Stanford



Wendy Mao

Professor of Earth and Planetary Sciences and of Photon Science

Earth & Planetary Sciences

Bio

ACADEMIC APPOINTMENTS

- Professor, Earth & Planetary Sciences
- Professor, Photon Science Directorate
- Principal Investigator, Stanford Institute for Materials and Energy Sciences
- Member, Stanford PULSE Institute

ADMINISTRATIVE APPOINTMENTS

- Chair, Earth and Planetary Sciences, Stanford University, (2023- present)
- Professor, Stanford University, (2019- present)
- Associate Professor, Stanford University, (2014-2019)
- Assistant Professor of Geophysics (by courtesy), Stanford University, (2009- present)
- Assistant Professor, Stanford University, (2007-2014)
- J. R. Oppenheimer Post-doctoral Fellow, Los Alamos National Laboratory, (2005-2007)

HONORS AND AWARDS

- Fellow, American Geophysical Union (2021)
- Fellow, Geochemical Society (2021)
- Award Recipient, Mineralogical Society of America (2013)
- NSF CAREER Award, National Science Foundation (2011)
- Fellow, Frederick E. Terman Fellowship (2009 - Present)
- COMPRES Distinguished Lecturer, Stanford University (2008-2009)
- Mineral and Rocks Physics Group Student Research Award, University of Chicago (2006)
- Rosalind Franklin Young Investigator Award, University of Chicago (2006)
- Fellow, J. R. Oppenheimer Fellowship (2005 - 2007)
- Phi Beta Kappa, Massachusetts Institute of Technology (1998)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Advisory Group on Women at SLAC, SLAC National Accelerator Laboratory (2015 - present)
- CSEDI Steering Committee, NSF (2015 - present)
- Chair, GES Graduate Admissions Committee, Stanford University (2015 - present)

- DIF Advisory Committee, Stanford University (2015 - present)
- GES Communications Committee, Stanford University (2014 - present)
- Co-chair of Extreme Physics and Chemistry Directorate, Deep Carbon Observatory (2013 - present)
- GES Graduate Admissions Committee, Stanford University (2012 - present)
- Photon Science Integration Committee, SLAC National Accelerator Laboratory (2012 - 2013)
- Scientific Steering Committee for the Extreme Physics and Chemistry Directorate, Deep Carbon Observatory (2011 - present)
- LCLS Users' Executive Committee, SLAC National Accelerator Laboratory (2011 - 2014)
- Associate Editor, American Mineralogist (2010 - present)
- GES representative on SES Educational Outreach Committee, Stanford University (2010 - present)
- Pre-Majors Advisor, Stanford University (2010 - present)
- SNAP Instrument Design Team - Spallation Neutron Source, ORNL, Oak Ridge National Laboratory (2010 - present)
- Chair, Award Committee, Rosalind Frankin Young Investigator Asard (2010 - 2010)
- COMPRES Facilities Committee, Consortium for Materials Properties Research in Earth Sciences (2009 - present)
- Member of APS Users Organization Steering Committee, Advanced Photon Source, Argonne National Laboratory (2009 - present)
- GES Dept Seminar Coordinator (w/ Maher), Stanford University (2009 - 2011)
- Search Committee for Geochronology, Petrology, Geodynamics position, Stanford University (2008 - 2009)
- GES Long Range Planning Committee, Stanford University (2007 - 2008)
- West Coast High Pressure Facilities Review Committee, Advanced Light Source, Lawrence Berkeley National Laboratory (2006 - present)

PROFESSIONAL EDUCATION

- Ph.D., University of Chicago , Geophysical Sciences (2005)
- B.S., Massachusetts Institute of Technology , Materials Science and Engineering (1998)

LINKS

- Research Group Site: https://sites.stanford.edu/eel/

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Research

Pressure induces dramatic changes in materials. I study the behavior of materials under compression which often leads to the discovery of novel phases and new phenomena. This research has a wide variety of applications including improving our understanding the interiors of Earth and other planetary bodies, providing insight into the condensation and evolution of volatiles in planetary systems, and providing guidance for developing new materials for energy related applications like hydrogen fuel storage and advanced batteries.

Teaching

I teach classes on understanding the Earth's interior, mineralogy, and a freshman seminar on diamonds.

Teaching

COURSES

2026-27

- Chemistry of the Earth and Planets: EARTHSYS 2, EPS 2 (Aut)

2025-26

- Chemistry of the Earth and Planets: EARTHSYS 2, EPS 2 (Aut)
- Survey of research in the Earth & Planetary Sciences: EPS 304 (Win)

2024-25

- Chemistry of the Earth and Planets: EARTHSYS 2, EPS 2 (Aut)
- Survey of research in the Earth & Planetary Sciences: EPS 304 (Win)

2023-24

- Chemistry of the Earth and Planets: EARTHSYS 2, EPS 2 (Aut)
- Survey of research in the Earth & Planetary Sciences: EPS 304 (Aut)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Hannah Bartels, Monica Vidaurri

Postdoctoral Faculty Sponsor

Mengnan Wang, Xin Zhang

Doctoral Dissertation Advisor (AC)

Cindy Wang

Doctoral (Program)

Amanda Chen

Publications

PUBLICATIONS

- **Making the most of metastability.** *Science (New York, N.Y.)*
  Mao, W. L., Lin, Y.
  2022; 377 (6608): 814-815

- **Preservation of high-pressure volatiles in nanostructured diamond capsules.** *Nature*
  Zeng, Z., Wen, J., Lou, H., Zhang, X., Yang, L., Tan, L., Cheng, B., Zuo, X., Yang, W., Mao, W. L., Mao, H., Zeng, Q.
  2022; 608 (7923): 513-517

- **Ultrafast structural response of shock-compressed plagioclase** *METEORITICS & PLANETARY SCIENCE*
  Gleason, A. E., Park, S., Rittman, D. R., Ravasio, A., Langenhorst, F., Bolis, R. M., Granados, E., Hok, S., Kroll, T., Sikorski, M., Weng, T., Lee, H., Nagler, et al
  2022

- **Engineering Bright and Mechanosensitive Alkaline-Earth Rare-Earth Upconverting Nanoparticles.** *The journal of physical chemistry letters*
  McLellan, C. A., Siefe, C., Casar, J. R., Peng, C. S., Fischer, S., Lay, A., Parakh, A., Ke, F., Gu, X. W., Mao, W., Chu, S., Goodman, M. B., Dionne, et al
  2022: 1547-1553

