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EDUCATION

University of Chicago, Chicago, IL

Ph.D. in Geophysical Sciences, Summer 2005.

Thesis: *Geophysics and Geochemistry of Iron in the Earth's Core*

McCormick Fellowship.

Massachusetts Institute of Technology, Cambridge, MA

Ph.D. candidate in Materials Science and Engineering, Fall 1998-Winter 2001.

Charles Stark Draper Fellowship.

Massachusetts Institute of Technology, Cambridge, MA

Bachelor of Science in Materials Science and Engineering, Spring 1998.

Graduated Phi Beta Kappa.

Member of Tau Beta Pi, a National Engineering Honor Society.

Member of Alpha Sigma Mu, a National Materials Science Honor Society.

PROFESSIONAL EXPERIENCE

Geological Sciences, Stanford University and Photon Science, SLAC National Accelerator Laboratory, Stanford, CA

2019-Current. Full Professor

2014-2019. Associate Professor.

2007-2014. Assistant Professor.

Geophysics, Stanford University, Stanford, CA

2014-2019. Associate Professor by courtesy.

Materials Science & Engineering, Zhejiang University, Hangzhou, China

2009-2012. Adjunct Professor.

Los Alamos Neutron Scattering Center and Hydrology, Geochemistry, and Geology Group, Los Alamos National Laboratory, Los Alamos, NM

2005-2007. J. Robert Oppenheimer Postdoctoral Fellow.

Geophysical Sciences, University of Chicago, Chicago, IL

2001-2005. Graduate research assistant.

Geophysical Laboratory, Carnegie Institution of Washington, Washington, D.C.

Winter 2001-Summer 2005. Predoctoral fellow.

PUBLICATIONS

Total citations: 9023

h-index: 49

*Citations for top ten cited articles noted in bold.

Student and postdoctoral advisees underlined.

180. B. Li, Y. Ding, D. Y. Kim, L. Wang, T-C. Weng, W. Yang, Z. Yu, C. Ji, J. Wang, J. Shu, J. Chen, K. Yang, Y. Xiao, P. Chow, G. Shen, **W. L. Mao**, H-k Mao, Probing the electronic band gap of solid hydrogen by inelastic x-ray scattering up to 90 GPa, *Phys. Rev. Lett.*, in press.
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175. Y. Dai, H. Liu, T. Geng, F. Ke, S. Niu, K. Wang, Y. Qi, B. Zou, B. Yang, **W. L. Mao** and Y. Lin, Pressure-Induced Excimer Formation and Fluorescent Enhancement of an Anthracene Derivative, *J. Mater. Chem. C*, doi:10.1039/d0tc04677a, 2021.
174. F. Ke, C. Wang, C. Jia, N. R. Wolf, J. Yan, S. Niu, T. P. Devereaux, H. I. Karunadasa, **W. L. Mao**, Y. Lin, Preserving a robust CsPbI₃ perovskite phase via pressure-directed octahedral tilt, *Nature Comm.* **12**, 461, 2021.
173. J. Liu, C. X. Wang, S. Zhu, C. Lv, X. Su, R. Tang, Z. Du, Y. Liu, Y. Meng, V. B. Prakapenka, S. Kawaguchi, J. Chen, Q. Zhu, Q. Y. Hu, H-k. Mao, and **W. L. Mao**, Evidence for oxygenation of Fe-Mg oxides at mid-mantle conditions and the rise of deep oxygen, *Natl. Sci. Rev.* doi:10.1093/nsr/nwaa096, 2020.
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170. H-k. Mao and **W. L. Mao**, Key problems of the four-dimensional Earth system. *Matt. Radiat. Extremes* **5**, 038102, 2020.

