Curriculum Vitae

Part I: General Information

Date prepared	April 15, 2014
Name	Philipp Thurner, Dipl.-Ing., Dr. sc. nat., Univ.-Prof.
Address	Institute for Lightweight Design and Structural Biomechanics Vienna University of Technology Gusshausstrasse 27-29 A-1040 Vienna, Austria Tel: +43-1-5880131723
Residence	Schwarzwaldgasse 30-32/4 A-1230 Vienna, Austria
E-Mail/WWW	philipp.thurner@tuwien.ac.at / http://www.ilsb.tuwien.ac.at/~pthurner/pthurnere.html
ResearcherID	A-3887-2012
Mobile Phone	+43-664-60588-3174
Place of Birth	Innsbruck, Austria

Academic Career

2013 – ongoing	Professor	of Biomechanics, Institute for Lightweight Design and Structural Biomechanics, Faculty of Mechanical Engineering, University of Technology, Vienna, Austria
2012 – ongoing	Professor	of Biomedical Engineering, Bioengineering Science Research Group, Faculty of Engineering and the Environment, University of Southampton, UK.
2009 – 2013	Deputy Director	Multidisciplinary, Multiscale, Micro-tomographic Volume Imaging at Southampton (µ-VIS) Centre, School of Engineering Sciences, University of Southampton, UK.
02/2012 – 11/2012	Reader (Assoc.Prof.)	of Mechanobiology, Bioengineering Science Research Group, Faculty of

		Engineering and the Environment, University of Southampton, UK.
2007 – 2012	Lecturer (Tenured Ass.Prof.)	in Mechanobiology, Bioengineering Science Research Group, School of Engineering Sciences, University of Southampton, UK.
2007 Feb. – Aug.	Associate Specialist	Alliston Lab, Department of Orthopaedic Surgery, University of California San Francisco (UCSF), San Francisco, CA, USA.
2004 – 2007	Postdoctoral Fellow	Hansma Lab, Physics Department, University of California Santa Barbara (UCSB), Santa Barbara, CA, USA.
2000 – 2004	Dr. sc. nat. (PhD)	Institute for Biomedical Engineering, Materials Science Department, Swiss Federal Institute of Technology (ETH) and University Zurich, Zurich, Switzerland in collaboration with the Electronics and Metrology Division, Swiss Federal Laboratories for Materials Testing and Research (EMPA), Dübendorf Switzerland.
	PhD Thesis	Imaging of Cellular and Extra-Cellular Stressed Matter Using Synchrotron Radiation Based Micro-Computed Tomography.
1999	Dipl.-Ing. (MSc.)	Graz University of Technology, Austria – Solid State Physics and Materials Science.
	Diploma Thesis	X-ray Structural Analysis and Photothermal Deflection Spectroscopy on Conjugated Organic Materials.
1992	Abitur, Grade 1.9 (A-Levels)	Staatliches Gymnasium Miesbach, Miesbach, Germany.

Higher Education Teaching Qualification

2009	Postgraduate Certificate in Academic Practice, University of Southampton (accredited by the Higher Education Academy), UK

Research Visits

2009 (1 week)	Visit at University of California San Francisco, CA, USA for final experiments on a project on changes in bone composition and material properties in osteopontin-deficient mice.
2008 (2 weeks)	Visit at University of California San Francisco and Lawrence Berkeley Laboratories CA, USA for experiments on an ongoing project on changes in bone composition and material properties in osteopontin-deficient mice.

2008 (1 week)	Visit at Asylum Research Inc., Santa Barbara CA, USA for first experiments with an in situ mechanical testing stage for the MFP3D atomic force microscope.
2006 (1 week)	Visit at Max-Planck Institute for Colloids and Interfaces, Berlin, Germany for a joint preliminary experiment with Dr. Himadri Gupta on small angle x-ray scattering of single trabeculae.
2006 (1 week)	Visit at Lawrence Berkeley Laboratory for joint experiment with Prof. Robert O. Ritchie's group on mechanical testing of bone combined with high-speed photographic imaging
2000-2004	Various short-term visits for imaging experiments to Hamburg Synchrotron Laboratory (HASYLAB), Hamburg, Germany; European Synchrotron Radiation Facility (ESRF), Grenoble, France; and Swiss Light Source (SLS), Villigen, Switzerland.
1998 (2 months)	Institute for Materials Research (IMO), Limburgs Universitair Centrum, Diepenbeek, Belgium.
1997	Spring term at the Johns Hopkins University, Baltimore MD, USA – Subject: Materials Science, graduate courses and research
1996 (2 months)	Orientation Program at the Johns Hopkins University, Baltimore MD, USA.