- **Femtosecond Visualization of hcp-Iron Strength and Plasticity under Shock Compression.** *Physical review letters*
  Merkel, S., Hok, S., Bolme, C., Rittman, D., Ramos, K. J., Morrow, B., Lee, H. J., Nagler, B., Galtier, E., Granados, E., Hashim, A., Mao, W. L., Gleason, et al
  2021; 127 (20): 205501

- **Pressure-induced suppression of Jahn-Teller distortions and enhanced electronic properties in high-entropy oxide (Mg0.2Ni0.2Co0.2Zn0.2Cu0.2)O** *APPLIED PHYSICS LETTERS*
  Yan, J., Zhang, L., Liu, J., Li, N., Tamura, N., Chen, B., Lin, Y., Mao, W. L., Zhang, H.

2021; 119 (15)

- **Sub-10-nm graphene nanoribbons with atomically smooth edges from squashed carbon nanotubes** *NATURE ELECTRONICS*
  Chen, C., Lin, Y., Zhou, W., Gong, M., He, Z., Shi, F., Li, X., Wu, J., Lam, K., Wang, J., Yang, F., Zeng, Q., Guo, et al
  2021
- **Characteristics and implications of podiform-chromite hosted silicate inclusions in the Zedang ophiolite, Southern Tibet** *LITHOS*
  Guo, G., Mao, W. L., Zhang, R. Y., Liou, J. G., Ernst, W. G., Yang, J., Liu, X., Xu, X., Zhang, Y., Wu, B.
  2021; 396
- **Ultrafast X-ray Diffraction Study of a Shock-Compressed Iron Meteorite above 100 GPa** *MINERALS*
  Tecklenburg, S., Colina-Ruiz, R., Hok, S., Bolme, C., Galtier, E., Granados, E., Hashim, A., Lee, H., Merkel, S., Morrow, B., Nagler, B., Ramos, K., Rittman, et al
  2021; 11 (6)
- **Mineralogy of the deep lower mantle in the presence of H2O.** *National science review*
  Hu, Q., Liu, J., Chen, J., Yan, B., Meng, Y., Prakapenka, V. B., Mao, W. L., Mao, H. K.
  2021; 8 (4): nwaa098
- **Evidence for oxygenation of Fe-Mg oxides at mid-mantle conditions and the rise of deep oxygen.** *National science review*
  Liu, J., Wang, C., Lv, C., Su, X., Liu, Y., Tang, R., Chen, J., Hu, Q., Mao, H. K., Mao, W. L.
  2021; 8 (4): nwaa096
- **Probing the Electronic Band Gap of Solid Hydrogen by Inelastic X-Ray Scattering up to 90GPa.** *Physical review letters*
  Li, B., Ding, Y., Kim, D. Y., Wang, L., Weng, T., Yang, W., Yu, Z., Ji, C., Wang, J., Shu, J., Chen, J., Yang, K., Xiao, et al
  2021; 126 (3): 036402
- **Pressure-induced excimer formation and fluorescence enhancement of an anthracene derivative** *JOURNAL OF MATERIALS CHEMISTRY C*
  Dai, Y., Liu, H., Geng, T., Ke, F., Niu, S., Wang, K., Qi, Y., Zou, B., Yang, B., Mao, W. L., Lin, Y.
  2021; 9 (3): 934–38
- **Polyamorphism in a solute-lean Al-Ce metallic glass** *JOURNAL OF APPLIED PHYSICS*
  Yin, Z., Lou, H., Sheng, H., Zeng, Z., Mao, W. L., Zeng, Q.
  2021; 129 (2)
- **Preserving a robust CsPbI3 perovskite phase via pressure-directed octahedral tilt.** *Nature communications*
  Ke, F. n., Wang, C. n., Jia, C. n., Wolf, N. R., Yan, J. n., Niu, S. n., Devereaux, T. P., Karunadasa, H. I., Mao, W. L., Lin, Y. n.
  2021; 12 (1): 461
- **Revealing Local Disorder in a Silver-Bismuth Halide Perovskite upon Compression.** *The journal of physical chemistry letters*
  Girdzis, S. P., Lin, Y., Leppert, L., Slavney, A. H., Park, S., Chapman, K. W., Karunadasa, H. I., Mao, W. L.
  2020: 532–36
- **Synthesis of Atomically Thin Hexagonal Diamond with Compression.** *Nano letters*
  Ke, F., Zhang, L., Chen, Y., Yin, K., Wang, C., Tzeng, Y., Lin, Y., Dong, H., Liu, Z., Tse, J. S., Mao, W. L., Wu, J., Chen, et al
  2020
- **Origin of Plasticity in Nanostructured Silicon.** *Physical review letters*
  Zeng, Z., Zeng, Q., Ge, M., Chen, B., Lou, H., Chen, X., Yan, J., Yang, W., Mao, H. K., Yang, D., Mao, W. L.
  2020; 124 (18): 185701
- **Origin of Plasticity in Nanostructured Silicon** *PHYSICAL REVIEW LETTERS*
  Zeng, Z., Zeng, Q., Ge, M., Chen, B., Lou, H., Chen, X., Yan, J., Yang, W., Mao, H., Yang, D., Mao, W. L.
  2020; 124 (18)
- **Key problems of the four-dimensional Earth system** *MATTER AND RADIATION AT EXTREMES*
  Mao, H., Mao, W. L.
  2020; 5 (3)
- **Crystallography of low Z material at ultrahigh pressure: Case study on solid hydrogen** *MATTER AND RADIATION AT EXTREMES*
  Ji, C., Li, B., Liu, W., Smith, J. S., Bjorling, A., Majumdar, A., Luo, W., Ahuja, R., Shu, J., Wang, J., Sinogeikin, S., Meng, Y., Prakapenka, et al

2020; 5 (3)

- **Facile diamond synthesis from lower diamondoids.** *Science advances*
  Park, S. n., Abate, I. I., Liu, J. n., Wang, C. n., Dahl, J. E., Carlson, R. M., Yang, L. n., Prakapenka, V. B., Greenberg, E. n., Devereaux, T. P., Jia, C. n., Ewing, R. C., Mao, et al
  2020; 6 (8): eaay9405

