Curriculum Vitae
Associate Prof. Priv.-Doz. Dipl.-Ing. Dr. techn. Stefan Scheiner

PERSÖNLICHE DATEN

Name:	Stefan Scheiner
Geburtsdatum:	16. August 1978
Geburtsort:	Wien
Nationalität:	Österreich
Familienstand:	Verheiratet, zwei Kinder

AUSBILDUNG

09/1984 – 06/1988:	Volksschule, VS Diesterweggasse, Wien
09/1988 – 06/1992:	Gymnasium (Unterstufe), BRG Wenzgasse, Wien
09/1992 – 06/1997:	Höhere Technische Lehranstalt, Hollabrunn (Matura mit Auszeichnung)
10/1997 – 05/1998:	Grundwehrdienst
10/1998 – 04/2004:	Diplomstudium Bauingenieurwesen, Technische Universität Wien (TU Wien) (Diplomprüfung mit Auszeichung)
11/2004 – 01/2009:	Doktoratsstudium der Technischen Wissenschaften, TU Wien (Rigorosum mit Auszeichnung)
05/2018:	Habilitation (Venia Docendi) für Festigkeitslehre und Biomechanik, TU Wien

PREISE

2003:	Leistungsstipendium für ausgezeichnete Studienerfolge und der Fakultät für Bauingenieurwesen der TU Wien
2009:	Herausragender Reviewer des Jahres, verliehen vom Journal of Engineering Mechanics (der American Society of Civil Engineers)

STIPENDIEN UND FÖRDERMITTEL

2004:	Forschungsstipendium, verliehen von der TU Wien
2006:	Reisemittelzuschuss, verliehen vom Österreichischen Austauschdienst
2010:	Reisemittelzuschuss, verliehen von der University of Western Australia

WORK EXPERIENCE

06/1998 – 09/1998:	Technischer Zeichner, Gabriel Konstruktionen, Wien
10/1998 – 06/1999:	Technischer Zeichner, Operative Facility Management Department der M+W Zander, Wien
07/2001:	Praktikant, Porr Projekt und Hochbau AG, Wien
07/2002:	Technischer Zeichner, Bautechnik GesmbH, Korneuburg
08/2004 – 10/2004:	Forschungsassistent, Institut für Festigkeitslehre (IFF), TU Wien
11/2004 – 08/2009:	Projektassistent, Institut für Mechanik der Werkstoffe und Strukturen (IMWS, vormals IFF), TU Wien

09/2009 – 08/2011:	Forschungsassistent, Faculty of Engineering, Computing and Mathematics, The University of Western Australia, Perth, Australien
09/2011-06/2015:	Universitätsassistent, IMWS, TU Wien
07/2015-08/2018:	Assistant Professor, IMWS, TU Wien
seit 09/2018:	Associate Professor, IMWS, TU Wien

SPRACHEN

- Deutsch (Muttersprache)
- Englisch (fließend)

TEILNAHME AN ADVANCED SCHOOLS

07/2004: CISM Advanced School "Applied Micromechanics of Porous Materials", Udine, Italy

WISSENSCHAFTLICHE GREMIEN

- Properties of Materials Committee (seit 2009, Vorsitzender seit 2017) und Biomechanics Committee (seit 2014) des Engineering Mechanics Institute (EMI), ASCE
- Engineering Mechanics Institute, ASCE (seit 2014)
- European Society of Biomechanics (seit 2014)
- European Material Modeling Committee (seit 2014)
- Austrian Chapter of the European Society of Biomechanics (seit 2015, Gründungsmitglied)
- Central European Association for Computational Mechanics (seit 2015)

REVIEWING FÜR WISSENSCHAFTLICHE JOURNALE

- AIChE Journal
- Biomechanics and Modeling in Mechanobiology
- Bone
- Computer Methods and Programs in Medicine
- Computer Methods in Applied Mechanics and Engineering
- Computers and Concrete
- Computers and Geotechnics
- Corrosion Science
- Current Smart Materials
- International Journal for Molecular Sciences
- International Journal for Numerical Methods in Biomedical Engineering
- International Journal of Engineering, Science and Technology
- International Journal of Fracture
- IOP Conference Series: Materials Science and Engineering
- Journal of Applied and Theoretical Physics Research
- Journal of Engineering Mechanics (ASCE)
- Journal of Nanomechanics and Micromechanics (ASCE)

- Materials
- Materials and Design
- Mathematical Biosciences
- Mechanics of Materials
- Mechanics of Time-Dependent Materials
- Molecular and Cellular Biomechanics
- Ocean Engineering
- Physica A
- PLOS One
- Scientific Research and Essays
- Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy
- Transport in Porous Media

MITWIRKUNG IN EDITORIAL BOARDS

- Computers and Geotechnics, Editorial Board Member since July 2016
- Frontiers in Bioengineering and Biotechnology, Associate Editor for Biomechanics, since March 2018

BEITRÄGE ZUR ORGANISATION VON KONFERENZEN UND WORKSHOPS

- Co-organizer of the mini-symposium "*Mathematical modeling of biomechanical regulation in bone tissue*" at the European Conference on Mathematical and Theoretical Biology, June 28-July 2, 2011, Krakow, Poland; together with Prof. Peter Pivonka and Dr. Pascal Buenzli.
- Co-organizer of the special session "*Multiscale biomechanics and mechanobiology*" at the Ninth IASTED International Conference on Biomedical Engineering (BioMed 2012), February 15-17, 2012, Innsbruck, Austria; together with Prof. Christian Hellmich.
- Co-organizer of the mini-symposium "*Computational modeling of bone and cartilage*" at the 6th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2012), September 10-14, 2012, Vienna, Austria; together with Prof. Peter Pivonka and Dr. Justin Fernandez.
- Co-organizer of the special session "*Mathematical modeling in biomedical engineering: current trends and challenges*" at the Tenth IASTED International Conference on Biomedical Engineering (BioMed 2013), February 13-15, 2013, Innsbruck, Austria; together with Prof. Christian Hellmich, Prof. Hans Van Oosterwyck, and Prof. Nenad Filipovic.
- Co-organizer of the mini-symposium "*Mechanobiology of soft and hard tissues*" at the 2014 Engineering Mechanics Institute Conference of the American Institute of Civil Engineers (EMI2014), August 5-9, 2014, Hamilton, Canada; together with Dr. Claire Morin and Dr. Gregory Wohl.
- Co-organizer of the mini-symposium "*Mechanobiology of soft and hard tissues*" at the 2015 Engineering Mechanics Institute Conference of the American Institute of Civil Engineers (EMI2015), June 16-19, 2015, Stanford, CA, USA; together with Dr. Claire Morin and Dr. Gregory Wohl.
- Co-organizer of the mini-symposium "*15th symposium on biological and biologically inspired materials and structures*" at the 2016 Engineering Mechanics Institute Conference of the