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139. E. M. Mannebach, C. Nyby, F. Ernst, Y. Zhou, J. Tolsma, Y. Li, M. J. Sher, I. C. Tung, H. Zhou, Q. Zhang, K. L. Seyler, G. Clark, Y. Lin, D. Zhu, J. M. Glowina, M. E. Kozina, S. H. Song, S. Nelson, A. Mehta, Y. F. Yu, A. Pant, O. B. Aslan, A. Raja, Y. S. Guo, A. DiChiara, **W. L. Mao**, L. Y. Cao, S. Tongay, T. F. Heinz, X. D. Xu, A. H. MacDonald, E. Reed, H. D. Wen, A. M. Lindenberg, Dynamic optical control of van der Waals/Casimir interactions in layered transition metal dichalcogenides, *Nano Lett.* **17**, 7761, 2017.
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137. A. E. Gleason, C.A. Bolme, H.J. Lee, B. Nagler, E. Galtier, R. G. Kraus, R. Sandberg, W. Yang, F. Langenhorst, and **W.L. Mao**, Time-Resolved Diffraction of Shock-Released SiO_2 and Diaplectic Glass Formation, *Nature Comm.*, doi: 10.1038/s41467-017-01791-y, 2017.
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- *5. **W. L. Mao**, H-k. Mao, P. J. Eng, T. P. Trainor, M. Newville, C-c. Kao, D. L. Heinz, J. Shu, Y. Meng, and R. Hemley, Bonding changes in compressed superhard graphite, *Science* **302**, 425, 2003. **567 citations**
4. **W. L. Mao**, H-k. Mao, C-s. Yan, J. Shu, J. Hu, and R. J. Hemley, Generation of ultrahigh pressures using single-crystal chemical-vapor-deposition diamond anvils, *Appl. Phys. Lett.* **83**, 5190, 2003.
3. **W. L. Mao**, J. Shu, J. Hu, R. J. Hemley, and H-k. Mao, Displacive transition in magnesiowüstite, *J. Phys.: Condens. Matter* **14**, 11349, 2002.
- *2. **W. L. Mao**, H-k. Mao, A. F. Goncharov, V. V. Struzhkin, Q. Guo, J. Hu, J. Shu, R. J. Hemley, M. Somayazulu, and Y. Zhao, Hydrogen clusters in clathrate hydrate, *Science* **297**, 2247-2249, 2002. **863 citations**

1. J-f. Lin, D. L. Heinz, A. J. Campbell, J. M. Devine, **W. L. Mao**, and G. Shen, Iron-nickel alloy in the Earth's Core, *Geophys. Res. Lett.* **29**, doi: 10.1029/2002GL015089, 2002.

INVITED TALKS

Keynote, Deep Carbon 2019: Launching the Next Decade of Deep Carbon Science, Washington, DC, October 2019.

Workshop of the International Union of Crystallography Commission on High Pressure, Honolulu, HI, August 2018.

Department Seminar, Geological Sciences, Stanford University, Stanford, CA, May 2018.

DeFord Lecture, Jackson School of Geosciences, UT Austin, Austin, TX, April 2018.

Materials Science of Actinides, 2016 All Hands Meeting, Notre Dame, South Bend, IN, November 2016.

X-ray Scattering Contractors' Meeting, Gaithersburg, MD, November 2016.

Berkeley Nano Seminar, UC Berkeley, Berkeley, CA, October 2016.

Double Play with X-rays: Combining X-ray spectroscopy and diffraction at the ALS and future ALS-U beamlines, ALS Users Meeting, Berkeley, CA, October 2016.

Workshop on Frontiers in High Pressure Science and Technology, Changchun, China, June 2016.

Center for High Pressure Science & Technology Advanced Research (HPSTAR) Seminar, Shanghai, China, June 2016.

49th Course of the International School of Crystallography: High Pressure Crystallography: Status Artis and Emerging Opportunities, Erice, Sicily, May 2016.

Departmental Seminar, Geophysical Laboratory, Washington, DC, January 2016.

Emerging Opportunities in High Energy X-ray Science: The Diffraction-Limited Storage Ring Frontier, Argonne, IL, July 2015.

Department of Geophysical Sciences Seminar, University of Chicago, Chicago, IL, April 2015.

International Science Meeting Deep Carbon Observatory, Munich, Germany, March 2015.

