Curriculum vitae

Personal Data

Name:	Hartmann
First Name:	Markus
Researcher ID:	A-3567-2016
orcID:	0000-0001-6046-0365
Date of Birth:	15. February 1977
Place of Birth:	Vienna, Austria
Nationality:	Austria
Family Status:	Married, two children

https://sites.google.com/view/mhartmann

Education

11/2016:	**Habilitation (venia docendi)** in *Computational Material Physics*, Montanuniversitaet Leoben
01/2006:	**Graduation (Dr. rer. nat)**, Humboldt University Berlin
PhD-Thesis:	*Lattice Models in Materials Science – Diffusion, Trabecular Bone Remodeling and Linear Elastic Networks* Thesis Advisor: Prof. Dr. Peter Fratzl
10/2000:	**Graduation (Mag. rer. nat.)** (Master of Physics), University of Vienna
Master Thesis:	*Messung von ionenstrahlinduzierten Spannungen in Glas mittels Röntgenbeugung* prepared at the Hahn-Meitner-Insitute, Berlin Master Thesis Advisor: Prof. Gero Vogl
1995 – 2000:	Academic studies of Physics, University of Vienna, Austria

Current Position

2018 – Present:	Key Researcher, Ludwig Boltzmann Institute of Osteology, Vienna

Previous Positions

2015 – 2018:	Senior PostDoc at the Faculty of Physics, University of Vienna
2009 – 2015:	University Assistant at the Institute of Physics, Montanuniversitaet Leoben
2008 – 2009:	PostDoc at the Max-Planck-Institute of Colloids and Interfaces, Potsdam, Germany
2006 – 2007:	PostDoc at the CEA, Saclay, France
2003 – 2006:	PhD student, Max-Planck-Institute of Colloids and Interfaces, Potsdam, Germany
2002 – 2003:	PhD student, Erich-Schmid-Institute, Austrian Academy of Sciences, Leoben, Austria
1999 – 2000:	Student worker at the Hahn-Meitner-Institute Berlin (now: Helmholtz-Zentrum Berlin für Materialien und Energie)

Scientific Achievements

- 55 Web of Science listed Publications, with a total of 771 citations and a h-factor of 16.
- 2014 highlight paper in New Journal of Physics
- Around 60 presentations at scientific conferences, thereof
  - 21 oral presentations—3 invited talks
  - 7 Poster Presentations
  - 29 Co-Authorships of oral and poster presentations
- Co-organization of the 7th European Winter School on Neutrons and Synchrotron Radiation, 6. – 12. March 2011, Planneralm
- Organization of a mini-symposium *Nano-Mechanics of Carbon Nanoparticles* at the 2013 GAMM Meeting in Novi Sad (together with Franz G. Rammerstorfer)
- Recruitment of 3 third-party projects funded by the Austrian Science Fund (FWF): P 22983-N20 (141 k€ for three years, finished 2015), P 27882-N27 (342 k€ for three years, finished 2020) and P 35715 (399 k€ for 4 years, start in 2022).
- Reviewer activity for Acta Biomaterialia, Journal of Physics and Chemistry of Solids, Philosophical Magazine, Journal of the Royal Society Interface, Calcified Tissue International, Processes, Nutrients, Bioengineering, Applied Sciences and Macromolecules

Supervised PhD-students

- S. Soran Nabavi: *Reversible Cross-links in Polymer Chains: The influence of sacrificial bonds on the mechanical behavior of polymeric system investigated using Monte Carlo simulations*, Montanuniversität Leoben, Graduation: 2014
- Huzaifa Shabbir: *The Influence of Cross-link Coordination on the Mechanical Properties of Polymers—A Monte Carlo Study*, University of Vienna, Graduation 2020
- Chloe Jones, ongoing
- Varsha Margrette, ongoing

PhD-theses (external examiner, external advisor, jury member)

- Lukas Ludescher: *Computational Methods to Evaluate Gas Adsorption and Small Angle Scattering Data from Hierarchically Porous Materials*, Montanuniversität Leoben, Graduation 2020
- Alexandra Tits: *Attaching soft to hard: A multimodal correlative investigation of the tendon-bone interface*, Liège Université, Graduation 2023
- Astrid Cantamessa: ongoing

10 most important publications

1. 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

2. 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

3. 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

4. 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

5. 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

6. 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

7. 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

8. 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

9. 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

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