American Institute of Civil Engineers (EMI2016), May 22-25, 2016, Nashville, TN, USA; together with Prof. Dinesh Katti, Prof. Christian Hellmich, and Dr. Claire Morin.

- Co-organizer of the mini-symposium *"Computational mechanics and systems biology in mechanobiology"* at the World Congress on Computational Mechanics 2016 (WCCM2016), July 24-29, 2016, Seoul, South Korea; together with Dr. Jerome Noailly, Prof. Peter Pivonka, and Dr. Yoon H. Kim.

- Co-organizer of the mini-symposium *"Biomechanics and mechanobiology of biological tissues"* at the 2016 Engineering Mechanics Institute International Conference of the American Institute of Civil Engineers, October 25-27, 2016, Metz, France; together with Dr. Claire Morin and Prof. Christian Hellmich.

- Co-organizer of the mini-symposium *"Multiscale analysis in tunneling"* at the EURO:TUN 2017 Computational models and methods in tunneling and subsurface engineering, April 18-20, 2017, Innsbruck, Austria; together with Prof. Bernhard Pichler, Prof. Josef Eberhardsteiner, Prof. Christian Hellmich, Prof. H.A. Mang, and Prof. Y. Yuan.

- Co-organizer of the mini-symposium *"16th symposium on biological and biologically inspired materials and structures"* at the 2017 Engineering Mechanics Institute Conference of the American Institute of Civil Engineers (EMI2017), June 4-7, 2016, San Diego, CA, USA; together with Prof. Dinesh Katti, Prof. Christian Hellmich, and Dr. Claire Morin.

- Chair of the workshop *"Patient-specific tissue engineering – An ambititious goal requiring a "holistic" approach"* in the framework of COST action NEWGEN – New Generation Biomimetic and Customized Implants for Bone Engineering, August 28-29, 2017, Vienna Austria.

- Co-organizer of the mini-symposium *"Multiscale biomechanics and mechanobiology of bone and related tissues"* at the 7th International Conference on Computational Bioengineering (ICCB2017), September 6-8, 2017, Compiegne, France; together with Prof. Peter Pivonka and Prof. Christian Hellmich.

- Co-chair of the First *ECCOMAS Thematic Conference on Multiscale Methods in Biomechanics and Mechanobiology*, September 11-13, 2017, Vienna Austria; together with Prof. Abdul Barakat, and Prof. Suvranu De.

PUBLIKATIONEN

Bücher und Buchherausgaben

1. C. Hellmich and S. Scheiner (editors): *"Modelling of FGM-Behaviour Under Extreme Temperature and High-Rate Loading Conditions, Part IV of Functionally Graded Materials – Properties, Modelling and Applications, Vol. 3 of State-of-the-Art Report on Knowledge-based Multicomponent Materials"*; KMM, 2006, ISBN: 83-89687-08-9; 62 pages.

2. S. Scheiner: *"Computational Mechanics and Physics Contributions to Corrosion, Geotechnical, Concrete, and Biomedical Engineering: Development and Experimental Validation of Semi-Analytical and Numerical Models"*; Südwestdeutscher Verlag für Hochschulschriften, Saarbrücken, Germany, 2009, ISBN: 978-3-8381-0583-3; 179 pages.

Buchkapitel

1. C. Hellmich and S. Scheiner: *"Deformation and damage"*; in: *"Functionally Graded Materials – Properties, Modelling and Application, Vol. 3 of State of the Art Report on Knowledge-based Multicomponent Materials"*, J. Rödl (editor); KMM, 2006, ISBN: 83-89687-08-9, pp. 63-73.

2. A. Chrysanthou, C. Hellmich, and S. Scheiner: *"Wear and corrosion properties"*; in: *"Functionally Graded Materials – Properties, Modelling and Application, Vol. 3 of State of the Art Report on*

Knowledge-based Multicomponent Materials", J. Rödl (editor); KMM, 2006, ISBN: 83-89687-08-9, pp. 77-80.

3. C. Hellmich, S. Scheiner, J. Ivanova, R. Kuziak, Z. Mróz, M. Białas, R. Pęcherski, C. Poizat, J. Skrzypek, J. Skoczén, and J. Sladek: *"Quasi-static thermomechanics of FGM"*; in: *"Functionally Graded Materials – Properties, Modelling and Application, Vol. 3 of State of the Art Report on Knowledge-based Multicomponent Materials"*, J. Rödl (editor); KMM, 2006, ISBN: 83-89687-08-9, pp. 223-253.

4. C. Hellmich, S. Scheiner, G. Stepanov, A. Babutskyy, R. Pęcherski, and H. Zhao: *"Dynamics of FGM: Impact loading and high strain rate conditions"*; in: *"Functionally Graded Materials – Properties, Modelling and Application, Vol. 3 of State of the Art Report on Knowledge-based Multicomponent Materials"*, J. Rödl (editor); KMM, 2006, ISBN: 83-89687-08-9, pp. 255-263.

5. S. Scheiner and C. Hellmich: *"Modelling of corrosion"*; in: *"Functionally Graded Materials - Properties, Modelling and Application, Vol. 3 of State of the Art Report on Knowledge-based Multicomponent Materials"*, J. Rödl (editor); KMM, 2006, ISBN: 83-89687-08-9, S. 333-339.

