon discovery.

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Prague has a network of public transport routes including bus, tram and metro links.

http://www.pragueexperience.com/travel_flights/public_transportation.asp

By Bus

The majority of travel links in the city terminate at the Florenc station, which is about 10 minutes away by metro. Get off at the Vysehrad stop. (It is the fourth stop from Florenc). The Congress Centre is located right next to the stop.

By Train

Having once arrived at the Prague Main Station (Hlavni Nadrazi), take metro from the Hlavni Nadrazi stop running in the direction of Haje. Get off at the Vysehrad stop (it is the third stop from Hlavni Nadrazi). The Congress Centre is located right next to the stop. <http://jizdnirady.idnes.cz/vlaky/spojeni>

Public Transport to and from the airport

Shuttle bus links the airport and the end station of the A metro line named Dejvicka. It runs every 30 minutes. From Dejvicka take the Skalka-bound service to the Muzeum stop, there change to line C, running in the direction of Haje. Get off at the Vysehrad metro stop (it is the second stop after Muzeum).

The Congress Centre is located right next to the metro stop. A combined bus-metro service will take you to the Congress Centre from the airport in about 45 minutes.

Parking

The venue has car parking facilities. Please follow the link <http://www.kcp.cz/an/parking> for directions and more details.

Prague Congress Centre Maps
pp. 2–3

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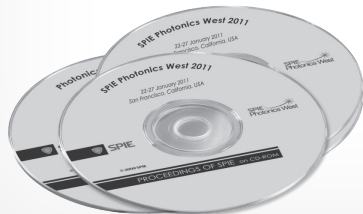
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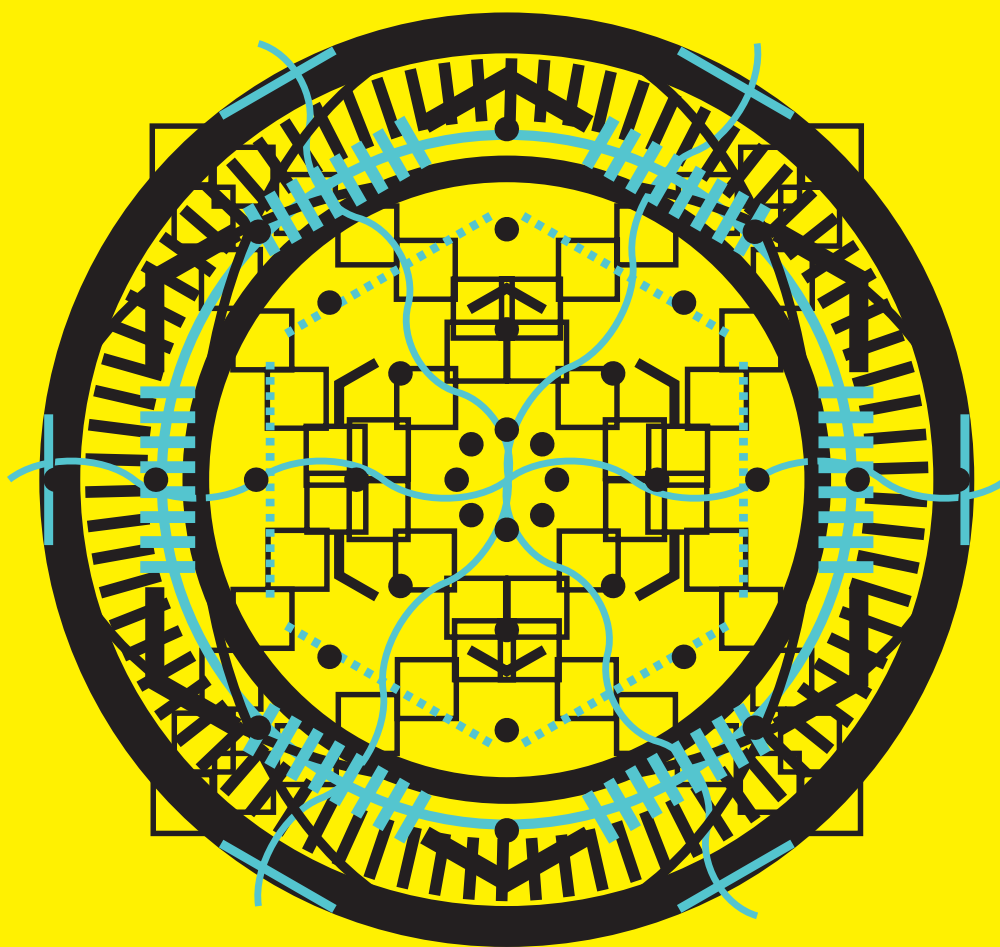
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