Monday, 14/03/2022

Publication List
(Markus A. Hartmann)

Peer Reviewed Publications

1. Barbara M. Misof, Stéphane Blouin, Vicente F.C. Andrade, Paul Roschger, Victoria Z.C. Borba, Markus A. Hartmann, Jochen Zwerina, Robert R. Recker, Carolina A. Moreira
   No evidence of mineralization abnormalities in iliac bone of premenopausal women with type 2 diabetes mellitus
   Journal of Musculoskeletal and Neuronal Interactions, **accepted**

2. Riikka E. Mäkitie, Stéphane Blouin, Ville-Valtteri Välimäki, Sandra Pihlström, Kirsi Määttä, Minna Pekkinen, Nadja Fratzl-Zelman, Outi Mäkitie and Markus A. Hartmann
   Abnormal bone tissue organization and osteocyte lacuno-canalicular network in early-onset osteoporosis due to SGMS2 mutations
   JBMR Plus **5**, e10537 (2021)
   DOI: 10.1002/jbm4.10537
3. Alexandra Tits, Erwan Plougonven, Stéphane Blouin, Markus A. Hartmann, Jean-François Kaux, Pierre Drion, Justin Fernandez, G. Harry van Lenthe and Davide Ruffoni
   Local anisotropy in mineralized fibrocartilage and subchondral bone beneath the tendon-bone interface
   Scientific Reports **11**, 16534 (2021)
   DOI: 10.1038/s41598-021-95917-4
4. Karol Alí Apaza Alccayhuaman, Stefan Tangl, Stéphane Blouin, Markus A. Hartmann, Patrick Heimel, Ulrike Kuchler, Jung-Seok Lee and Reinhard Gruber
   Osteoconductive properties of a volume-stable collagen matrix in rat calvaria defects: a pilot study
   Biomedicines **9**, 732 (2021)
   DOI: 10.3390/biomedicines9070732
5. Matthias Mähr, Stéphane Blouin, Martina Behanova, Barbara M. Misof, Francis H. Glorieux, Jochen Zwerina, Frank Rauch, Markus A. Hartmann and Nadja Fratzl-Zelman
   Increased osteocyte lacunae density in the hypermineralized bone matrix of children with osteogenesis imperfecta type I
   International Journal of Molecular Sciences **22**, 4508 (2021)
   DOI: 10.3390/ijms22094508

6. Benjamin Hadzimuratovic, Judith Haschka, Markus A. Hartmann, Stéphane Blouin, Nadja Fratzl-Zelman, Jochen Zwerina and Roland Kocijan
Impact of tenofovir disoproxil-induced Fanconi Syndrome on bone material quality: a case report
JBMR Plus **5**, e10506 (2021)
DOI: 10.1002/jbm4.10506
7. Markus A. Hartmann, Stéphane Blouin, Barbara M. Misof, Nadja Fratzl-Zelman, Paul Roschger, Andrea Berzlanovich, Gerlinde M. Gruber, Peter C. Brugger, Jochen Zwerina and Peter Fratzl
Quantitative Backscattered Electron Imaging of bone using a thermionic or a field emission electron source
Calcified Tissue International **109**, 190 (2021)
DOI: 10.1007/s00223-021-00832-5
8. Nadja Fratzl-Zelman, Katherine Wesseling-Perry, Riikka E. Mäkitie, Stéphane Blouin, Markus A. Hartmann, Jochen Zwerina, Ville-Valtteri Välimäkie, Christine M. Laine, Matti J. Välimäki, Renata C. Pereira and Outi Mäkiti
Bone material properties and response to teriparatide in osteoporosis due to WNT1 and PLS3 mutations
Bone **146**, 115900 (2021)
DOI: 10.1016/j.bone.2021.115900
9. Matthias Mähr, Stéphane Blouin, Barbara M. Misof, Eleftherios P. Paschalis, Markus A. Hartmann, Jochen Zwerina and Nadja Fratzl-Zelman
Bone properties in Osteogenesis imperfecta: what can we learn from a bone biopsy beyond histology?
Wiener Medizinische Wochenschrift **171**, 111 (2021)
DOI: 10.1007/s10354-021-00818-w
10. Huzaifa Shabbir and Markus A. Hartmann
A high coordination of cross-links in fiber bundles prevents local strain concentrations
Computational Materials Science **184**, 109849 (2020)
DOI: 10.1016/j.commatsci.2020.109849
11. Eleftherios P. Paschalis, Klaus Klaushofer and Markus A. Hartmann
Material properties and osteoporosis
F1000Research **8**(F1000 Faculty Rev), 1481 (2019)
DOI: 10.12688/f1000research.18239.1
12. Huzaifa Shabbir, Christoph Dellago and Markus A. Hartmann
A high coordination of cross-links is beneficial for the strength of cross-linked fibers
Biomimetics **4**, 12 (2019)
DOI: 10.3390/biomimetics4010012
13. Huzaifa Shabbir and Markus A. Hartmann
Influence of reversible cross-link coordination on the mechanical behavior of a linear polymer chain
New Journal of Physics **19**, 093024 (2017)
DOI: 10.1088/1367-2630/aa87d2