6. B. Pichler, C. Hellmich, S. Scheiner, J. Eberhardsteiner, and H.A. Mang: *"Assessment of protection systems for gravel-buried pipelines considering impact and recurrent shear loading caused by thermal deformations of the pipe"*; in: *"Computational Plasticity, Volume 7 of Series on Computational Methods in Applied Sciences"*, E. Oñate and D.R.J. Owen (editors); Springer Verlag, Dordrecht, The Netherlands, 2007, ISBN: 978-1-4020-6576-7, pp. 223-257.

7. H.A. Mang, S. Scheiner, B. Pichler, and C. Hellmich: *"Damage assessment and disaster prevention in NATM tunnels during construction: Micromechanics-supported hybrid analyses"*; in: *"Damage Assessment and Reconstruction after War or Natural Disaster"*, Z. Ibrahimbegovic and M. Zlatar (editors); Springer Verlag, Dordrecht, The Netherlands, (eingeladen), 2009, ISBN: 978-90-481-2384-1, pp. 223ff.

8. S. Scheiner, B. Pichler, C. Hellmich, and J. Eberhardsteiner: *"Safety assessment during construction of shotcrete tunnel shells using micromechanical material models"*; in *"TUNCONSTRUCT – Technology Innovation in Underground Construction"*, G. Beer (editor); Taylor & Francis, Oxford, UK, 2009, chapter 13, ISBN: 978-0-415-55411-4, pp. 261-282.

9. S. Scheiner, B. Pichler, C. Hellmich, and H.A. Mang: *"Computational multiscale model for NATM tunnels: Micromechanics-supported hybrid analyses"*; in *"Lecture Notes in Applied and Computational Mechanics – Progress and Accomplishments"*; Springer Verlag, Dordrecht, The Netherlands, 2011, ISBN: 978-90-481-9808-5, pp. 1613-1636.

10. S. Scheiner and C. Hellmich: „*Patient-specific design of tissue engineering scaffolds, based on mathematical modeling*"; in *"Advances in Ceramic Biomaterials – Materials, Devices, and Challenges"*, P. Palmero, F. Cambier, and E. da Barra (editors); Woodhead Publishing, Cambridge, UK, 2017, ISBN: 978-0-08-100881-2, pp. 391-406.

11. V. Vass, C. Morin, S. Scheiner, and C. Hellmich: „*Review of „universal rules governing bone composition, organization, and elasticity across organizational hierarchies*"; in *"Multiscale Mechanobiology of Bone Remodeling and Adaptation"*, P. Pivonka (editor), Vol. 578 of CISM International Centre for Mechanical Sciences Courses and Lectures; Springer Verlag, Dordrecht, The Netherlands, 2018, ISBN: 978-3-319-58843-8, pp. 175-229.

12. S. Scheiner, M.-I. Pastrama, P. Pivonka, and C. Hellmich: „*Multiscale Bone Mechanobiology*"; in „*Encyclopedia of Biomedical Engineering*", Reference Module in Biomedical Sciences; Elsevier Major Reference Works, In Production.

13. S. Scheiner, V.S. Komlev, C. Hellmich: „*Computational methods for the predictive design of bone tissue engineering scaffolds*", in *"3D Printing and Biofabrication"*, A. Ovsianikov, J. Yoo, and V. Mironov (editors), Springer International Publishing, Basel, Switzerland, 2018, ISBN: 978-3-319-45443-6.

Begutachtete Artikel in wissenschaftlichen Journalen

1. S. Scheiner, B. Pichler, C. Hellmich, and J. Eberhardsteiner: "*Loading of soil-covered oil and gas pipelines due to adverse soil settlements – protection against thermal dilatation-induced wear, involving geosynthetics*"; Computers and Geotechnics, **33** (2006), pp. 371-380.

2. S. Scheiner and C. Hellmich: "*Stable pitting corrosion of stainless steel as diffusion-controlled dissolution process with a sharp moving electrode boundary*"; Corrosion Science, **49** (2007), pp. 319-346.

3. S. Scheiner and C. Hellmich: "*Mathematical modeling of diffusion- and activation-controlled pitting corrosion of stainless steel*"; Restoration of Buildings and Monuments, **14** (2008), pp. 79-94.

4. B. Pichler, S. Scheiner, and C. Hellmich: "*From micron-sized needle-shaped hydrates to meter-sized shotcrete tunnel shells: Micromechanical upscaling of stiffness and strength of shotcrete*"; Acta Geotechnica, **3** (2008): p. 273-294.

5. S. Scheiner and C. Hellmich: "*Continuum microviscoelasticity model for aging basic creep of early-age concrete*"; Journal of Engineering Mechanics (ASCE), **135** (2009), pp. 307-323.

6. S. Scheiner, R. Sinibaldi, B. Pichler, V. Komlev, C. Renghini, C. Vitale-Brovarone, F. Rustichelli, and C. Hellmich: "*Micromechanics of bone tissue-engineering scaffolds, based on resolution error-cleared computer tomography*"; Biomaterials, **30** (2009), pp. 2411-2419.

7. H.A. Mang, E. Aigner, J. Eberhardsteiner, C. Hackspiel, C. Hellmich, K. Hofstetter, R. Lackner, B. Pichler, S. Scheiner, and R. Stürzenbecher: "*Computational multiscale analysis in civil engineering*"; Interactions and Multiscale Mechanics: An International Journal, **2** (2009), pp. 109-128.

8. S. Scheiner and C. Hellmich: "*Finite Volume model for diffusion-and activation-controlled pitting corrosion of stainless steel*"; Computer Methods in Applied Mechanics and Engineering, **198** (2009), pp. 2898-2910.

9. S. Ullah, B. Pichler, S. Scheiner, and C. Hellmich: "*Shell-specific Interpolation of Measured 3D Displacements, for Micromechanics-Based Rapid Safety Assessment of Shotcrete Tunnels*"; CMES – Computer Modeling in Engineering and Sciences, **57** (2010), pp. 279-316.

10. S. Ullah, B. Pichler, S. Scheiner, and C. Hellmich: "*Influence of shotcrete composition on load-level estimation in NATM-tunnel shells: Micromechanics-based sensitivity analysis*"; International Journal for Numerical and Analytical Methods in Geomechanics, **36** (2012), pp. 1151-1180, DOI.