Research Highlight, SSRL Imaging Beam Line Review, Menlo Park, CA, March 2015.

Solid Earth Lunch Seminar, Princeton University, Princeton, NJ, October 2014.

Earth and Space Sciences Colloquium, UCLA, Los Angeles, CA, October 2014.

TEDxYouth talk, Summit Preparatory High School, Redwood City, CA, June 2014.

MSA Award Lecture, 2013 Fall GSA Meeting, Denver, CO, October 2013.

Research Highlight, SSRL Scientific Advisory Committee meeting, Menlo Park, CA, October 2013.

6th Asian Conference on High Pressure Research, Beijing, China, August 2012.

Materials Science and Engineering Departmental Seminar, Stanford University, Stanford, CA, February 2012.

High pressure studies using synchrotron radiation: present and future, Soleil Synchrotron, Paris, France, January 2012.

ALS/CXRO Seminar Series, Lawrence Berkeley National Laboratory, Berkeley, CA, November 2011.

Smith Lecture Series, Department of Earth and Environmental Sciences, University of Michigan, Ann Arbor, MI, September 2011.

Chinese Academy of Engineering Physics, Mianyang, China, September 2011.

Research Highlight, DOE Review of Advanced Photon Source, Argonne, IL, September 2011.

Deep Carbon Observatory, Energy, Environment & Climate Workshop, Houston, TX, July 2010.

12th National School on Neutron and X-ray Scattering, Argonne National Laboratory, Argonne, IL, June 2010.

Division of Geological & Planetary Sciences Seminar Series, California Institute of Technology, Pasadena, CA, May 2010.

Berkeley Seismological Laboratory Seminar, UC-Berkeley, CA, October 2009.

Materials Science & Engineering Department, Zhejiang University, Hangzhou, China, September 2009.

Department of Geosciences Colloquium, Stony Brook University, Stony Brook, NY, September 2009.

Solid State Seminar, Department of Physics and Astronomy, Stony Brook University, Stony Brook, NY, September 2009.

SSUN Energy Summer School, Stanford University and SLAC National Accelerator Laboratory, August 2009.

11th National School on Neutron and X-ray Scattering, Argonne National Laboratory, Argonne, IL, June 2009.

Department of Geology, University of California, Davis, CA, April 2009.

Department of Earth and Environmental Sciences, University of Illinois at Chicago, Chicago, IL, March 2009.

Department of Earth and Planetary Sciences, Harvard University, Cambridge, MA, March 2009.

Geophysics Seminar, Department of Earth and Environmental Sciences, Ludwig-Maximilians University, Munich, Germany, November 2008.

Munchner Physik Kolloquium, Joint between Max-Planck Institute for Physics, Technical University of Munich, & Ludwig-Maximilians University, Munich, Germany, November 2008.

Transport Properties of the Lower Mantle Workshop, Yunishigawa, Japan, October 2008.

4th Asian Conference on High Pressure Research, Seoul, Korea, October 2008.

School of Earth and Environmental Sciences, Seoul National University, Seoul, Korea, October 2008.

10th National School on Neutron and X-ray Scattering, Argonne National Laboratory, Argonne, IL, October 2008.

Future of High Pressure Research Workshop, NSLS-II, Brookhaven National Laboratory, Upton, NY, May 2008.

High Resolution Inelastic X-ray Scattering Workshop, Advanced Photon Source, Argonne National Laboratory, Argonne, IL, May 2008.

Sloan Deep Carbon Workshop, Geophysical Laboratory, Washington, DC, May 2008.

American Conference on Neutron Scattering, Santa Fe, NM, May 2008.

Geological Annual Congress, Tainan, Taiwan, May 2008.

Central Geological Survey, Taipei, Taiwan, May 2008.

X-ray Absorption Spectroscopy Workshop, NSLS-II, Brookhaven National Laboratory, Upton, NY, January 2008.

Department of Physics, Chinese University of Hong Kong, China, November 2007.

