Dr. rer. nat. Joerg R. Jinschek

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Research Group Google Scholar

EDUCATION

Friedrich-Schiller-University Jena, Jena, Germany	Solid State Physics	Dr.rer.nat. (Ph.D.)	2001
Friedrich-Schiller-University Jena, Jena, Germany	Physics	Diplom (MS)	1997

EXPERIENCE

01/17-pres:	Associate Professor, Materials Science and Engineering & IMR/DT Materials and Manufacturing for Sustainability (M&MS) program, The Ohio State University
01/11-12/16:	Sr. Product Marketing Manager, FEI Company, Materials Science Business Unit, Eindhoven, NL
01/08-12/10:	Research Scientist Sr., DTU Center for Electron Nanoscopy, Kgs Lyngby, DK & FEI Company, Eindhoven, NL
08/05-12/07:	Director, Electron Microscopy Lab., Institute for Critical Technology and Applied Science, Virginia Tech
08/05-12/07:	Adjunct Professor, Geosciences, Virginia Tech
08/05-12/07:	Assistant Professor (Research), Materials Science and Engineering, Virginia Tech
05/05-07/05:	Visiting Scientist, Electron Microscopy Group of Materials Science, University Ulm, Germany
10/01-04/05:	Postdoctoral Researcher, National Center for Electron Microscopy, Lawrence Berkeley National Lab., Berkeley, CA
10/01-09/03:	Postdoctoral Feodor-Lynen-Fellow, Alexander-von-Humboldt Foundation, Germany
02/01-08/01:	Scientific Assistant (Postdoc), Institute for Solid State Physics, FSU Jena
11/97-01/01:	Graduate Research Associate, Transmission Electron Microscopy, FSU Jena
01/96-10/97:	Research Assistant, Thin Film Physics, FSU Jena

MAJOR RESEARCH INTERESTS

State-of-the-art atomic-scale scanning/transmission electron microscopy, in-situ electron microscopy, low dose rate microscopy to study the structure-property relationships in functional material, EM method development, additive manufacturing of metal alloys, (automotive) catalysts, energy materials, corrosion, 2D materials

HONORS AND AWARDS

Business Unit Excellence Award of FEI's Materials Science (2012)
Outstanding Paper Award of the European Microscopy Society (EMS) (2012)
Postdoctoral Feodor-Lynen-Fellow, Alexander-von-Humboldt Foundation, Germany (2001)
MRS poster award (2001)
Dr.rer.nat. (Ph.D.) "magna cum laude"

SELECTED PUBLICATIONS

1. J. Wu, A.E. O'Neill, C.H. Li, J.R. Jinschek, G. Cavataio (2021): Superior TWC Activity of Rh Supported on Pyrochlore-Phase Ceria Zirconia. Applied Catalysis B: Environmental 280, 119450.
2. H.O. Ayoola, C.H. Li, S.D. House, C.S. Bonifacio, K. Kisslinger, J. Jinschek, W.A. Saidie, J.C. Yang (2020): Origin and Suppression of Beam Damage-Induced Oxygen-K Edge Artifact from γ-Al2O3 using Cryo-EELS, Ultramicroscopy, in press, 113127.
3. M. Shao, S. Vijayan, P. Nandwana, J.R. Jinschek (2020): The effect of beam scan strategies on microstructural variations in Ti-6Al-4V fabricated by electron beam powder bed fusion, Materials & Design 196, 109165.