11. S. Scheiner, P. Pivonka, and D.W. Smith: "*Electro-diffusive transport in macroscopic porous media: Estimation of effective transport properties using numerical upscaling*"; Computers and Geotechnics, **48** (2013): 283-292.

12. P. Pivonka, P.R. Buenzli, S. Scheiner, C. Hellmich, and D.R. Dunstan: "*The influence of bone surface availability in bone remodelling – A mathematical model including coupled geometrical and biomechanical regulations of bone cells*"; Engineering Structures, **47** (2013), pp. 134-147.

13. S. Scheiner, P. Pivonka, and C. Hellmich: "*Coupling systems biology with multiscale mechanics, for computer simulations of bone remodeling*"; Computer Methods in Applied Mechanics and Engineering, **254** (2013), pp. 181-196.

14. L. Eberhardsteiner, C. Hellmich, and S. Scheiner: "*Layered water in crystal interfaces as source for bone viscoelasticity: arguments from a multiscale approach*"; Computer Methods in Biomechanics and Biomedical Engineering, **17** (2014), pp. 48-63.

15. S. Scheiner, P. Pivonka, D.W. Smith, C.R. Dunstan, and C. Hellmich: "*Mathematical modeling of postmenopausal osteoporosis and its treatment by the anti-catabolic drug denosumab*"; International Journal of Numerical Methods in Biomedical Engineering, **30** (2014), pp. 1-27.

16. T. Abdalrahman, S. Scheiner, and C. Hellmich: "*Is trabecular bone permeability governed by molecular ordering-induced fluid viscosity gain? Arguments from re-evaluation of experimental*

data in the framework of homogenization theory"; Journal of Theoretical Biology, **365** (2015), pp. 433-444.

17. S. Scheiner, C. Hellmich, C. Müller, L. Bonitz, and C. Kober: "*X-ray physics- and bone composition-based estimation of thickness characteristics from clinical mandibular radiographs*"; Computerized Medical Imaging and Graphics, **45** (2015), pp. 36-46.

18. S. Scheiner, P. Pivonka, and C. Hellmich: "*Poromicromechanics reveals that physiological bone strains induce osteocyte-stimulating lacunar pressure*"; Biomechanics and Modeling in Mechanobiology, **15** (2015), pp. 9-28.

19. C. Lerebours, P.R. Buenzli, S. Scheiner, and P. Pivonka: "*A multiscale mechanobiological model of bone remodelling predicts site-specific bone loss in the femur during osteoporosis and mechanical disuse*"; Biomechanics and Modeling in Mechanobiology, **15** (2016), pp. 43-67.

20. S. Scheiner, V.S. Komlev, A.N. Gurin, and C. Hellmich: "*Multiscale mathematical modeling in dental tissue engineering: towards computer-aided design of a regenerative system based on hydroxyapatite granules, focusing on early and mid-term stiffness recovery*"; Frontiers Physiology, **7** (2016), Article 383.

21. S. Scheiner V.S. Komlev, and C. Hellmich: „*Strength increase during ceramic biomaterial-induced bone regeneration: a micromechanical study*"; International Journal of Fracture, **202** (2016), pp. 217-235.

22. N. Damrongwiriyanupap, S. Scheiner, B. Pichler, and C. Hellmich: „*Self-consistent channel approach for upscaling chloride diffusivity in cement pastes*"; Transport in Porous Media, **118** (2017), pp. 495-518.

23. R. Plachy, S. Scheiner, K.W. Luczynski, A. Holzner, and C. Hellmich: „*Compressibility of unvulcanized natural and EPDM rubber: new experimental protocol and data evaluation in the framework of large strain elasticity theory*"; Polymer, **123** (2017), pp. 334-344.

24. M.-I. Pastrama, S. Scheiner, P. Pivonka, and C. Hellmich: „*A mathematical model of bone remodeling, accounting for pore space-specific mechanosensation*"; Bone, in production.

25. K. Szlazak, V. Vass, P. Hasslinger, J. Jaroszewicz, A. Dejaco, J. Idaszek, S. Scheiner, C. Hellmich, and W. Swieszkowski: „*X-ray physics-based CT-to-composition conversion applied to a tissue engineering scaffold, enabling multiscale simulation of its elastic behavior*"; Materials Science and Engineering C, in production.

26. J. Scheiblauer, S. Scheiner, M. Joksch, B. Kavsek: „*Fermentation of Saccharomyces cerevisiae – Combining kinetic modeling and optimization techniques point out avenues to effective process design*"; Journal of Theoretical Biology, **453** (2018), pp. 125-135.

27. S.-J. Estermann and S. Scheiner: „*Multiscale modeling provides differentiated insights to the fluid flow-driven stimulation of bone cellular activities*"; Frontiers in Physics (2018).

Begutachtete Artikel in Konferenzbänden

1. B. Pichler, C. Hellmich, S. Scheiner, J. Eberhardsteiner, and H.A. Mang: "*Assessment of protection systems or gravel-buried pipelines considering impact and recurrent shear loading caused by thermal deformations of the pipe*"; in D.R.J. Owen, E. Oñate, and B. Suárez (editors), Proceedings of the VIII International Conference on Computational Plasticity COMPLAS VIII, September 5-7, 2005, Barcelona, Spain, pages 35-38.

2. S. Scheiner and C. Hellmich: "*Stable Pitting Corrosion of Stainless Steel as Diffusion-Controlled Dissolution Process with a Sharp Moving Electrode Boundary*". In D.R.J. Owen, E. Oñate, and B. Suárez (editors), Proceedings of the VIII International Conference on Computational Plasticity (COMPLAS VIII), September 5-7, 2005, Barcelona, Spain, pages 193-196.

3. S. Scheiner and C. Hellmich: "*Stable Pitting Corrosion of Steel: A Diffusion-Controlled Dissolution Process*"; in G. Meschke, R. de Borst, H.A. Mang, and N. Bicanic (editors), Proceeding of the Fifth

Conference on Computational Modeling of Concrete Structures (EURO-C 2006), March 27-30, 2006, Mayrhofen, Austria, pages 183-189, Taylor and Francis, London, U.K.