Awards and Honors

IFAC Journal MECHATRONICS, Best Paper of Years 2008-2010, September 2011

Plenary Poster – American Society for Bone and Mineral Research (ASBMR) 2008

New Investigator Recognition Award (NIRA) Finalist, Orthopaedic Research Society (ORS), 2008

Outstanding Meeting Paper – Symposium L, Materials Research Society (MRS) Spring Meeting 2005.

Awarded Grants and Fellowships

Current

1. Responsive mode grant EP/J008192/1 (PI) 30/04/12 – 31/04/15
Engineering and Physical Sciences Research Council £437,728.-
Handheld microindentation - a direct assessment of bone fracture risk?

2. Mike Russell Studentship (PI) 01/10/11 – 30/09/14
Private Donation to the University of Southampton £26,250.-
Probing of Bone Mechanics for Improved Fracture Risk Assessment

3. University Scholarship (Co-PI) 01/10/11 – 30/09/14
University of Southampton £21,000.-
Understanding Skeletal Development Across the Life course

4. Programme grant 23369 (Co-PI) 01/10/09 – 30/09/14
Medical Research Council £2,063,408.-
A Life Course Approach to Investigating Asthma Pathogenesis and Progression

Past

1. Industry Contribution to Studentship (PI) 01/10/09 – 30/09/12
Asylum Research Ltd. £23,000.-
Bone Matrix Material Properties on the Micro- and Nanoscale

2. Industry Contributions in kind (PI) 01/09/07 – 30/09/12
Asylum Research Ltd. £50,000.-
Bone Matrix Material Properties on the Micro- and Nanoscale

3. Postdoctoral Fellowship for Advanced Researchers (PI) 01/02/06 – 31/01/07
Grant No. PA002—111445 $50,000.-
Swiss National Science Foundation
The Influence of Non-Collagenous Organic Matrix Constituents on the Mechanical Competence of Healthy and Diseased Bone

4. Postdoctoral Fellowship Grant No. PBEZ2—1051165 (PI) 01/06/04 – 30/5/05
Swiss National Science Foundation $44,000.-
The Role of Ion-mediated Repair of Microcracks in the Bone Pre-Failure and Failure Process

5. PhD Project Grant No. 2153-057127.99 (Named researcher) 1/10/99 – 31/12/2003
Swiss National Science Foundation CHF163,920.-
Micro computer tomography with X-rays for the characterization of biocompatible materials

6. "Joint-Study" Scholarship, Austrian Ministry of Science and Transportation 1996/97, for a two-month/ internship and a one-semester stay at the Johns Hopkins University, Baltimore MD, USA.

Student Awards

2013 Orestis Andriotis, Student Award, *Cross-link Type and Density are strong Determinants of Collagen Fibril Nanoelasticity* – Congress of the European Society of Biomechanics, 25-28 August 2013, Patras, Greece

Reviewer for Funding Bodies

2012 -		Member of the Engineering and Physical Sciences Research Council Peer Review College
2013 -	ad hoc reviewer	Swiss National Science Foundation
2012 -	ad hoc reviewer	Research Foundation Flanders, Belgium
2010 -	ad hoc reviewer	Jefress Memorial Trust, Bank of America, USA
2010 -	ad hoc reviewer	Health Research Board Ireland
2009 -	ad hoc reviewer	Engineering and Physical Sciences Research Council, UK

Editorial Boards

2013 -	ad hoc reviewer	Biomechanics and Modellng in Mechanobiology
2013 -	ad hoc reviewer	European Cells and Materials
2013 -	ad hoc reviewer	Proceedings of the Institution of Mechanical Engineers, Part H, Journal of Engineering in Medicine
2012 -	ad hoc reviewer	International Journal for Numerical Methods in Biomedical Engineering
2012 -	ad hoc reviewer	Journal of Engineering in Medicine
2012 -	ad hoc reviewer	Journal of Investigative Medicine
2011 -	ad hoc reviewer	Tissue Engineering
2011 -	ad hoc reviewer	Review of Scientific Instruments