14. Abraao C. Torres-Dias, Tiago F. T. Cerqueira, Wenwen Cui, Miguel A. L. Marques, Silvana Botti, Denis Machon, Markus A. Hartmann, Yiwei Sun, David J. Dunstan and Alfonso San-Miguel
From mesoscale to nanoscale mechanics in single-wall carbon nanotubes
Carbon **123**, 145 (2017)
DOI: 10.1016/j.carbon.2017.07.036
15. Christian Prehal, Christian Koczwara, Nicolas Jäckel, Anna Schreiber, Max Burian, Heinz Amenitsch, Markus A. Hartmann, Volker Presser and Oskar Paris
Quantification of ion confinement and desolvation in nanoporous supercapacitors with modelling and in-situ X-ray scattering
Nature Energy **2**, 16215 (2017)
DOI: 10.1038/nenergy.2016.215
16. David Holec, Liangcai Zhou, Helmut Riedl, Christian M. Koller, Paul. H. Mayrhofer, Martin Friák, Mojmír Šob , Fritz Körmann, Jörg Neugebauer, Denis Music, Markus A. Hartmann and Franz D. Fischer
Atomistic Modeling-Based Design of Novel Materials
Advanced Engineering Materials **19**, 1600688 (2017)
10.1002/adem.201600688
17. S. Soran Nabavi and Markus A. Hartmann
Weak reversible cross-links may decrease the strength of aligned fiber bundles
Soft Matter **12**, 2047 (2016)
DOI: 10.1039/c5sm02614h
18. S. Soran Nabavi, Peter Fratzl and Markus A. Hartmann
Energy dissipation and recovery in a simple model with reversible cross links
Physical Review E **91**, 032603 (2015)
DOI: 10.1103/PhysRevE.91.032603
19. S. Soran Nabavi, Matthew J. Harrington, Peter Fratzl and Markus A. Hartmann
Influence of sacrificial bonds on the mechanical behavior of polymer chains
Bioinspired, Biomimetic and Nanobiomaterials **3**, 139 (2014)
DOI: 10.1680/BBN.14.00009
20. André Körnig, Markus A. Hartmann, Christian Teichert, Peter Fratzl and Damien Faivre
Magnetic force imaging of a chain of biogenic magnetite and Monte-Carlo analysis of tip-particle interaction
Journal of Physics D: Applied Physics **47**, 235403 (2014)
DOI: 10.1088/0022-3727/47/23/235403
21. S. Soran Nabavi, Matthew J. Harrington, Oskar Paris, Peter Fratzl and Markus A. Hartmann
The role of topology and thermal backbone fluctuations on sacrificial bond efficacy in mechanical metalloproteins
New Journal of Physics **16**, 013003 (2014)
DOI: 10.1088/1367-2630/16/1/013003
Chosen as one of the Highlight Papers 2014

22. Melanie Todt, Robert D. Bitsche, Markus A. Hartmann, Franz D. Fischer and Franz G. Rammerstorfer
Growth limit of carbon onions - A continuum mechanical study
International Journal of Solids and Structures **51**, 706 (2014)
DOI: 10.1016/J.IJSOLSTR.2013.10.038