4. B. Pichler, S. Scheiner, O. Río, L. Fernández-Luco, Á. Castillo, C. Hellmich, and J. Eberhardsteiner: "*Shotcrete at early ages: comparison of test results with a thermo-chemo-micromechanics-based model for shotcrete*"; in J. Eberhardsteiner, G. Beer, C. Hellmich, H. A. Mang, G. Meschke, and W. Schubert (editors), CD-ROM Proceedings of the ECCOMAS Thematic Conference on Computational Methods in Tunnelling (EURO:TUN 2007), August 27-29, 2007, Vienna, Austria, 11 pages.

5. S. Scheiner and C. Hellmich: "*Continuum microviscoelasticity of cementitious materials: upscaling technique and first experimental validation*"; in J. Eberhardsteiner, G. Beer, C. Hellmich, H.A. Mang, G. Meschke, and W. Schubert (editors), CD-ROM Proceedings of the ECCOMAS Thematic Conference on Computational Methods in Tunnelling (EURO:TUN 2007), August 27-29, 2007, Vienna, Austria, 5 pages.

6. S. Scheiner and C. Hellmich: "*Continuum microviscoelasticity of cementitious materials: upscaling technique and first experimental validation*"; in E. Oñate, D.R.J. Owen, and B. Suárez (editors), Proceedings of the IX International Conference on Computational Plasticity (COMPLAS IX), September 5-7, 2007, Barcelona, Spain, pages 498-501.

7. S. Scheiner and C. Hellmich: "*Continuum microviscoelasticity of cementitious materials: upscaling technique and first experimental validation*"; in E. Schlangen and G. De Schutter (editors), Proceedings of the International RILEM Symposium on Concrete Modelling (CONMOD 08), May 26-28, 2008, Delft, The Netherlands, pages 259-263, RILEM Publications S.A.R.L.

8. S. Scheiner, B. Pichler, C. Hellmich, and H.A. Mang: "*Damage and Disaster Prevention in NATM Tunnels during Construction: Micromechanics-Supported Hybrid Analyses*"; in A. Ibrahimbegovic and M. Zlatar (editors), Proceedings of NATO-ARW Damage assessment and Reconstruction after Natural Disasters and Previous Military Activities, October 5-9, 2008, Sarajevo, Bosnia and Herzigowina, pages 145-171, Springer Verlag.

9. H.A. Mang, E. Aigner, J. Eberhardsteiner, C. Hackspiel, C. Hellmich, K. Hofstetter, R. Lackner, B. Pichler, S. Scheiner, and R. Stürzenbecher: "*Computational Multiscale Analysis in Civil Engineering*"; in Y.-B. Yang, L.-J. Leu, C.-S. Chen, and P.-C. Su (editors), Keynote Lectures and Extended Abstracts of the Eleventh East Asia-Pacific Conference on Structural Engineering and Construction (EASEC-11), November 19-21, 2008, Taipei, Taiwan, pages 3-14, D&E Drawing and Editing Services Company.

10. S. Scheiner and C. Hellmich: "*Continuum microviscoelasticity of cementitious materials: upscaling technique and first experimental validation*"; in Z. Bittnar, J. Zeman, J.M. Bartos, J. Nemecek, and V. Smilauer (editors), Proceedings of the Nanotechnology in Construction 3 (NICOM3), May 31-June 2, 2009, pages 89-93, Springer Verlag, Berlin, Germany.

11. B. Pichler, S. Scheiner, C. Hellmich, and J. Eberhardsteiner: "*Micromechanics-based models for elasticity and strength of shotcrete, for hybrid analyses of NATM tunnel shells*"; in G. Meschke, G. Beer, J. Eberhardsteiner, D. Hartmann, and M. Thewes (editors), Proceedings of Computational Methods in Tunnelling (EURO:TUN 2009), September 9-11, 2009, Bochum, Germany, pages 431-436, Aedificatio Publishers, Freiburg, Germany.

12. S. Scheiner, S. Ullah, and C. Hellmich: "*Continuum Microviscoelasticity of cementitious materials: upscaling technique, experimental validation, and application to structural tunnel simulations*"; in G. Meschke, G. Beer, J. Eberhardsteiner, D. Hartmann, and M. Thewes (editors), Proceedings of Computational Methods in Tunnelling (EURO:TUN 2009), pages 415-420, September 9-11, 2009, Aedificatio Publishers, Freiburg, Germany.

13. C. Hellmich, S. Ullah,   B. Pichler, and S. Scheiner: "*Monitoring of creeping tunnel shells: Influence of shotcrete mixture characteristics*"; Proceedings of the Third Euro-Mediterranean

Symposium on Advances in Geomaterials and Structures (AGS 10), May 10-12, 2010, Djerba, Tunisia, pages 141-150, École Polytechnique Fédéderale de Lausanne, Lausanne, Switzerland.

14. H.A. Mang, G. Höfinger, X. Jia, K. Hofstetter, T. Bader, K. Eitelberger, B. Pichler, S. Scheiner, S. Ullah, M. Zeiml, A. Amouzandeh, T. Ring, J. Eberhardsteiner, and C. Hellmich: "*Computational civil engineering mechanics -- elucidating general features of materials and structures*"; in J.S. Chen, Y.B. Yang, and D. Chen (editors), Proceedings of the First International Conference on Advances in Interaction and Multiscale Mechanics (AIMM'10), May 30-June 3, 2010, 19 pages, Techno-Press Korea.

15. C. Hellmich, S. Ullah, B. Pichler, and S. Scheiner: "*Microviscoelasticity of cementitious materials:application to structural simulations of NATM tunnel shells*"; Proceedings of the International RILEM Symposium on Concrete Modelling (CONMOD 10), June 22-25, 2010, Lausanne, Switzerland, pages 135-139, RILEM Publications S.A.R.L.

16. S. Scheiner, P. Pivonka, and D.W. Smith: "*Modeling of electro-diffusive ion transport through charged porous materials using a multiscale iterative approach*". In K. Vafai (editor), Proceedings of the Third International Conference on Porous Media and its Applications in Science, Engineering, and Industry, June 20-25, 2010, Montecatini, Italy, pages 325-330; in AIP Conference Proceedings, **1254**, 2010, pp. 325-330.