2010 - ad hoc reviewer Journal of Biomechanics
2010 - ad hoc reviewer Acta Biomaterialia
2009 - ad hoc reviewer Mechatronics
2008 - ad hoc reviewer Bone
2008 - ad hoc reviewer Journal of the Mechanical Behavior of Biomedical Materials
2008 - ad hoc reviewer Advanced Materials
2008 - ad hoc reviewer Journal of the Royal Society Interface
2008 - ad hoc reviewer Wear
2007 - ad hoc reviewer Journal of Materials Science: Materials in Medicine
2007 - ad hoc reviewer Biotechnology and Bioengineering
2006 - ad hoc reviewer Engineering Fracture Mechanics
2003 - ad hoc reviewer Nuclear Instruments and Physics B

Conferences

2013 session organizer and chair 19th Congress of the European Society of Biomechanics, 25-28 August 2013, Patras, Greece
2011 ad hoc reviewer 4th International Conference on the Mechanics of Biomaterials and Tissues, 11-15 December 2011, Marriott Waikoloa Beach Resort and Spa, Hawai'i

Membership in Professional Societies

Orthopaedic Research Society, ORS
European Society for Biomechanics, ESB
Deutsche Physikalische Gesellschaft, DPG
Austrian Society for Bone and Mineral Research, AuSBMR

Languages

Fluent in German (native) and English, basic knowledge in French and Spanish.

Other Interests

Economics, music, literature and sports: Cycling, surfing, swimming, ultimate frisbee (former participation in international competitions including European and World Championships, now retired), golf, snowboarding, and hiking.

Part II: Research and Teaching Contributions

Narrative Report:

Philipp Thurner is a Professor of Biomechanics at the Institute of Lightweight Design and Structural Biomechanics of the Vienna University of Technology as well as a visiting Professor of Biomedical Engineering within the Bioengineering Science Research Group at the School of Engineering Sciences of the University of Southampton. The research interest of Dr. Thurner's group is currently focused on three areas: 1) the biomechanics of healthy and diseased bone from the nano- to the microscale the correlation of these properties to bone composition and in particular amount and presence of noncollagenous proteins such as Osteopontin. 2) To copy the structure of bone for the development of novel biomimetic materials such as self-healing biocompatible adhesives. 3) To uncover the mechanical changes in airway vessels due to asthma disease. With his research Dr. Thurner aims for the development of novel diagnostic tools, drugs and therapies to fight diseases such as osteoporosis or asthma on a more fundamental level, as well as the development of novel smart materials based on the lessons learned from nature.

Philipp Thurner received his PhD in Materials Science from the Institute for Biomedical Engineering (IBT), Swiss Federal Institute of Technology (ETH) and University Zurich in April 2004. During this time he was also affiliated with the Swiss Federal Laboratories for Materials Testing and Research (EMPA). In the course of the PhD project he developed novel methods for the investigation of biological tissue constructs in a quantitative and functional manner. In addition to this research he was a teaching assistant for two different courses and supervised five undergraduate student research projects. Great part of his PhD project was devoted to the development of image guided failure assessment of trabecular bone, combining mechanical testing with synchrotron radiation micro-computed tomography SRμCT. Philipp Thurner developed a novel device for this technique and implemented it at the Swiss Light Source (SLS) of the Paul Scherrer Institute (PSI), which allowed him to investigate failure initiation and propagation in trabecular bone at a new level of subtlety.

Subsequently to these investigations and achievements Prof. Thurner explored failure initiation and propagation beyond the structural or microarchitectural level at the molecular scale. For this reason he joined the research group of Prof. Paul Hansma at UC Santa Barbara, and then the group of Prof. Tamara Alliston at UCSF.

Prof. Thurner's research has led to important insights. His studies of bone ultrastructure, mechanical properties of noncollagenous bone matrix proteins and the consequence of their absence within bone tissue matrix, bone micromechanics and the stress-whitening effect in bone have been well received within the community.