23. Markus A. Hartmann, Melanie Todt, Franz G. Rammerstorfer, Franz D. Fischer and Oskar Paris
Elastic properties of graphene obtained by computational mechanical tests
Europhysics Letters **103**, 68004 (2013)
DOI: 10.1209/0295-5075/103/68004

24. Maxim Erko, Markus A. Hartmann, Igor Zlotnikov, Clara Valverde Serrano, Peter Fratzl and Yael Politi
Structural and mechanical properties of the arthropod cuticle: Comparison between the fang of the spider Cupiennius salei and the carapace of American lobster Homarus americanus
Journal of Structural Biology **183**, 172 (2013)
DOI: 10.1016/J.JSB.2013.06.001

25. Admir Masic, Luca Bertinetti, Roman Schuetz, Leonardo Galvis, Nadya Timofeeva, John W. C. Dunlop, Jong Seto, Markus A. Hartmann and Peter Fratzl
Observations of Multiscale, Stress-Induced Changes of Collagen Orientation in Tendon by Polarized Raman Spectroscopy
Biomacromolecules **12**, 3989 (2011)
DOI: 10.1021/BM201008B

26. Markus A. Hartmann, John W. C. Dunlop, Yves J. M. Bréchet, Peter Fratzl and Richard Weinkamer
Trabecular bone remodelling simulated by a stochastic exchange of discrete bone packets from the surface
Journal of the Mechanical Behavior of Biomedical Materials **4**, 879 (2011)
DOI: 10.1016/J.JMBBM.2011.03.005

27. Melanie Todt, Franz G. Rammerstorfer, Franz D. Fischer, Paul H. Mayrhofer, David Holec and Markus A. Hartmann
Continuum modeling of van der Waals interactions between carbon onion layers
Carbon **49**, 1620 (2011)
DOI: 10.1016/J.CARBON.2010.12.045

28. David Holec, Markus A. Hartmann, Franz D. Fischer, Franz G. Rammerstorfer, Paul H. Mayrhofer and Oskar Paris
Curvature-induced excess surface energy of fullerenes: Density functional theory and Monte Carlo simulations
Physical Review B **81**, 235403 (2010)
DOI: 10.1103/PHYSREVB.81.235403

29. Markus A. Hartmann and Peter Fratzl
Sacrificial ionic bonds need to be randomly distributed to provide shear deformability
Nano Letters **9**, 3603 (2009)
DOI: 10.1021/NL901816S

30. John W. C. Dunlop, Markus A. Hartmann, Yves J. Bréchet, Peter Fratzl and Richard Weinkamer
New suggestions for the mechanical control of bone remodeling
Calcified Tissue International **85**, 45 (2009)
DOI: 10.1007/S00223-009-9242-X

31. Stephan Kubowicz, Markus A. Hartmann, Jean Daillant, Milan K. Sanyal, Ved V. Agrawal, Christian Blot, Oleg Konovalov and Helmuth Möhwald
Gold nanoparticles at the liquid-liquid interface: X-ray study and Monte Carlo simulation
Langmuir **25**, 952 (2009)
DOI: 10.1021/LA802837K

32. Thomas Zemb, David Carriere, Karine Glinel, Markus Hartmann, Annette Meister, Claire Vautrin, Nicolas Delorme, Andreas Fery and Monique Dubois
Cationic bilayers as micro-crystals with in-plane ordered alternated charges
Colloids and Surfaces A **303**, 37 (2007)
DOI: 10.1016/J.COLSURFA.2007.03.028

33. Markus A. Hartmann, Richard Weinkamer, Thomas Zemb, Franz D. Fischer and Peter Fratzl
Switching mechanics with chemistry: A model for the bending stiffness of amphiphilic bilayers with interacting headgroups in crystalline order
Physical Review Letters **97**, 018106 (2006)
DOI: 10.1103/PHYSREVLETT.97.018106

34. Markus A. Hartmann, Richard Weinkamer, Peter Fratzl, Jiri Svoboda and Franz D. Fischer
Onsager's coefficients and diffusion laws—a Monte Carlo study
Philosophical Magazine **85**, 1243 (2005)
DOI: 10.1080/14786430412331333356