17. S. Scheiner, P. Pivonka, and D.W. Smith: "*Two-scale model for electro-diffusive transport through charged porous materials*"; in N. Khalili, S. Valliappan, Q. Li, and A. Russell (editors), CD-ROM Proceedings of the 9th World Congress on Computational Mechanics (WCCM 2010), July 19-23, 2010, Sydney, Australia, 10 pages; in IOP Conference Series: Materials Science and Engineering, **10**, 2014, article number 012112.

18. S. Scheiner, A. Théoval, P. Pivonka, D.W. Smith, L.F. Bonewald: "*Investigation of nutrient transport mechanisms in the lacunae-canaliculi system*"; in N. Khalili, S. Valliappan, Q. Li, and A. Russell (editors), CD-ROM Proceedings of the 9th World Congress on Computational Mechanics (WCCM 2010), July 19-23, 2010, Sydney, Australia, 8 pages; in IOP Conference Series: Materials Science and Engineering, **10**, 2014, article number 012129.

19. S. Scheiner, P. Pivonka, and D.W. Smith: "*Transport of ions in porous media: Estimation of effective transport properties by means of a numerical approach*"; CD-ROM Proceedings of the 2011 GeoProc Conference: Cross Boundaries through THMC Integration, July 6-9, 2011, Perth, Australia, 10 pages.

20. S. Scheiner, P. Pivonka, C. Hellmich, and D.W. Smith: "*Computational simulation of the mechanobiological regulation of bone remodeling by means of a coupled systems biology-micromechanical approach*"; CD-ROM Proceedings of the Ninth IASTED Conference on Biomedical Engineering, February 15-17, 2012, Innsbruck, Austria, 8 pages.

21. L. Eberhardsteiner, C. Hellmich, and S. Scheiner: "*Layered water in crystal interfaces as source for bone viscoelasticity: Arguments from a multiscale approach*"; CD-ROM Proceedings of the Ninth IASTED Conference on Biomedical Engineering, February 15-17, 2012, Innsbruck, Austria, 7 pages.

22. S. Scheiner, P. Pivonka, D.W. Smith, and C.R. Dunstan: "*Computer simulation-based modeling of the pharmaceutical intervention of postmenopausal osteoporosis by denosumab*"; CD-ROM Proceedings of the ASME 2012 11th Biennal Conference on Engineering Systems Design and Analysis, July 2-4, 2012, Nantes, France, 5 pages.

23. S. Scheiner, P. Pivonka, C. Hellmich, and D.W. Smith: "*A mathematical model of bone remodeling considering mechanoregulatory mechanisms: Theoretical model development and numerical studies*"; CD-ROM Proceedings of 10th World Congress on Computational Mechanics, July 8-13, 2012, São Paulo, Brazil, 14 pages.

24. S. Scheiner, C. Hellmich, C. Müller, and C. Kober: "*Extending 2D mandibular radiographs into 3D, based on the X-ray physics of composite materials*"; CD-ROM Proceedings of the Tenth IASTED Conference on Biomedical Engineering, February 13-15, 2013, Innsbruck, Austria, 6 pages.

25. S. Scheiner, P. Pivonka, and C. Hellmich: "*Poromechanical stimulation of bone remodeling: a continuum micromechanics-based mathematical model and experimental validation*"; Proceedings of the 5th Biot Conference on Poromechanics, American Society of Civil Engineers, July 10-12, 2013, Vienna, Austria, 10 pages.

Schriften (eigene)

1. S. Scheiner: "*Corrosion of Steel in Reinforced Concrete: Problem Definition and Simulation of Pitting Corrosion by Means of Analytical and Numerical Methods*"; Master's Thesis, Vienna University of Technology, Vienna, Austria, 2004.

2. S. Scheiner: "*Computational Mechanics and Physics Contributions to Corrosion, Geotechnical, Concrete, and Biomedical Engineering: Development and Experimental Validation of Semi-Analytical and Numerical Models*"; PhD Thesis, Vienna University of Technology, Vienna, Austria, 2009.

3. S. Scheiner: "*Multiscale Modeling of Porous Media: Coupling Transport, Mechanics, Chemistry, and Biology*"; Habilitation Thesis, Vienna University of Technology, Vienna, Austria, 2018.

Schriften (angeleitete)

1. J. Scheiblauer: "A mathematical systems biology approach to yeast fermentation: identification of governing physical quantities"; Master's Thesis, Vienna University of Technology, Vienna, Austria, 2015.

2. R. Plachy: "On the compressibility of unvulcanized rubber: experiments and theoretical considerations"; Master's Thesis, Vienna University of Technology, Vienna, Austria, 2016.

3. S.-J. Estermann: "Investigation of fluid flow-induced stimulation of osteocytes by means of micromechanics-inspired multiscale modeling"; Master's Thesis, Vienna University of Technology, Vienna, Austria, 2017.

Wissenschaftliche Vorträge und Posterpräsentationen

1. "*Stable Pitting Corrosion of Stainless Steel as Diffusion-Controlled Dissolution Process with a Sharp Moving Electrode Boundary*"; 15th Inter-Institute Seminar for Young Researchers, April 21-24, 2005, Budapest, Hungary.

2. "*Modeling Thermomechanical Behavior of Functionally Graded Materials*"; KMM-NoE - First Integration Summer School, September 12-14, 2005, Udine, Italy.

3. "*Stable Pitting Corrosion of Steel: A Diffusion-Controlled Dissolution Process*"; Conference on Computational Modelling of Concrete Structures (EURO-C 2006), March 27-30, 2006, Mayrhofen, Austria.

4. "*Material Modelling of New Cementitious Materials*"; TUNCONSTRUCT SP1 Consortium Meeting, May 8-10, 2006, Bochum, Germany.

5. "*Micromechanics-based Material Models for New Cementitious Materials for Tunnel Linings*"; Internal TUNCONSTRUCT Workshop on Underground Structural Materials, November 27, 2006, Palma de Mallorca, Spain.