- **Diamondoids Under Pressure** *CARBON IN EARTH'S INTERIOR*
  Park, S., Lin, Y., Mao, W. L.
  edited by Manning, C. E., Lin, J. F., Mao, W. L.
  2020; 249: 341-349

- **Nitrogen in black phosphorus structure.** *Science advances*
  Ji, C. n., Adeleke, A. A., Yang, L. n., Wan, B. n., Gou, H. n., Yao, Y. n., Li, B. n., Meng, Y. n., Smith, J. S., Prakapenka, V. B., Liu, W. n., Shen, G. n., Mao, et al
  2020; 6 (23): eaba9206

- **In situ X-ray diffraction of silicate liquids and glasses under dynamic and static compression to megabar pressures.** *Proceedings of the National Academy of Sciences of the United States of America*
  Morard, G. n., Hernandez, J. A., Guarguaglini, M. n., Bolis, R. n., Benuzzi-Mounaix, A. n., Vinci, T. n., Fiquet, G. n., Baron, M. A., Shim, S. H., Ko, B. n., Gleason, A. E., Mao, W. L., Alonso-Mori, et al
  2020

- **Tuning Emission and Electron-Phonon Coupling in Lead-Free Halide Double Perovskite Cs2AgBiCl6 under Pressure** *ACS ENERGY LETTERS*
  Zhang, L., Fang, Y., Sui, L., Yan, J., Wang, K., Yuan, K., Mao, W. L., Zou, B.
  2019; 4 (12): 2975–82

- **Ultrahigh-pressure isostructural electronic transitions in hydrogen.** *Nature*
  Ji, C., Li, B., Liu, W., Smith, J. S., Majumdar, A., Luo, W., Ahuja, R., Shu, J., Wang, J., Sinogeikin, S., Meng, Y., Prakapenka, V. B., Greenberg, et al
  2019; 573 (7775): 558–62

- **Pressure-Induced Emission (PIE) and Phase Transition of a Two-dimensional Halide Double Perovskite (BA)4AgBiBr8 (BA = CH3(CH2)3NH3+).** *Angewandte Chemie (International ed. in English)*
  Fang, Y., Zhang, L., Wu, L., Yan, J., Lin, Y., Wang, K., Mao, W. L., Zou, B.
  2019

- **Halide perovskites under pressure**
  Jaffe, A., Lin, Y., Mao, W., Karunadasa, H.
  AMER CHEMICAL SOC.2019

- **Electronic spin transition in FeO2: Evidence for Fe(II) with peroxide O-2(2-)** *PHYSICAL REVIEW B*
  Jang, B., Liu, J., Hu, Q., Haule, K., Mao, H., Mao, W. L., Kim, D., Shim, J.
  2019; 100 (1)

- **Applications for Nanoscale X-ray Imaging at High Pressure** *ENGINEERING*
  Mao, W. L., Lin, Y., Liu, Y., Liu, J.
  2019; 5 (3): 479–89

- **Structure-Controlled Oxygen Concentration in Fe2O3 and FeO2** *INORGANIC CHEMISTRY*
  Zhu, S., Liu, J., Hu, Q., Mao, W. L., Meng, Y., Zhang, D., Mao, H., Zhu, Q.
  2019; 58 (9): 5476–82

- **Anomalous behavior of nonequilibrium excitations in UO2** *PHYSICAL REVIEW B*
  Rittman, D. R., Teitelbaum, S. W., Reis, D. A., Mao, W. L., Ewing, R. C.
  2019; 99 (13)

- **Tuning Optical and Electronic Properties in Low-Toxicity Organic-Inorganic Hybrid (CH3NH3)(3)Bi2I9 under High Pressure** *JOURNAL OF PHYSICAL CHEMISTRY LETTERS*
  Zhang, L., Liu, C., Lin, Y., Wang, K., Ke, F., Liu, C., Mao, W. L., Zou, B.
  2019; 10 (8): 1676–83