35. Richard Weinkamer, Markus A. Hartmann, Yves Brechet and Peter Fratzl
Stochastic lattice for bone remodeling and aging
Physical Review Letters **93**, 228102 (2004)
DOI: 10.1103/PHYSREVLETT.93.228102

36. Lorenz M. Stadler, Bogdan Sepiol, Richard Weinkamer, Markus Hartmann, Peter Fratzl, Jan W. Kantelhardt, Federico Zontone, Gerhard Grübel and Gero Vogl
Long-term correlations distinguish coarsening mechanisms in alloys
Physical Review B **68**, 180101-R (2003)
DOI: 10.1103/PHYSREVB.68.180101

37. Gero Vogl and Markus Hartmann
Diffusion studies with synchrotron radiation
Journal of Physics-Condensed Matter **13**, 7763 (2001)
DOI: 10.1088/0953-8984/13/34/319

Book Chapters, Conference Proceedings & Abstracts

38. Barbara M. Misof, Nadja Fratzl-Zelman, Stéphane Blouin and Markus A. Hartmann
Knochengewebe und -material im gesunden Menschen und bei Krankheit
Journal für Mineralstoffwechsel & Muskuloskelettale Erkrankungen **27**, 98 (2020)
DOI: 10.1007/s41970-020-00122-w
39. Markus A. Hartmann, Melanie Todt and F. G. Rammerstorfer
Atomistic and continuum modelling of graphene and graphene-derived carbon nanostructures in: Structure and Multiscale Mechanics of Carbon Nanomaterials
Series Title: CISM-Springer
Editor: O. Paris
DOI: 10.1007/978-3-7091-1887-0_6
40. Melanie Todt, Florian Toth, Markus A. Hartmann, David Holec, Megan J. Cordill, Franz D. Fischer and Franz G. Rammerstorfer
Computational Simulation of Instability Phenomena in Nanoparticles and Nanofilms
Computational Technology Reviews **10**, 89 (2014)
DOI: 10.4203/ctr.10.4
41. Yiwei W. Sun, David J. Dunstan, Markus A. Hartmann and David Holec
Nanomechanics of Carbon Nanotubes
Proceedings in Applied Mathematics and Mechanics **13**, 7 (2013)
DOI: 10.1002/pamm.201310003
42. Melanie Todt, Markus A. Hartmann and Franz G. Rammerstorfer
Continuum shell models for closed cage carbon nanoparticles
SSTA2013—10th Conference on Shell Structures: Theory and Applications, Gdansk, Poland
DOI: 10.1201/B15684-35
43. Oskar Paris, Markus A. Hartmann and Gerhard Fritz-Popovski
The Mineralised Crustacean Cuticle: Hierarchical Structure and Mechanical Properties in: Materials Design Inspired by Nature - Function through Inner Architecture
RSC Publishing 2013
Editors: Peter Fratzl, John W. C. Dunlop, Richard Weinkamer
DOI: 10.1039/9781849737555-00180

44. Melanie Todt, Franz G. Rammerstorfer, Markus A. Hartmann, Oskar Paris and Franz D. Fischer
Shell-Models for Multi-Layer Carbon Nano-Particles in: Shell-Like Structures
Series Title: Advanced Structured Materials **15**, 585 (2011), Springer
Editors: H. Altenbach, V. A. Eremeyev
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45. Richard Weinkamer, Markus A. Hartmann, Yves Bréchet and Peter Fratzl
Architectural changes of trabecular bone caused by the remodeling process
Material Research Society Symposium Proceedings **874**, L1.9.1 (2005)
DOI: 10.1557/PROC-874-L1.9

46. John W. C. Dunlop, Markus A. Hartmann, Yves Bréchet, Peter Fratzl and Richard Weinkamer
The relation between mechanical stimulus and cell response in trabecular bone remodeling
Calcified Tissue International **80**, S51 (2007)

47. Markus A. Hartmann, Richard Weinkamer, Yves Bréchet and Peter Fratzl
How the behavior of osteoclasts and osteoblasts influences the architecture of trabecular bone
Calcified Tissue International **78**, S72 (2006)

48. Richard Weinkamer, Markus A. Hartmann, Yves Bréchet and Peter Fratzl
Simulation of trabecular bone remodeling and its regulation by mechanical and biological factors
Bone **36**, S195 (2005)