Prof. Thurner has authored 49 refereed journal papers, 3 book chapters, and 76 peer-reviewed proceeding papers and abstracts. He was awarded two fellowships from the Swiss National Science Foundation, an "outstanding meeting paper award" by the Materials Research Society and he was a finalist for the New Investigator Recognition Award of the Orthopaedic Research Society. Since 2007 he has successfully won research grants worth more than £2.7 Mio and from 2009-2013 he was the deputy director of the Multidisciplinary, multiscale, microtomographic Volume Imaging at Southampton (μVIS) centre a further £2.2 Mio investment by the University of Southampton and the Engineering and Physical Sciences Research Council. Since 2013 Prof. Thurner holds the chair of Biomechanics at the Vienna University of Technology where he aims to develop a world-leading center of excellence for experimental bone and tissue nano- and micromechanics.

Report of Teaching

a. Conference Talks and Lectures:

[1] P.J. Thurner, *Microstructure, Interfaces, Composition: A Quest for the Origins of the Mechanical Performance of Bone*, Gordon Research Conference on Biomineralization, August 17-24 2014, New London, NH, USA, **invited talk**

[2] P.J. Thurner, *Micro- and Nanomechanics of bone affect mechanical performance and mechanobiology*, 7th World Congress of Biomechanics, July 6-11 2014, Boston, MA, USA, **invited talk**

[3] P. J. Thurner, *Mechanical Interaction between Osteopontin and Hydroxyapatite*, 7th World Congress of Biomechanics, July 6-11 2014, Boston, MA, USA, **invited talk**

[4] P. J. Thurner, *Do we know enough about bone failure?*, Orthopaedic Workshop, Flinders University, May 7-8 2014, Adelaide, Australia, , **invited talk**

[5] P.J. Thurner, *Micromechanical modulation in bone determines fracture toughness*, **invited talk,** 5th International Conference on Mechanics of Biomaterials and Tissues, December 8-12th, Sitges, Spain

[6] P.J. Thurner, *A Novel Videography Method for Generating Crack-Extension Resistance Curves in Small Bone Samples*, **invited talk,** Diamond Light Source - Synchrotron Users Meeting 2013, September 4 2013, Didcot, UK

[7] P. J. Thurner, *Micromechanical Model of Bovine Haversian Bone predicts Strain Amplification through Soft Interfaces*, 19th Congress of the European Society for Biomechanics, August 27 2013, Patras, Greece

[8] P. J. Thurner, *Microstructure, Interfaces, Composition - Towards Better Microscale Experimentation and Models of Bone*, **invited talk**, 6th European Congress on Computational Methods in Applied Sciences and Engineering, September 12 2012, Vienna Austria

[9] P. J. Thurner, *Biomedical applications of micro-computed tomography – from cell cultures to organs*, **invited talk**, Diamond Light Source - Synchrotron Users Meeting 2012, September 5 2012, Didcot, UK

[10] P. J. Thurner, *Einfluss der Grenzflächeneigenschaften auf der Mikro- und Nano-Skala auf die mechanischen Eigenschaften von Knochen*, **invited talk**, Vienna University of Technology, Institute for Lightweight Design and Biomechanics, May 15 2012, Vienna, Austria

[11] P. J. Thurner, *Interfaces and Structural Hierarchy in Bone – Determinants of Mechanical Competence*, **invited talk**, Workshop on Interdisciplinary Biomedical Research, Notre Dame University – London Centre, July 18 2011, London, UK

[12] P. J. Thurner, *Contraptions for cracking – capturing damage in bone on the nano- and microscale* , **invited talk**, Department of Bioengineering, Imperial College, February 2 2011, London, UK

[13] P. J. Thurner, *The Relevance of Interface Properties for the Mechanical Competence of Bone*, **invited talk**, Institute of Product Development, Technische Universitaet Muenchen, January 26 2011, Munich, Germany

[14] P. J. Thurner, *Can the Mechanical Properties of Noncollagenous Proteins Influence Whole Bone Mechanics*? 17th Congress of the European Society of Biomechanics, July 5-8 2010, Edinburgh, UK

[15] P. J. Thurner, *Noncollagenous Proteins and Bone Mechanics - From Protein Networks to Osteopontin-deficient Mouse Bones,* **Keynote Presentation**, 22nd European Conference of Biomaterials, September 7-11 2009, Lausanne, Switzerland

[16] P. J. Thurner, *Local strain and microdamage detection during mechanical testing of bone,* **invited talk**, Bose User Meeting, June 12 2009, London, United Kingdom