- **Phase transformations of Al-bearing high-entropy alloys AlxCoCrFeNi (x=0, 0.1, 0.3, 0.75, 1.5) at high pressure** *APPLIED PHYSICS LETTERS*
  Wang, C., Tracy, C. L., Park, S., Liu, J., Ke, F., Zhang, F., Yang, T., Xia, S., Li, C., Wang, Y., Zhang, Y., Mao, W. L., Ewing, et al
  2019; 114 (9)
- **Altered chemistry of oxygen and iron under deep Earth conditions** *NATURE COMMUNICATIONS*
  Liu, J., Hu, Q., Bi, W., Yang, L., Xiao, Y., Chow, P., Meng, Y., Prakapenka, V. B., Mao, H., Mao, W. L.
  2019; 10
- **Diffusion-controlled alloying of single-phase multi-principal transition metal carbides with high toughness and low thermal diffusivity** *APPLIED PHYSICS LETTERS*
  Peng, C., Gao, X., Wang, M., Wu, L., Tang, H., Li, X., Zhang, Q., Ren, Y., Zhang, F., Wang, Y., Zhang, B., Gao, B., Zou, et al
  2019; 114 (1)
- **High Compression-Induced Conductivity in a Layered Cu-Br Perovskite.** *Angewandte Chemie (International ed. in English)*
  Jaffe, A. n., Mack, S. A., Lin, Y. n., Mao, W. n., Neaton, J. B., Karunadasa, H. n.
  2019
- **Superconducting transition temperatures in the electronic and magnetic phase diagrams of Sr₂VFeAsO_{3-delta}, a superconductor.** *Journal of physics. Condensed matter : an Institute of Physics journal*
  Tojo, Y., Shibuya, T., Nakamura, T., Shoji, K., Fujioka, H., Matoba, M., Yasui, S., Itoh, M., Iimura, S., Hiramatsu, H., Hosono, H., Hirai, S., Mao, et al
  2018
- **The effect of nickel on the strength of iron nickel alloys: Implications for the Earth's inner core** *PHYSICS OF THE EARTH AND PLANETARY INTERIORS*
  Reagan, M. M., Gleason, A. E., Liu, J., Krawczynski, M. J., Van Orman, J. A., Mao, W. L.
  2018; 283: 43–47
- **Mechanosensitive upconverting nanoparticles for visualizing mechanical forces in vivo**
  Lay, A., Siefe, C., Fischer, S., Mehlenbacher, R., Das, A., Nekimken, A., Ke, F., Mao, W., Pruitt, B., Cohen, B., Alivisatos, P., Goodman, M., Dionne, et al
  AMER CHEMICAL SOC.2018
- **Revealing the formation mechanism of ultrahard nanotwinned diamond from onion carbon** *CARBON*
  Tang, H., Yuan, X., Yu, P., Hu, Q., Wang, M., Yao, Y., Wu, L., Zou, Q., Ke, Y., Zhao, Y., Wang, L., Li, X., Yang, et al
  2018; 129: 159–67
- **Radiation-induced disorder in compressed lanthanide zirconates** *PHYSICAL CHEMISTRY CHEMICAL PHYSICS*
  Park, S., Tracy, C. L., Zhang, F., Park, C., Trautmann, C., Tkachev, S. N., Lang, M., Maoah, W. L., Ewing, R. C.
  2018; 20 (9): 6187–97
- **Sterically controlled mechanochemistry under hydrostatic pressure** *NATURE*
  Yan, H., Yang, F., Pan, D., Lin, Y., Hohman, J., Solis-Ibarra, D., Li, F., Dahl, J. E. P., Carlson, R. M. K., Tkachenko, B. A., Fokin, A. A., Schreiner, P. R., Galli, et al
  2018; 554 (7693): 505-+
- **A(2)TiO(5) (A = Dy, Gd, Er, Yb) at High Pressure** *INORGANIC CHEMISTRY*
  Park, S., Rittman, D. R., Tracy, C. L., Chapman, K. W., Zhang, F., Park, C., Tkachev, S. N., O'Quinn, E., Shamblin, J., Lang, M., Mao, W. L., Ewing, R. C.
  2018; 57 (4): 2269–77
- **Swift-heavy ion irradiation response and annealing behavior of A(2)TiO(5) (A = Nd, Gd, and Yb)** *JOURNAL OF SOLID STATE CHEMISTRY*
  Park, S., Tracy, C. L., Zhang, F., Palomares, R. I., Park, C., Trautmann, C., Lang, M., Mao, W. L., Ewing, R. C.
  2018; 258: 108–16
- **Phase transformation pathways of ultrafast-laser-irradiated Ln(2)O(3) (Ln = Er-Lu)** *PHYSICAL REVIEW B*
  Rittman, D. R., Tracy, C. L., Chen, C., Solomon, J. M., Asta, M., Mao, W. L., Yalisove, S. M., Ewing, R. C.
  2018; 97 (2)
- **Bright, Mechanosensitive Upconversion with Cubic-Phase Heteroepitaxial Core-Shell Nanoparticles.** *Nano letters*
  Lay, A. n., Siefe, C. n., Fischer, S. n., Mehlenbacher, R. D., Ke, F. n., Mao, W. L., Alivisatos, A. P., Goodman, M. B., Dionne, J. A.

2018

- **Lanthanide stannate pyrochlores (Ln(2)Sn(2)O(7); Ln = Nd, Gd, Er) at high pressure** *JOURNAL OF PHYSICS-CONDENSED MATTER*
  Turner, K. M., Tracy, C. L., Mao, W. L., Ewing, R. C.
  2017; 29 (50)
- **Lanthanide stannate pyrochlores (Ln2Sn2O7; Ln = Nd, Gd, Er) at high pressure.** *Journal of physics. Condensed matter : an Institute of Physics journal*
  Turner, K. M., Tracy, C. L., Mao, W. L., Ewing, R. C.
  2017; 29 (50): 504005
- **Hydrogen-bearing iron peroxide and the origin of ultralow-velocity zones** *NATURE*
  Liu, J., Hu, Q., Kim, D., Wu, Z., Wang, W., Xiao, Y., Chow, P., Meng, Y., Prakapenka, V. B., Mao, H., Mao, W. L.
  2017; 551 (7681): 494-+
- **Lanthanide stannate pyrochlores (Ln₂Sn₂O₇; Ln = Nd, Gd, Er) at high pressure.** *Journal of physics. Condensed matter : an Institute of Physics journal*
  Turner, K. M., Tracy, C. L., Mao, W. L., Ewing, R. C.
  2017
- **When water meets iron at Earth's core-mantle boundary** *NATIONAL SCIENCE REVIEW*
  Mao, H., Hu, Q., Yang, L., Liu, J., Kim, D., Meng, Y., Zhang, L., Prakapenka, V. B., Yang, W., Mao, W. L.
  2017; 4 (6): 870–78
- **Hydrogen-Bond Symmetrization Breakdown and Dehydrogenation Mechanism of FeO2H at High Pressure.** *Journal of the American Chemical Society*
  Zhu, S. C., Hu, Q., Mao, W. L., Mao, H. K., Sheng, H.
  2017; 139 (35): 12129-12132
- **Synthesis of quenchable amorphous diamond** *NATURE COMMUNICATIONS*
  Zeng, Z., Yang, L., Zeng, Q., Lou, H., Sheng, H., Wen, J., Miller, D. J., Meng, Y., Yang, W., Mao, W. L., Mao, H.
  2017; 8: 322
- **Pressure-induced structural modifications of rare-earth hafnate pyrochlore.** *Journal of physics. Condensed matter : an Institute of Physics journal*
  Turner, K. M., Rittman, D. R., Heymach, R. A., Tracy, C. L., Turner, M. L., Fuentes, A. F., Mao, W. L., Ewing, R. C.
  2017; 29 (25): 255401-?
- **High pressure synthesis of a hexagonal close-packed phase of the high-entropy alloy CrMnFeCoNi** *NATURE COMMUNICATIONS*
  Tracy, C. L., Park, S., Rittman, D. R., Zinkle, S. J., Bei, H., Lang, M., Ewing, R. C., Mao, W. L.
  2017; 8
- **Strain engineered pyrochlore at high pressure.** *Scientific reports*
  Rittman, D. R., Turner, K. M., Park, S., Fuentes, A. F., Park, C., Ewing, R. C., Mao, W. L.
  2017; 7 (1): 2236-?
- **The structure and unconventional dihydrogen bonding of a pressure-stabilized hydrogen-rich (NH3BH3)(H-2)(x) (x=1.5) compound** *JOURNAL OF MATERIALS CHEMISTRY A*
  Lin, Y., Welchman, E., Thonhauser, T., Mao, W. L.
  2017; 5 (15): 7111-7117
- **Pressure-Induced Metallization of the Halide Perovskite (CH3NH3)PbI3** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
  Jaffe, A., Lin, Y., Mao, W. L., Karunadasa, H. I.
  2017; 139 (12): 4330-4333
- **Dehydrogenation of goethite in Earth's deep lower mantle.** *Proceedings of the National Academy of Sciences of the United States of America*
  Hu, Q., Kim, D. Y., Liu, J., Meng, Y., Yang, L., Zhang, D., Mao, W. L., Mao, H.
  2017; 114 (7): 1498-1501
- **High-pressure behavior of A(2)B(2)O(7) pyrochlore (A=Eu, Dy; B=Ti, Zr)** *JOURNAL OF APPLIED PHYSICS*
  Rittman, D. R., Turner, K. M., Park, S., Fuentes, A. F., Yan, J., Ewing, R. C., Mao, W. L.