6. "*Continuum Microviscoelasticity of Concrete: Upscaling Technique and Experimental Validation*"; 16th Inter-Institute Seminar for Young Researchers, May 17-20, 2007, Vienna, Austria.

7. "*Material Models for New Cementitious Materials for Tunnel Linings Based on Micromechanics Considering Chemo-Physical Processes on the Microstructure*"; TUNCONSTRUCT SP1 Consortium Meeting, May 31-June 1, 2007, Chania, Greece.

8. "*Continuum Microviscoelasticity of Cementitious Materials: Upscaling Technique and First Experimental Validation*"; ECCOMAS Thematic Conference on Computational Methods in Tunnelling (EURO:TUN2007), August 27-29, 2007, Vienna, Austria.

9. "*Investigation of nutrient transport mechanisms in the lacunae-canaliculi system*"; poster presentation at the Sixth Clare Valley Bone Meeting, March 26-29, 2010, Clare Country Club, Clare, South Australia, Australia.

10. "*Investigation of nutrient transport mechanisms in the lacunae-canaliculi system*"; 9th World Congress on Computational Mechanics (WCCM 2010), July 19-23, 2010, Sydney, Australia.

11. "*Predictive monitoring of bone stiffness by means of computer simulations: a coupled biochemical-micromechanical approach*"; poster presentation at the Gordon Research Conference on Biomineralization 2010, August 15-20, 2010, New London, NH, USA.

12. "*Transport of ions in porous media: Estimation of effective transport properties by means of a numerical approach*"; 2011 GeoProc Conference: Cross Boundaries through THMC Integration, July 6-9, 2011, Perth, Australia.

13. "*A bio-chemo-mechanically coupled model computational model of bone remodeling*"; 11th International Symposium on Biomineralization, July 10-14, 2011, Noosa Heads, Australia.

14. "*Computational simulation of bone remodeling based on a coupled systems biology-micromechanical approach*"; 9th International Conference on Biomedical Engineering (IASTED 2012), February 15-17, 2012, Innsbruck, Austria.

15. "*Computational simulation-based modeling of the pharmaceutical intervention of postmenpausal osteoporosis by denosumab*"; ASME 2012 11th Biennal Conference on Engineering Systems Design and Analysis (ESDA 2012), July 2-4, 2012, Nantes, France.

16. "*A mathematical model of bone remodeling considering mechanoregulatory mechanisms: Theoretical model development and numerical studies*"; 10th World Congress on Computational Mechanics (WCCM 2012), July 8-13, 2012, São Paulo, Brazil.

17. "*Simulation of the pharmaceutical intervention of postmenopausal osteoporosis by means of a computational approach*"; 6th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2012), September 10-14, 2012, Vienna, Austria.

18. "*Extending 2D mandibular radiographs into 3D, based on the X-ray physics of composite materials*"; Tenth IASTED Conference on Biomedical Engineering, February 13-15, 2013, Innsbruck, Austria.

19. "*The role of the vascular porosity of cortical bone as co-governing factor of bone remodeling – Insights from a multiple length scales-integrating mathematical model*"; 8. Jahrestagung der Deutschen Gesellschaft für Biomechanik [Eighth Annual Meeting of the German Society of Biomechanics], May 15-17, 2013, Neu-Ulm, Germany.

20. "*2D-to-3D extension of clinical mandible radiographs, based on X-ray physics of composites*"; International Conference on Computational & Experimental Engineering and Science (ICCES 13), May 24-28, 2013, Seattle, WA, USA.

21. "*Computational simulation of osteoporosis and its treatment by denosumab based on an integrated systems biology/micromechanical approach*"; V International Conference on Coupled Problems in Science and Engineering (COUPLED Problems 2013), June 17-19, 2013, Ibiza, Spain.

22. "*Poromechanical stimulation of bone remodeling: a continuum micromechanics-based mathematical model and experimental validation*"; 5th Biot Conference on Poromechanics, July 10-12, 2013, Vienna, Austria.

23. "*Mathematical modeling of bone remodeling in cortical bone, driven by biochemical and mechanical factors, and by the vascular porosity*"; Engineering Mechanics Institute Conference (EMI 2013), August 4-7, 2013, Northwestern University, Evanston, IL, USA.

24. "*Computer simulations of bone remodeling, based on a mathematical model considering bio-chemo-mechanical regulation, as well as the influence of the vascular porosity*"; 19th Congress of the European Society of Biomechanics (ESB 2013), August 25-28, 2013, Patras, Greece.

25. "*Integration of systems biology and multiscale bone mechanics for computational simulation of the cortical bone remodeling progress in health and disease*"; poster and oral presentation at the 3rd Joint Meeting of Cost Action MP1005, From nano to macro biomaterials (design, processing, characterization, modeling) and applications to stem cells regenerative orthopedic and dental medicine (NAMABIO), August 29-30, 2013, Patras, Greece.

26. "*Research on biomaterials and biological tissues at the Institute for Mechanics of Materials and Structures, Vienna University of Technology*"; poster presentation at the First Workshop of Cost Action MP1301, New Generation Biomimetic and Customized Implants for Bone Engineering (NEWGEN), May 7-8, 2014, Nantes, France.

27. "*Microporomechanics reveals that subjecting bone to physiological strain induces the optimum pressure stimulus in osteocytes*"; 7th World Congress of Biomechanics, July 6-11, 2014, Boston, MA, USA.

28. "*Mathematical modeling approaches covering regulatory cues of the bone metabolism: merging biology and mechanics*"; Materials for Health: A Value Chain in the Frame of H2020, July 16-17, 2014, Torino, Italy.

29. "*Osteocyte stimulation through pore pressurization induced by physiological macroscopic bone strains: Insights from a microporomechanical model*"; keynote presentation at the 11th World Congress on Computational Mechanics (WCCM 2014), July 20-25, 2014, Barcelona, Spain.

30. "*Microporomechanics reveals that subjecting bone to physiological strain induces the optimum pressure stimulus in osteocytes*"; 2014 Engineering Mechanics Institute Conference of the American Institute of Civil Engineers (EMI 2014), August 5-8, 2014, Hamilton, Ontario, Canada.