[17] P.J. Thurner, *Micro- and Nanomechanical Properties of Biological and Biocompatible Materials*, **invited talk**, Asylum Research - AFM Forum and Workshop, November 20 2008, Dublin, Ireland

[18] P.J. Thurner, *Prediction of Trabecular Level Microdamage and Bone Fracture through Local Strain*, Identifying The Mechanical Properties Of Biological Materials, November 6 2008, Solihull, UK

[19] P.J. Thurner, *The Self-Healing Components of Bone – Noncollagenous Proteins*, De Puy Partnership Meeting, July 3, Leeds, UK

[20] P. J. Thurner, *Tough Materials Through Weak Bonds – the Physics of Protein Networks*, **invited talk**, Applied Mathematics Seminar, School of Mathematics, University of Southampton, April 23 2008, Southampton, UK

[21] P. J. Thurner, *Determination of the local strains involved in microdamage formation in a three-point bending test of single trabeculae*, SPIE Medical Imaging (Physiology, Function, and Structure from Medical Images), February 19 2008, San Diego, California, USA

[22] P. J. Thurner, *The Nanocomposite Bone – Lessons from Nature for Biomimetic Materials*, Biomimetics on the Nanoscale, February 15 2008, Southampton, UK

[23] P. J. Thurner, *Real-Time Microdamage and Strain Detection during Micromechanical Testing of Single Trabeculae*, Annual Meeting of the Society of Experimental Mechanics, June 4 2007, Springfield Massachusetts, USA

[24] P. J. Thurner, *Bone Mechanics from the Macro- to the Nanoscale*, **invited talk**, University of California Santa Barbara, Department of Mechanical Engineering, January 23 2007, Santa Barbara, California, USA.

[25] P. J. Thurner, *The Importance of Noncollagenous Proteins for the Nanocomposite Bone – Some insights from Hierarchical Investigations of Bone Failure*, **invited talk**, University of Southampton, November 27 2006, Southampton, UK.

[26] P. J. Thurner, *The Importance of Noncollagenous Proteins for the Nanocomposite Bone – Some insights from Hierarchical Investigations of Bone Failure*, **invited talk**, King's College, November 24 2006, London, UK.

[27] P. J. Thurner, *Are Noncollagenous Proteins Important for Bone Mechanics? – Some Answers From Hierarchical Investigations of Bone Failure,* **invited talk**, Vienna University of Technology, November 21 2006, Vienna, Austria.

[28] P. J. Thurner, *Are Noncollagenous Proteins Important for Bone Mechanics? – Some Answers From Hierarchical Investigations of Bone Failure,* **invited talk**, Lawrence Livermore National Laboratory, September 7 2006, Livermore, California, USA.

[29] P. J. Thurner, *Are Noncollagenous Proteins Important for Bone Mechanics? – Some Answers From Hierarchical Investigations of Bone Failure,* **invited talk**, University of California San Francisco, September 6 2006, San Francisco, California, USA.

[30] P. J. Thurner, *Real-Time Microdamage Detection during Micromechanical Testing of Trabecular Bone*, 5th World Congress of Biomechanics, August 4 2006, Munich, Germany.

[31] P. J. Thurner, *Are Noncollagenous Proteins Important for Bone Mechanics? – Answers from hierarchical investigations of bone failure*, **invited talk**, Max-Planck Institute for Colloids and Interfaces, July 27, 2006, Golm-Potsdam, Germany.

[32] P. J. Thurner, *Biomechanical Engineering of Bone - from the Nano to the Macro Scale*, invited lecture, Department of Mechanical and Process Engineering, ETH Zürich, February 10, 2006, Zürich, Switzerland.

[33] P. J. Thurner, *High-Speed Photography of Compressed Human Trabecular Bone detects Microscopic Delamination Fractures in Real-Time*, First International Conference on Mechanics of Biomaterials & Tissues, December 15 2005, Waikoloa, Hawaii, USA.

[34] P. J. Thurner, *Exploring the Nano-Structure of Human Bone by AFM during Time-Lapsed Chemical Dissection*, Seeing at the Nanoscale III, August 15 2005, Santa Barbara, California, USA.