Department of Earth and Planetary Science, University of California, Berkeley, CA, November 2007.

Sixth Annual Conference on Transatlantic Collaboration in Research, Innovation, and Higher Education, Carnegie Institution of Washington, Washington, DC, October 2007.

Department of Earth and Space Science, University of Washington, Seattle, WA, October 2007.

Department of Earth and Planetary Materials, Tohoku University, Sendai, Japan, September 2007.

5th International Workshop on Water Dynamics, Sendai, Japan, September 2007.

VLab Workshop, University of Minnesota, Minneapolis, MN, August 2007.

LANSCE Neutron School, Los Alamos, NM, July 2007.

6th International Conference on Inelastic X-ray Scattering, Awaji, Japan, May 2007.

Studies of Materials at Extreme Conditions Meeting, Miami Beach, FL, April 2007.

Department of Geophysics, Stanford University, Stanford, CA, January 2007.

Laboratory of Atomic and Solid State Physics, Cornell University, Ithaca, NY, November 2006.

Department of Geological Sciences, Cornell University, Ithaca, NY, November 2006.

Department of Physics Colloquium, New Mexico State, Las Cruces, NM, October 2006.

Department of Geology Colloquium, University of Illinois, Urbana-Champaign, IL, October 2006.

Bayerisches Geoinstitut, Bayreuth, Germany, September 2006.

Workshop on Density, Temperature and Elastic Constants of Earth's Mantle, Bayerische Akademie der Wissenschaften, Munich, Germany, September 2006.

16th Annual V. M. Goldschmidt Conference, Melbourne, Australia, August 2006.

Institute of Earth Sciences, Academia Sinica, Taipei, Taiwan, July 2006.

Future Frontiers in High-Pressure Science and ERL X-ray Beams, Ithaca, NY, June 2006.

Materials Science and Engineering Departmental Seminar, Stanford University, Stanford, CA, May 2006.

Workshop on Synergy of 21st Century High-Pressure Science and Technology, Argonne, IL, May 2006.

Photon Science Seminar, Stanford Synchrotron Radiation Laboratory, Menlo Park, CA, April 2006.

Frontiers in Petrology Seminar Series, Stanford University, Stanford, CA, April 2006.

Earth and Space Sciences Colloquium, UCLA, Los Angeles, CA, April 2006.

SNAP Meeting, Oakridge, TN, April 2006.

Lujan Center Seminar Series, Los Alamos Neutron Science Center, Los Alamos, NM, April 2006.

Department of Geology and Geophysics Seminar Series, University of Minnesota, Minneapolis, MN, March 2006.

ESRF High Pressure and Synchrotron Workshop, Grenoble, France, February 2006.

International workshop on the post-perovskite phase transition in the earth's deep mantle, Tokyo, Japan, October 2005.

IUCr Meeting, Florence, Italy, August 2005.

Hydrogen-Metal Systems Gordon Research Conference, Maine, July 2005.

Aminoff Symposium, Sweden, June 2005.

Nuclear Resonant Scattering on Earth Materials using Synchrotron Radiation Meeting, Argonne, IL, February 2005.

Solid Earth Lunch Seminar, Princeton University, Princeton, NJ, May 2005.

High Pressure Group Meeting, Argonne, IL, November 2004.

Division of Geological & Planetary Sciences Seminar Series, California Institute of Technology, Pasadena, CA, November 2004.

Mineral Physics Group Seminar Series, California Institute of Technology, Pasadena, CA, November 2004.

IUCr High Pressure Workshop, Saskatchewan, Canada, August 2004.

APS User Science Seminar, Argonne, IL, August 2004.

APS Users Meeting, IXS Workshop, Argonne, IL, May 2004.

LANSCE User Group Meeting, Los Alamos Neutron Science Center, Los Alamos, NM, October 2003.

LANL High-Pressure Seminar, Los Alamos, NM, November 2002.

High Pressure Group Meeting, Argonne, IL, October 2002.

10th International Conference on the Physics and Chemistry of Ice, Newfoundland, Canada, July 2002.