31. "*Employing mathematical modeling for understanding the biochemical and mechanical cues of bone remodeling: A coupled poromicromechanics/systems biology approach*"; Unified Scientific Approaches Towards Regenerative Orthopedics and Dentistry (REDEOR), March 25-27, 2015, Venice, Italy.

32. "*Poromicromechanics reveals that physiological bone strain induces osteocyte-stimulating lacunar pressure*"; VI International Conference on Coupled Problems in Science and Engineering (COUPLED Problems 2015), May 18-20, 2015, Venice, Italy.

33. "*Coupling microporomechanics and multiscale systems biology for computer simulation-based prediction of bone remodeling*"; 2015 Engineering Mechanics Institute Conference of the American Institute of Civil Engineers (EMI 2015), June 16-19, 2015, Stanford University, Palo Alto, CA, USA.

34. "*A coupled poromicromechanical/systems biology approach for simulating the biochemical and mechanical cues of bone remodeling*"; 19th Congress of the European Society of Biomechanics (ESB 2015), July 6-8, 2015, Prague, Czech Republic.

35. "*Poromicromechanics employed for studying the integrity of biomaterials driven by physiological processes*"; 7th International Symposium for Defect and Material Mechanics (ISDMM 2015), September 14-17, 2015, Bremen, Germany.

36. "*Poromicromechanics reveals that physiological bone strain induces osteocyte-stimulating lacunar pressure*"; International Workshop on Multiscale Models in Mechano- and Tumor Biology: Modeling, Homogenization, and Applications, September 28-30, 2015, Darmstadt, Germany.

37. "*Micromechanical stiffness estimation of tissue engineering scaffolds composed of hydroxyapatite granules, considering bone regeneration*"; Annual Meeting of the German Association for Applied Mathematics and Mechanics (GAMM), March 7-11, 2016, Braunschweig, Germany.

38. "*Mathematical modeling employed for biomaterial design*"; Workshop and WG Meeting of Cost Action MP1301, New Generation Biomimetic and Customized Implants for Bone Engineering (NEWGEN), October 13-14, 2015, Sofia, Bulgaria.

39. "*Stiffness and strength prediction for a hydroxyapatite-based biomaterial, considering bone regeneration*"; poster presentation at the Workshop and WG Meeting of Cost Action MP1301, New Generation Biomimetic and Customized Implants for Bone Engineering (NEWGEN), March 17-18, 2016, Aveiro, Portugal.

40. "*Micromechanical stiffness and strength estimation of tissue engineering scaffolds composed of hydroxyapatite granules, considering bone regeneration*"; 2016 Engineering Mechanics Institute Conference of the American Institute of Civil Engineers (EMI 2016), May 23-25, 2016, Nashville, TN, USA.

41. "*Micromechanical stiffness and strength estimation of tissue engineering scaffolds composed of hydroxyapatite granules, considering bone regeneration*"; European Congress on Computational Methods in Applied Mechanics and Engineering (ECCOMAS 2016), June 5-10, 2016, Crete, Greece.

42. "*Stiffness and strength prediction for a hydroxyapatite-based biomaterial, considering bone regeneration*"; poster presentation at the 22nd Congress of the European Society of Biomechanics (ESB 2016), July 10-13, 2016, Lyon, France.

43. "*Stiffness and strength prediction for a hydroxyapatite-based biomaterial, considering bone regeneration*"; Fall Meeting of the European Materials Research Society, September 19-22, 2016, Warsaw, Poland.

44. "*Stiffness and strength prediction for a hydroxyapatite-based biomaterial, considering bone regeneration*"; Workshop and WG Meeting of Cost Action MP1301, New Generation Biomimetic and Customized Implants for Bone Engineering (NEWGEN), November 15-16, 2016, Zlín, Czech Republic.

45. "*Mechanical characterization of bone tissue engineering scaffold through X-ray physics-based analysis of CT images*"; Workshop and WG Meeting of Cost Action MP1301, New Generation Biomimetic and Customized Implants for Bone Engineering (NEWGEN), March 13-15, 2017, Cluj, Romania.

46. "*Multiscale systems biology of bone, accounting for pore space-specific mechanosensation*"; 2017 Engineering Mechanics Institute Conference of the American Institute of Civil Engineers (EMI 2017), June 4-7, 2017, San Diego, CA, USA.

47. "*Pore space-specific bone mechanosensation studied by means of a multiscale systems biology approach*"; 23rd Congress of the European Society of Biomechanics (ESB 2017), July 2-5, 2017, Seville, Spain.

48. "*Multiscale modeling of bone mechanobiology*"; keynote presentation at the Inter-Institute Seminar for Young Researchers, October 7, 2017, Budapest, Hungary.

49. "*Pore space-specific bone mechanosensation studied by means of a multiscale systems biology approach*"; 3rd International Conference on Biomedical Technology (ICBT 2017), November 6-8, 2017, Hannover, Germany.

50. "*Predicting bone remodeling in health and disease – theoretical foundations and numerical studies*"; Inaugural Meeting of the Vienna Center of Engineering in Medicine (ViCEM), November 9-10, 2017, Vienna, Austria.

51. "*Estimating the stiffness and strength increase of a ceramic biomaterial due to bone regeneration by means of a micromechanical approach*", 16th European Mechanics of Material Conference, March 26-28, 2018, Nantes, France.

52. "*Pore space-specific bone mechanosensation studied by means of a coupled multiscale systems biology/micromechanics approach*", EUROMECH Colloquium 594 – Bone Remodeling: Multiscale Mechanical Models and Multiphysical Aspects, May 15-17, 2018, Nancy, France.

53. "Multiscale Modeling Provides Differentiated Insights to Fluid Flow-Driven Stimulation of Bone Cellular Activities", Engineering Mechanics Institute Conference 2018 (EMI 2018), May 29 – June 1, 2018, Cambridge, MA, USA.

54. "Multiscale Modeling Provides Differentiated Insights to Fluid Flow-Driven Stimulation of Bone Cellular Activities", 8th World Congress on Biomechanics (WCB 2018), July 8-12, 2018, Dublin, Ireland.