2017; 121 (4)

- **Dynamic Optical Tuning of Interlayer Interactions in the Transition Metal Dichalcogenides.** *Nano letters*
  Mannebach, E. M., Nyby, C. n., Ernst, F. n., Zhou, Y. n., Tolsma, J. n., Li, Y. n., Sher, M. J., Tung, I. C., Zhou, H. n., Zhang, Q. n., Seyler, K. L., Clark, G. n., Lin, et al
  2017; 17 (12): 7761–66
- **High-pressure compressibility and vibrational properties of (Ca,Mn)CO3** *AMERICAN MINERALOGIST*
  Liu, J., Caracas, R., Fan, D., Bobocioiu, E., Zhang, D., Mao, W. L.
  2016; 101 (12): 2723-2730
- **Effects of Molecular Geometry on the Properties of Compressed Diamondoid Crystals** *JOURNAL OF PHYSICAL CHEMISTRY LETTERS*
  Yang, F., Lin, Y., Baldini, M., Dahl, J. E., Carlson, R. M., Mao, W. L.
  2016; 7 (22): 4641-4647
- **Substantial tensile ductility in sputtered Zr-Ni-Al nano-sized metallic glass** *ACTA MATERIALIA*
  Liontas, R., Jafary-Zadeh, M., Zeng, Q., Zhang, Y., Mao, W. L., Greer, J. R.
  2016; 118: 270-285
- **Pressure tuning the lattice and optical response of silver sulfide** *APPLIED PHYSICS LETTERS*
  Zhao, Z., Wei, H., Mao, W. L.
  2016; 108 (26)
- **High-pressure behavior of the polymorphs of FeOOH** *AMERICAN MINERALOGIST*
  Reagan, M. M., Gleason, A. E., Daemen, L., Xiao, Y., Mao, W. L.
  2016; 101 (5-6): 1483-1488
- **Pressure-dependent isotopic composition of iron alloys** *SCIENCE*
  Shahar, A., Schauble, E. A., Caracas, R., Gleason, A. E., Reagan, M. M., Xiao, Y., Shu, J., Mao, W.
  2016; 352 (6285): 580-582
- **High-Pressure Single-Crystal Structures of 3D Lead-Halide Hybrid Perovskites and Pressure Effects on their Electronic and Optical Properties.** *ACS central science*
  Jaffe, A., Lin, Y., Beavers, C. M., Voss, J., Mao, W. L., Karunadasa, H. I.
  2016; 2 (4): 201-209
- **In situ measurement of lithiation-induced stress in silicon nanoparticles using micro-Raman spectroscopy** *NANO ENERGY*
  Zeng, Z., Liu, N., Zeng, Q., Lee, S. W., Mao, W. L., Cui, Y.
  2016; 22: 105-110
- **General 2.5 power law of metallic glasses** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Zeng, Q., Lin, Y., Liu, Y., Zeng, Z., Shi, C. Y., Zhang, B., Lou, H., Sinogeikin, S. V., Kono, Y., Kenney-Benson, C., Park, C., Yang, W., Wang, et al
  2016; 113 (7): 1714-1718
- **High-pressure single-crystal structures of 3D lead-halide hybrid perovskites and pressure effects on their electronic and optical properties** *ACS Cent. Sci*
  Jaffe, A., Lin, Y., Beavers, C. M., Voss, J., Mao, W. L., Karunadasa, H. I.
  2016; 2: 201
- **Potentially biogenic carbon preserved in a 4.1 billion-year-old zircon** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Bell, E. A., Boehnke, P., Harrison, T. M., Mao, W. L.
  2015; 112 (47): 14518-14521
- **Fractal atomic-level percolation in metallic glasses** *SCIENCE*
  Chen, D. Z., Shi, C. Y., An, Q., Zeng, Q., Mao, W. L., Goddard, W. A., Greer, J. R.
  2015; 349 (6254): 1306-1310
- **A Novel Phase of Li15Si4 Synthesized under Pressure** *ADVANCED ENERGY MATERIALS*
  Zeng, Z., Zeng, Q., Liu, N., Oganov, A. R., Zeng, Q., Cui, Y., Mao, W. L.

2015; 5 (12)