AIRAPT-18, Beijing, China, July 2001.

AWARDS

Fellow, Geochemical Society, 2021.

Mineralogical Society of America Award, 2013.

Fellow, Mineralogical Society of America, 2013.

NSF CAREER Award, 2011-2016.

Frederick E. Terman Fellowship, 2009-2012.

COMPRES Distinguished Lecturer, 2008-2009.

Mineral and Rock Physics Group Student Research Award, Fall AGU Meeting, San Francisco, CA, December 2006.

Rosalind Franklin Young Investigator Award, Advanced Photon Source, Argonne National Laboratory, Argonne, IL, May 2006.

2005 J. Robert Oppenheimer Fellowship, Los Alamos National Laboratory, Los Alamos, NM.

EXTERNAL SERVICE

MSA Section Editor for *Lithosphere*, 2019-present.

Bridgman Award Committee, 2017-present.

LCLS PRP member, 2017-2019.

Editor for *Geochemical Perspectives Letters*, 2016-2020.

Roebing Medal Committee, 2016-present.

CSEDI Steering Committee, 2015-2018.

NSF Petrology and Geochemistry Panel Member, 2014-2016.

COMPRES Nominations Committee, 2014.

Associate Editor for *American Mineralogist*, 2010-2013.

Co-chair of Extreme Physics and Chemistry Directorate, Deep Carbon Observatory, 2013-present.

Scientific Steering Committee for the Extreme Physics and Chemistry Directorate, Deep Carbon Observatory, 2011-present.

Elected member of COMPRES Facilities Committee, 2009-2012.

Elected member of APS Users Organization (APSUO) Steering Committee, 2009-2012.

APSUO Rosalind Franklin Young Investigator Award Selection Committee, 2011.
NSF Geophysics Panel Member, 2011.
NSF CSEDI Panel Member, 2010.
West Coast High Pressure Facilities Review Committee, Advanced Light Source, Lawrence Berkeley National Laboratory, 2007-2008.
DOE Hydrogen Fuel Initiative Review, Hydrogen Storage Panel Member, 2008.

STANFORD UNIVERSITY & SLAC SERVICE

Committee on Shared Advanced Research Platforms (c-ShARP), 2021-present.
Director of Graduate Studies, GS Department, 2020-present.
SE3 Appointments and Promotion Committee, 2020-present.
Associate Chair for Diversity and Inclusion, GS Department, 2019-2020.
University Committee on Health & Safety, 2018-present.
Graduate Fellowships Faculty Advisory Committee, 2019-present.
Earth Sciences Council, 2015-present.
GS Graduate Curriculum Committee, Chair, 2018-present.
Stanford Pre-Majors Advisor, 2010-2014, 2015-present.
Faculty Affordability Task Force, 2018-2020.
SE3 Dean Search Committee, 2017.
GS Appointments Committee, 2018-2020
GS Long Range Planning Committee, Chair, 2015-2020.
Associate Chair, GS Department, 2015-2020.
Internal Awards Committee, GS Department, 2015-2018.
SIMES Standing Committee of Diversity Hiring, 2015-present.
Advisory Group on Women at SLAC, 2015-2018.
DIF Advisory Committee, 2015-2018.
GS Communications Committee, 2014-2017.
GS Graduate Admissions Committee, 2012-2015. Chair, 2014-2015.
GES Vision Subcommittee, 2012-2015.
Photon Science Integration Committee, SLAC National Accelerator Laboratory, 2012- 2013.
Elected member of the LCLS Users' Executive Committee, 2011-2014.
GES Educational Outreach Committee, 2010.
GES Seminar Program Coordinator, 2009-2011.

GES Search Committee for Geochronology, Petrology, Geodynamics position, 2008-2009.

GES Long Range Planning Committee, 2007-2008

MEMBERSHIPS

American Chemical Society

American Geophysical Union

American Physical Society

Geological Society of America

Geochemical Society

Mineralogical Society of America

Neutron Scattering Society of America