[35] P. J. Thurner, *High-Speed Photography of Compressed Human Trabecular Bone Correlates Whitening to High Local Strains,* Spring Meeting of the Materials Research Society, March 29 2005, San Francisco, California, USA.

[36] P.J. Thurner, *High-Speed Photography during Compression Testing of Human Trabecular bone*, March Meeting of the American Physical Society, March 24 2005, Los Angeles, California, USA.

[37] P. Thurner, *Microcrack Visualization in Bone using Synchrotron Radiation Micro-Computed Tomography*, **invited talk**, SPIE International Symposium on Optical Science and Technology (Developments in X-Ray Tomography IV), August 04 2004, Denver, Colorado, USA.

[38] P. Thurner, *3D Imaging of hard and Soft Tissue using Synchrotron Light,* invited talk at the Institute for Biomedical Engineering of the Swiss Federal Institute of Technology (ETH) Zurich, May 28 2004, Zurich, Switzerland.

[39] P. Thurner, *3D Imaging of Hard and Soft Tissue using Synchrotron Radiation*, **invited talk**, Institute for Biophysics and X-ray Structure Research of the Austrian Academy of Sciences, March 18 2004, Graz, Austria.

[40] P. Thurner, *3D Cell Culture Morphology Assessed Using Synchrotron Light*, Science Fair of the Swiss Federal Laboratories for Material Testing and Research, March 11 2004 Dübendorf, Switzerland.

[41] P. Thurner: *Tomography of Biological Cells on Polymer Scaffolds,* **invited talk**, 2nd International Conference on Materials for Advanced Technologies & IUMRS – International Conference in Asia 2003, Singapore, December 12 2003.

[42] P. Thurner, *Image Guided Fatigue Assessment of Bovine Trabecular Bone using Synchrotron Radiation (SR)*. 13th Annual Meeting European Orthopedic Research Society, Helsinki, Finland, June 6 2003.

[43] P. Thurner, *Synchrotron Radiation Micro-Computed Tomography (SRμCT) - Grundlagen und Anwendungen in den Bioingenieurwissenschaften,* Zentrum für Zerstörungsfreie Prüfung (Center for Non-destructive Testing), Swiss Federal Laboratories for Materials Testing and Research (EMPA), Dübendorf, Switzerland, September 12 2002.

[44] P. Thurner, *Tomography Studies of Biological Cells on Polymer Yarns*, European Materials Research Society 2002 Spring Meeting, Strasbourg, France, June 21 2002.

[45] P. Thurner, *Assessment of Bone Fatigue - Osteoporosis Research*, Swiss Synchrotron Light Source (SLS) Users Meeting 2002, Paul Scherrer Institut (PSI) Villigen, Switzerland. September 26 2002.

[46] P. Thurner, *First Attempts on Tomography of Cell Aggregates in a hydrated, close to physiological State*. Satellite Meeting Microtomography, HASYLAB Users' Meeting 2001, HASYLAB at DESY, Hamburg, Germany, January 25 2001.

[47] P. Thurner, *3-D Evaluation of Biocompatible Materials Including Vital-Avital Composites by Synchrotron Radiation-Based Computed μ-Tomography,* Annual Meeting of the Swiss Society for Biomaterials (SSB) 2000, AO Research Institute, Davos, Switzerland, June 8 2000.

b. Courses

2014- Lecturer & Module Coordinator, *Tissue Biomechanics, VO 317.026, 3 ECTS*, Faculty of Mechanical Engineering, Vienna University of Technology, Austria

2014- Lecturer & Module Coordinator, *Tissue Biomechanics Tutorial, UE 317.523*, *2 ECTS*, Faculty of Mechanical Engineering, Vienna University of Technology, Austria

2014- Lecturer & Module Coordinator, *Tissue Biomechanics (Seminar), SE 317.028*, *2 ECTS*, Faculty of Mechanical Engineering, Vienna University of Technology, Austria