- **Pressure-induced phase transition in MnCO3 and its implications on the deep carbon cycle** *JOURNAL OF GEOPHYSICAL RESEARCH-SOLID EARTH*
  Boulard, E., Goncharov, A. F., Blanchard, M., Mao, W. L.
  2015; 120 (6): 4069-4079
- **Structural transition and amorphization in compressed alpha-Sb2O3** *PHYSICAL REVIEW B*
  Zhao, Z., Zeng, Q., Zhang, H., Wang, S., Hirai, S., Zeng, Z., Mao, W. L.
  2015; 91 (18)
- **High pressure: Compressed hydrogen heats up.** *Nature materials*
  Mao, W. L.
  2015; 14 (5): 466-8
- **Strain-induced modification of optical selection rules in lanthanide-based upconverting nanoparticles.** *Nano letters*
  Wisser, M. D., Chea, M., Lin, Y., Wu, D. M., Mao, W. L., Salleo, A., Dionne, J. A.
  2015; 15 (3): 1891-1897
- **Pressure-Induced Conductivity and Yellow-to-Black Piezochromism in a Layered Cu-Cl Hybrid Perovskite.** *Journal of the American Chemical Society*
  Jaffe, A., Lin, Y., Mao, W. L., Karunadasa, H. I.
  2015; 137 (4): 1673-1678
- **Compressed hydrogen heats up** *Nature Materials*
  Mao, W. L.
  2015
- **Ultrafast visualization of crystallization and grain growth in shock-compressed SiO2.** *Nature communications*
  Gleason, A. E., Bolme, C. A., Lee, H. J., Nagler, B., Galtier, E., Milathianaki, D., Hawreliak, J., Kraus, R. G., Eggert, J. H., Fratanduono, D. E., Collins, G. W., Sandberg, R., Yang, et al
  2015; 6: 8191-?
- **Pressure induced metallization with absence of structural transition in layered molybdenum diselenide.** *Nature communications*
  Zhao, Z., Zhang, H., Yuan, H., Wang, S., Lin, Y., Zeng, Q., Xu, G., Liu, Z., Solanki, G. K., Patel, K. D., Cui, Y., Hwang, H. Y., Mao, et al
  2015; 6: 7312-?
- **Pressure induced metallization with absence of structural transition in layered molybdenum diselenide.** *Nature communications*
  Zhao, Z., Zhang, H., Yuan, H., Wang, S., Lin, Y., Zeng, Q., Xu, G., Liu, Z., Solanki, G. K., Patel, K. D., Cui, Y., Hwang, H. Y., Mao, et al
  2015; 6: 7312-?
- **Tetrahedrally coordinated carbonates in Earth's lower mantle.** *Nature communications*
  Boulard, E., Pan, D., Galli, G., Liu, Z., Mao, W. L.
  2015; 6: 6311-?
- **Strain-induced modification of optical selection rules in lanthanide-based upconverting nanoparticles** *Nano Letters*
  Wisser, M., Chea, M., Lin, Y., Wu, D., Mao, W. L., Salleo, A., Dionne, J.
  2015: 1891–97
- **High-pressure storage of hydrogen fuel: ammonia borane and its related compounds** *CHINESE SCIENCE BULLETIN*
  Lin, Y., Mao, W. L.
  2014; 59 (36): 5235-5240
- **Deviatoric stress-induced phase transitions in diamantane** *JOURNAL OF CHEMICAL PHYSICS*
  Yang, F., Lin, Y., Dahl, J. E., Carlson, R. M., Mao, W. L.
  2014; 141 (15)
- **Deviatoric stress-induced phase transitions in diamantane.** *journal of chemical physics*
  Yang, F., Lin, Y., Dahl, J. E., Carlson, R. M., Mao, W. L.
  2014; 141 (15): 154305-?

- **Bandgap closure and reopening in CsAuI3 at high pressure** *PHYSICAL REVIEW B*
  Wang, S., Kemper, A. F., Baldini, M., SHAPIRO, M. C., Riggs, S. C., Zhao, Z., Liu, Z., Devereaux, T. P., Geballe, T. H., Fisher, I. R., Mao, W. L.
  2014; 89 (24)
- **Pressure induced second-order structural transition in Sr3Ir2O7** *JOURNAL OF PHYSICS-CONDENSED MATTER*
  Zhao, Z., Wang, S., Qi, T. F., Zeng, Q., Hirai, S., Kong, P. P., Li, L., PARK, C., Yuan, S. J., Jin, C. Q., Cao, G., Mao, W. L.
  2014; 26 (21)
- **Disproportionation of (Mg,Fe)SiO3 perovskite in Earth's deep lower mantle.** *Science*
  Zhang, L., Meng, Y., Yang, W., Wang, L., Mao, W. L., Zeng, Q., Jeong, J. S., Wagner, A. J., Mkhoyan, K. A., Liu, W., Xu, R., Mao, H.
  2014; 344 (6186): 877-882
- **Tuning the crystal structure and electronic states of Ag2Se: Structural transitions and metallization under pressure** *PHYSICAL REVIEW B*
  Zhao, Z., Wang, S., Oganov, A. R., Chen, P., Liu, Z., Mao, W. L.
  2014; 89 (18)
- **Universal fractional noncubic power law for density of metallic glasses.** *Physical review letters*
  Zeng, Q., Kono, Y., Lin, Y., Zeng, Z., Wang, J., Sinogeikin, S. V., Park, C., Meng, Y., Yang, W., Mao, H., Mao, W. L.
  2014; 112 (18): 185502-?
- **High Pressure Raman and X-ray Diffraction Study of [121] Tetramantane** *JOURNAL OF PHYSICAL CHEMISTRY C*
  Yang, F., Lin, Y., Dahl, J. E., Carlson, R. M., Mao, W. L.
  2014; 118 (14): 7683-7689
- **Phase transitions in metastable phases of silicon** *JOURNAL OF APPLIED PHYSICS*
  Zeng, Z., Zeng, Q., Mao, W. L., Qu, S.
  2014; 115 (10)
- **Strain derivatives of T-c in HgBa2CuO4+delta: The CuO2 plane alone is not enough** *PHYSICAL REVIEW B*
  Wang, S., Zhang, J., Yan, J., Chen, X., Struzhkin, V., Tabis, W., Barisic, N., Chan, M. K., Dorow, C., Zhao, X., Greven, M., Mao, W. L., Geballe, et al
  2014; 89 (2)
- **Five-dimensional visualization of phase transition in BiNiO3 under high pressure** *APPLIED PHYSICS LETTERS*
  Liu, Y., Wang, J., Azuma, M., Mao, W. L., Yang, W.
  2014; 104 (4)
- **Five-dimensional visualization of phase transition in BiNiO3 under high pressure.** *Applied physics letters*
  Liu, Y., Wang, J., Azuma, M., Mao, W. L., Yang, W.
  2014; 104 (4): 043108
- **Evidence for photo-induced monoclinic metallic VO2 under high pressure** *APPLIED PHYSICS LETTERS*
  Hsieh, W., Trigo, M., Reis, D. A., Artioli, G. A., Malavasi, L., Mao, W. L.
  2014; 104 (2)
- **Pressure-induced densification in GeO2 glass: A transmission x-ray microscopy study** *APPLIED PHYSICS LETTERS*
  Lin, Y., Zeng, Q., Yang, W., Mao, W. L.
  2013; 103 (26)
- **Elastic moduli of polycrystalline Li15Si4 produced in lithium ion batteries** *JOURNAL OF POWER SOURCES*
  Zeng, Z., Liu, N., Zeng, Q., Ding, Y., Qu, S., Cui, Y., Mao, W. L.
  2013; 242: 732-735
- **High-pressure Raman spectroscopy of phase change materials** *APPLIED PHYSICS LETTERS*
  Hsieh, W., Zalden, P., Wuttig, M., Lindenberg, A. M., Mao, W. L.
  2013; 103 (19)
- **Formation of an interconnected network of iron melt at Earth's lower mantle conditions** *NATURE GEOSCIENCE*
  Shi, C. Y., Zhang, L., Yang, W., Liu, Y., Wang, J., Meng, Y., Andrews, J. C., Mao, W. L.
  2013; 6 (11): 971-975