4. C.H. Li, C. Link, J. Lippold, and J.R. Jinschek, (2020): Identification of Interdendritic Phases in Ni-30Cr Weld Metal with Additions of Tantalum and Molybdenum using Electron Diffraction Pattern and High-Resolution Scanning Transmission Electron Microscopy Image Analysis, Materials Characterization 167, 110460.
5. H. O Ayoola, C.S. Bonifacio, Q. Zhu, C.-H. Li, S.D. House, J.J. Kas, J. Jinschek, J.J. Rehr, W.A. Saidi, J.C. Yang (2020): Probing the Local Bonding at the Pt/γ-Al_2O_3 Interface. The Journal of Physical Chemistry C 124, 9876-9885.
6. C.H. Li, J. Wu, C. Chae, and J.R. Jinschek, (2019): TEM Investigation on the Relationship Between Catalytic Activity and Structure in Rh/Al_2O_3 Catalysts. Microscopy and Microanalysis, 25, 710-711.
7. M. Ek, Q. M. Ramasse, L. Arnarson, P. G. Moses, C. F. Kisielowski, J. R. Jinschek, and S. Helveg (2017): Visualizing Redox Chemistry in Oxide Surfaces at Atomic-Resolution. Microscopy and Microanalysis 23, 904-905.
8. J.R. Jinschek (2017): Achieve atomic resolution in in-situ S/TEM experiments to examine complex interface structures in nanomaterials, invited article for a themed issue *"Investigating chemistry, structure and bonding at complex interfaces"*, Current Opinion in Solid State & Materials Science 21, 77–91.
9. Sriram Vijayan, Joerg R Jinschek, Stephan Kujawa, Jens Greiser, and Mark Aindow (2017): Focused Ion Beam Preparation of Specimens for MEMS-based TEM Heating Experiments, Microscopy and Microanalysis, 23(4), 708-716.
10. L. Mele, S. Konings, P. Dona, F. Evertz, C. Mitterbauer, P. Faber, R. Schampers, J.R. Jinschek (2016): A MEMS-based heating holder for the direct imaging of simultaneous in-situ heating and biasing experiments in scanning / transmission electron microscopes, Microscopy Research and Technique 79, 239–250.
11. S. Helveg, C.F. Kisielowski, J.R. Jinschek, P. Specht, G. Yuan, H. Frei (2015): Observing gas-catalyst dynamics at atomic resolution and single-atom sensitivity, Micron 68, 176-185.
12. J.R. Jinschek (2014): Advances in the environmental transmission electron microscope (ETEM) for nanoscale in situ studies of gas–solid interactions, invited Feature article for a themed issue "Structure and Chemistry of Materials from In-situ Electron Microscopy", Chem. Commun. 50, 2696-2706.
13. K. W. Urban, J. Mayer, J. R. Jinschek, M. J. Neish, N. R. Lugg, L. J. Allen (2013): Achromatic elemental mapping beyond the nanoscale in the transmission electron microscope, Phys. Rev. Lett. 110, 185507.
14. J.R. Jinschek, S. Helveg (2012): Image resolution and sensitivity in an environmental transmission electron microscope, Micron 43 (11), 1156-1168.
15. H. Yoshida, Y. Kuwauchi, J.R. Jinschek, K. Sun, S. Tanaka, M. Kohyama, S. Shimada, M. Haruta, S. Takeda (2012): Visualizing Gas Molecules Interacting with Supported Nanoparticulate Catalysts at Reaction Conditions, Science 335 (6066), 317-319.
16. D. Van Dyck, J.R. Jinschek, F.-R. Chen (2012): 'Big Bang' tomography as a new route to atomic-resolution electron tomography, Nature 486, 243–246.
17. J.R. Jinschek, E. Yucelen, H.A. Calderon, B. Freitag (2011): Quantitative atomic 3-D imaging of single / double sheet graphene structure, Carbon 49 (2), 556-562.

SYNERGISTIC ACTIVITIES

1. **Mentorship skills**: Attending training workshops following the proven mentorship development curricula of The Center for the Improvement of Mentored Experiences in Research (CIMER).
2. Symposium organizer, Session chair, and Invited Speaker at various 'Materials' and 'Microscopy' meetings, eg. **Lead Organizer**: 2019 Microscopy and Microanalysis Meeting, Symposium P03 - Revealing the Fundamental Structure of Soft and Hard Matter by Minimizing Beam-Sample Interactions, Portland, OR, Aug 4-8, 2019; **Lead Organizer**: 2018 ACS Falls Meeting, Symposium "Application of Electron Microscopy to Catalysis Studies", Boston, MA, Aug 19-23, 2018; **Co-Organizer**: 2018 Microscopy and Microanalysis Meeting, Symposium P05 - Minimizing Beam-sample Interactions by Modulating Electron Beams in Space and Time, Baltimore, MD, Aug 5-9, 2018
3. Proposal and manuscript **reviewer**: NSF (panel & ad hoc), DOE, ACS, Singapore Ministry of Education, UK EPSRC, Ultramicroscopy, Journal of Microscopy, Scripta, Scientific Reports, etc
4. **Development** and improvement of *in-situ* electron microscopy solutions as research and characterization tools for catalyst R&D, as the leading business and product development owner in FEI's Materials Science BU (now part of Thermo Fisher Scientific)
5. **Awards in Academia and Industry**: 2012 Outstanding Paper Award of the European Microscopy Society (EMS); 2012 Business Unit Excellence Award of FEI's Materials Science BU; 2001-2003 Feodor-Lynen-Fellowship, Alexander-von-Humboldt Foundation (Germany)