2013- Lecturer & Module Coordinator, *Introduction to Biomechanics, VU 317.043*, *3 ECTS*, Faculty of Mechanical Engineering, Vienna University of Technology, Austria
2013- Lecturer, *Biomedical Engineering: An Introduction VO 101.028, 3 ECTS*, Faculty of Mechanical Engineering, Vienna University of Technology, Austria
2012-2013 Lecturer & Module Coordinator, *SESM3020 Orthopaedic Biomechanics*, Faculty of Engineering and the Environment, University of Southampton, UK
2012-2013 Lecturer, *FEEG1002 Mechanics Structures and Materials*, Faculty of Engineering and the Environment, University of Southampton, UK
2011-2012 Lecturer, *SESM3020 Orthopaedic Biomechanics*, Faculty of Engineering and the Environment, University of Southampton, UK
2011-2012 Lecturer, *SESG1001 Mechanics of Solids*, Faculty of Engineering and the Environment, University of Southampton, UK
2010-2013 Lecturer & Module Coordinator, *SESM6024 Mechanics of Biological Tissues*, School of Engineering Sciences, University of Southampton, UK
2008-2013 Co-lecturer, *SESG6021 Microstructural Characterisation*, School of Engineering Sciences, University of Southampton, UK
2008-2012 Co-lecturer, laboratory coordinator and supervision instructor, *SESG1001 Mechanics of Solids*, School of Engineering Sciences, University of Southampton, UK
2007/2008 Supervision instructor, *SESG1001 Mechanics of Solids*, School of Engineering Sciences, University of Southampton, UK
2003 – 2004 Teaching Assistant, *Orthopaedic Bioengineering (227-0397-00)*, Department of Information Technology and Electrical Engineering, ETH Zürich, Switzerland
2000 Teaching Assistant, *Biocompatible Materials*, Department of Materials Science, ETH Zürich, Switzerland

c. Advisory and Supervisory Responsibility
Technical Staff:
2013- Andreas Reisinger, PhD, Laboratory Manager of the Laboratory of Micro- and Nanomechanics of Biological and Biomimetic Materials

Postdoctoral Fellows:
2013-2019 Orestis Andriotis, PhD, Vienna University of Technology, “Tissue Nano- and Micromechanics”
2012-2015 Louise Coutts, PhD, University of Southampton, “Handheld Microindentation – a direct assessment of bone fracture risk?”
2012-2014 Orestis Katsamenis, PhD, University of Southampton, “Ostopontin Adhesion Properties on Biomedical Relevant Surfaces - Torwards Biomimetic Glues with Molecular Self-Healing Properties for Application in the Life Sciences”

PhD Theses:
2013-2017 Vedran Nedelkovski, PhD, Vienna University of Technology, “Novel Tools for the Mechanical Assessment of Cortical Bone Microstructural Elements”, Supervisor
2011-2014 Thomas Jenkins, PhD, University of Southampton, “Probing of Bone Mechanics for Improved Fracture Risk Assessment”, Supervisor
2011-2014 Tsiloon Li, PhD, University of Southampton, “Understanding Skeletal Development Across the Life Course”, Supervisor
2010-2014 Nick Udell, PhD, University of Southampton, “3D Visualisation and Local Morphology Analysis of Murine Lungs”, Supervisor
2009-2014 Natalya Doroshenko, PhD, University of Southampton, “Mechanics of BioFilms”, Co-Supervisor
2010-2013 Orestis Andriotis, PhD, University of Southampton, “Mechanical Implications of Persistent Asthma”, Supervisor

2010-2013 Amir Rmaile, PhD, University of Southampton, “Dental Biofilms”, Co-Supervisor
2009-2012 Orestis Katsamenis, PhD, University of Southampton, “Bone Matrix Material Properties on the Micro- and Nanoscale”, Supervisor
2009-2011 Meadhbh Brennan, PhD, PhD, University of Southampton, “Local Strain and Microdamage Assessment During Micromechanical Testing of Single Bovine Trabeculae and Cortical Bone Tissue” Co-Supervisor / Supervisor
2008-2011 Margaret Szabo, PhD, University of Southampton, “Local Strain and Microdamage Assessment During Micromechanical Testing of Single Bovine Trabeculae and Cortical Bone Tissue” Supervisor

Graduate Theses:
2010-2011 Sabah Nobakhti, MSc, University of Southampton, “Micro-mechanical Modelling of Bone and Gradient Properties along the Femur”
2005-2006 Ralf Jungmann, Dipl. Phys., University of California Santa Barbara (UCSB) and Universität des Saarlandes (UdS), “Direct Micro- and Nanoscale Failure Visualization in the Nanocomposite Bone”