- **Nanoscale Elemental Sensitivity Study of Nd2Fe14B Using Absorption Correlation Tomography** *MICROSCOPY RESEARCH AND TECHNIQUE*
  Kao, T. L., Shi, C. Y., Wang, J., Mao, W. L., Liu, Y., Yang, W.
  2013; 76 (11): 1112-1117
- **Bonding and electronic changes in rhodochrosite at high pressure** *AMERICAN MINERALOGIST*
  Farfan, G. A., Boulard, E., Wang, S., Mao, W. L.
  2013; 98 (10): 1817-1823
- **Symmetrization driven spin transition in epsilon-FeOOH at high pressure** *EARTH AND PLANETARY SCIENCE LETTERS*
  Gleason, A. E., Quiroga, C. E., Suzuki, A., Pentcheva, R., Mao, W. L.
  2013; 379: 49-55
- **Pressure-induced structural transitions and metallization in Ag2Te** *PHYSICAL REVIEW B*
  Zhao, Z., Wang, S., Zhang, H., Mao, W. L.
  2013; 88 (2)
- **Strength of iron at core pressures and evidence for a weak Earth's inner core** *NATURE GEOSCIENCE*
  Gleason, A. E., Mao, W. L.
  2013; 6 (7): 571-574
- **Sound velocities for hexagonally close-packed iron compressed hydrostatically to 136GPa from phonon density of states** *GEOPHYSICAL RESEARCH LETTERS*
  Gleason, A. E., Mao, W. L., Zhao, J. Y.
  2013; 40 (12): 2983-2987
- **Elastic and inelastic behavior of graphitic C3N4 under high pressure** *CHEMICAL PHYSICS LETTERS*
  Jia, R., Amulele, G., Zinin, P. V., Odake, S., Eng, P., Khabashesku, V., Mao, W. L., Ming, L. C.
  2013; 575: 67-70
- **Three-dimensional coherent x-ray diffraction imaging of molten iron in mantle olivine at nanoscale resolution.** *Physical review letters*
  Jiang, H., Xu, R., Chen, C. C., Yang, W., Fan, J., Tao, X., Song, C., Kohmura, Y., Xiao, T., Wang, Y., Fei, Y., Ishikawa, T., Mao, et al
  2013; 110 (20): 205501
- **Three-Dimensional Coherent X-Ray Diffraction Imaging of Molten Iron in Mantle Olivine at Nanoscale Resolution** *PHYSICAL REVIEW LETTERS*
  Jiang, H., Xu, R., Chen, C., Yang, W., Fan, J., Tao, X., Song, C., Kohmura, Y., Xiao, T., Wang, Y., Fei, Y., Ishikawa, T., Mao, et al
  2013; 110 (20)
- **The effect of composition on pressure-induced devitrification in metallic glasses** *APPLIED PHYSICS LETTERS*
  Zeng, Q., Mao, W. L., Sheng, H., Zeng, Z., Hu, Q., Meng, Y., Lou, H., Peng, F., Yang, W., Sinogeikin, S. V., Jiang, J.
  2013; 102 (17)
- **Single-crystal structure determination of (Mg,Fe)SiO3 postperovskite** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Zhang, L., Meng, Y., Dera, P., Yang, W., Mao, W. L., Mao, H.
  2013; 110 (16): 6292-6295
- **Pressure-induced symmetry breaking in tetragonal CsAuI3** *PHYSICAL REVIEW B*
  Wang, S., Hirai, S., Shapiro, M. C., Riggs, S. C., Geballe, T. H., Mao, W. L., Fisher, I. R.
  2013; 87 (5)
- **Pressure-induced tetragonal-orthorhombic phase transitions in CeRuPO** *APPLIED PHYSICS LETTERS*
  Hirai, S., Kamihara, Y., Wakatsuki, A., Matoba, M., Mao, W. L.
  2013; 102 (5)
- **Novel pressure-induced phase transitions in Co3O4** *APPLIED PHYSICS LETTERS*
  Hirai, S., Mao, W. L.
  2013; 102 (4)