Undergraduate Theses:
2013-2014 Joachim Gerger, Vienna University of Technology, “Microscopy imaging of small bone samples under tension”
2013-2014 Carmen Godfraind, Vienna University of Technology, “Imaging and segmentation of cortical bone microstructure”
2012-2013 Benjamin Carter, University of Southampton, “Microdamage Detection in Bone III”
2011-2012 Matthew Bredikis, University of Southampton, “Microdamage Detection in Bone II”
2011-2012 Mohd Asyraf Hashim, University of Southampton, “Repetitive Loading of Bone and Microdamage Detection”
2010-2011 Stephanie Jones, University of Southampton, “Microdamage Detection in Bone”
2010-2011 Mohd Khairul Safwan Awi, University of Southampton, “Tension Testing of Demineralised Bone II”
2010-2011 Alexander Batten, University of Southampton, “Tension Testing of Small Cortical Bone Samples”
2010-2011 Joanna Turner, University of Southampton, “The Effect of Chemical Agents on the Micromechanical Properties of Bone”
2009-2010 Philip Chambers, University of Southampton, “The effect of Chemical Agents on the Micromechanical Properties of Bone”
2009-2010 Emily Carter, University of Southampton, “Tension Testing of Demineralised Bone”
2009-2010 Amireza Farjad Moghaddam, “Mechanical properties of biodegradable polymers”
2008-2009 Ross Basford, University of Southampton, “Design of a Novel Bone Scaffold for Tissue Engineering Applications”
2008-2009 James Patterson, University of Southampton, “Mechanical Properties of Biodegradable Polymers”
2003 Kurtis Wheeler, Cand. Masch.-Ing. ETH, Swiss Federal Institute of Technology (ETH), " Evaluation of an In-Situ Mechanical Testing Device "
2003 Andrea Schmid, Cand. Masch.-Ing. ETH, Swiss Federal Institute of Technology (ETH), "Development of sample holders for an in-situ tensile testing device III"
2003 Diego Meier, Cand. Masch.-Ing. ETH, Swiss Federal Institute of Technology (ETH), "Development of sample holders for an in-situ tensile testing device II"
2002 Philipp Brun, Cand. Masch.-Ing. ETH, Swiss Federal Institute of Technology (ETH), "Development of sample holders for an in-situ tensile testing device"
2002 An Willems, Cand. Masch.-Ing. ETH, Swiss Federal Institute of Technology (ETH), "Development of an in-situ loading and staining device for bone samples"

Undergraduate Lab Students:

2011	Aidan Kelly, University of Southampton, “3D imaging of trabecular femoral bone and finite element model of the proximal femur II”
2011	Olie Cook, University of Southampton, “3D imaging of trabecular femoral bone and finite element model of the proximal femur”
2010	Tsiloon Li, University of Southampton, “Cantilever-based Nanoindentation of Collagen Fibrils II”
2009	Sebastien Fabri, University of Southampton, “Cantilever-based Nanoindentation of Collagen Fibrils.”
2008	Thomas Boughen, University of Southampton, “Nanomechanics and Nanostructure of Biological Tissues”
2005-2006	Stephanie Lam, University of California Santa Barbara (UCSB), “Immunohistochemistry methods applied to bone fractured surfaces”
2004-2006	Blake Erickson, University of California Santa Barbara (UCSB), “High Speed Photography of Trabecular Bone during Compression”
2004-2005	Zachary Schriock, University of California Santa Barbara (UCSB), “High Speed Photography of Trabecular Bone during Compression”
2004	Erik Strong, University of California Santa Barbara (UCSB), “Histology of Trabecular Bone samples”

Part III: Bibliography

Original Articles:

[1] N. Doroshenko, B. S. Tseng, M. Parsek, J. Wharton, P. J. Thurner, and P. Stoodley, *Extracellular DNA impedes the transport of vancomycin in Staphylococcus epidermidis biofilms pre-exposed to sub-inhibitory concentrations of vancomycin*, submitted.

[2] P. J. Thurner, O. Katsamenis, *Role of nanoscale toughening mechanisms in osteoporosis*, D. Burr, (Ed.) ,Section: Bone Quality in Osteoporosis, M. Grynpas and J. Nyman (Co-Section Eds.) Current Osteoporosis Reports (Volume 12, Issue 2), submitted, **invited review**

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