- **Giant atomic displacement at a magnetic phase transition in metastable Mn3O4** *PHYSICAL REVIEW B*
  Hirai, S., dos Santos, A. M., SHAPIRO, M. C., Molaison, J. J., Pradhan, N., Guthrie, M., Tulk, C. A., Fisher, I. R., Mao, W. L.
  2013; 87 (1)
- **Nanoprobes for Deep Carbon** *CARBON IN EARTH*
  Mao, W. L., Boulard, E.
  2013; 75: 423-448
- **Lithographically fabricated gratings for the interferometric measurement of material shear moduli under extreme conditions** *JOURNAL OF VACUUM SCIENCE & TECHNOLOGY B*
  Gleason, A. E., Tiberio, R. C., Mao, W. L., Ali, S., Bolme, C. A., Lazicki, A., Bordonaro, G., Treichler, J., Genova, V., Eggert, J. H.
  2012; 30 (6)
- **Pressure-induced tuning of a magnetic phase separation in Nd0.53Sr0.47MnO3** *PHYSICAL REVIEW B*
  Baldini, M., Ding, Y., Wang, S., Lin, Y., Tulk, C. A., dos Santos, A. M., Mitchell, J. F., Haskel, D., Mao, W. L.
  2012; 86 (9)
- **Long-Range Ordered Carbon Clusters: A Crystalline Material with Amorphous Building Blocks** *SCIENCE*
  Wang, L., Liu, B., Li, H., Yang, W., Ding, Y., Sinogeikin, S. V., Meng, Y., Liu, Z., Zeng, X. C., Mao, W. L.
  2012; 337 (6096): 825-828
- **Bonding and structural changes in siderite at high pressure** *AMERICAN MINERALOGIST*
  Farfan, G., Wang, S., Ma, H., Caracas, R., Mao, W. L.
  2012; 97 (8-9): 1421-1426
- **High pressure nano-tomography using an iterative method** *6th International Conference on the Study of Matter at Extreme Conditions (SMEC)*
  Wang, J., Yang, W., Wang, S., Xiao, X., De Carlo, F., Liu, Y., Mao, W. L.
  AMER INST PHYSICS.2012
- **Families of Superhard Crystalline Carbon Allotropes Constructed via Cold Compression of Graphite and Nanotubes** *PHYSICAL REVIEW LETTERS*
  Niu, H., Chen, X., Wang, S., Li, D., Mao, W. L., Li, Y.
  2012; 108 (13)
- **Ultrafast pump-probe measurements of short small-polaron lifetimes in the mixed-valence perovskite Cs2Au2I6 under high pressures** *PHYSICAL REVIEW B*
  Trigo, M., Chen, J., Jiang, M. P., Mao, W. L., Riggs, S. C., SHAPIRO, M. C., Fisher, I. R., Reis, D. A.
  2012; 85 (8)
- **Effect of pressure and composition on lattice parameters and unit-cell volume of (Fe,Mg)SiO3 post-perovskite** *EARTH AND PLANETARY SCIENCE LETTERS*
  Zhang, L., Meng, Y., Mao, W. L.
  2012; 317: 120-125
- **Experimental and Theoretical Studies on a High Pressure Monoclinic Phase of Ammonia Borane** *JOURNAL OF PHYSICAL CHEMISTRY C*
  Lin, Y., Ma, H., Matthews, C. W., Kolb, B., Sinogeikin, S., Thonhauser, T., Mao, W. L.
  2012; 116 (3): 2172-2178
- **Crystal structures of (Mg1-x,Fe-x)SiO3 postperovskite at high pressures** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Yamanaka, T., Hirose, K., Mao, W. L., Meng, Y., Ganesh, P., Shulenburger, L., Shen, G., Hemley, R. J.
  2012; 109 (4): 1035-1040
- **Nanoscale diffraction imaging of the high-pressure transition in Fe1-xO** *APPLIED PHYSICS LETTERS*
  Ding, Y., Cai, Z., Hu, Q., Sheng, H., Chang, J., Hemley, R. J., Mao, W. L.
  2012; 100 (4)
- **Pressure induced stabilization of antiferromagnetic phase in Nd0.53Sr0.47MnO3** *Physical Review B*
  Baldini, M., Ding, Y., Wang, S., Lin, Y., Tulk, C. A., Santos, A. M. Dos, Haskel, D., Mao, W. L.
  2012; 86

- **Effect of Compressive Strain on the Raman Modes of the Dry and Hydrated BaCe0.8Y0.2O3 Proton Conductor** *JOURNAL OF PHYSICAL CHEMISTRY C*
  Chen, Q., Huang, T., Baldini, M., Hushur, A., Pomjakushin, V., Clark, S., Mao, W. L., Manghnani, M. H., Braun, A., Graule, T.
  2011; 115 (48): 24021-24027
- **Amorphous Diamond: A High-Pressure Superhard Carbon Allotrope** *PHYSICAL REVIEW LETTERS*
  Lin, Y., Zhang, L., Mao, H., Chow, P., Xiao, Y., Baldini, M., Shu, J., Mao, W. L.
  2011; 107 (17)
- **High-pressure EXAFS measurements of crystalline Ge using nanocrystalline diamond anvils** *PHYSICAL REVIEW B*
  Baldini, M., Yang, W., Aquilanti, G., Zhang, L., Ding, Y., Pascarelli, S., Mao, W. L.
  2011; 84 (1)
- **Application of a new composite cubic-boron nitride gasket assembly for high pressure inelastic x-ray scattering studies of carbon related materials** *REVIEW OF SCIENTIFIC INSTRUMENTS*
  Wang, L., Yang, W., Xiao, Y., Liu, B., Chow, P., Shen, G., Mao, W. L., Mao, H.
  2011; 82 (7)
- **Compressional, temporal, and compositional behavior of H-2-O-2 compound formed by high pressure x-ray irradiation** *JOURNAL OF CHEMICAL PHYSICS*
  Kung, A., Goncharov, A. F., Zha, C. S., Eng, P., Mao, W. L.
  2011; 134 (23)
- **Long-Range Topological Order in Metallic Glass** *SCIENCE*
  Zeng, Q., Sheng, H., Ding, Y., Wang, L., Yang, W., Jiang, J., Mao, W. L., Mao, H.
  2011; 332 (6036): 1404-1406
- **Low temperature transport properties of Ce-Al metallic glasses** *JOURNAL OF APPLIED PHYSICS*
  Zeng, Q. S., Rotundu, C. R., Mao, W. L., Dai, J. H., Xiao, Y. M., Chow, P., Chen, X. J., Qin, C. L., Mao, H., Jiang, J. Z.
  2011; 109 (11)
- **Compressional Behavior of Bulk and Nanorod LiMn2O4 under Nonhydrostatic Stress** *JOURNAL OF PHYSICAL CHEMISTRY C*
  Lin, Y., Yang, Y., Ma, H., Cui, Y., Mao, W. L.
  2011; 115 (20): 9844-9849
- **Studying single nanocrystals under high pressure using an x-ray nanoprobe** *REVIEW OF SCIENTIFIC INSTRUMENTS*
  Wang, L., Ding, Y., Patel, U., Yang, W., Xiao, Z., Cai, Z., Mao, W. L., Mao, H.
  2011; 82 (4)
- **Persistence of Jahn-Teller Distortion up to the Insulator to Metal Transition in LaMnO3** *PHYSICAL REVIEW LETTERS*
  Baldini, M., Struzhkin, V. V., Goncharov, A. F., Postorino, P., Mao, W. L.
  2011; 106 (6)
- **Electronic Structure of Crystalline He-4 at High Pressures** *PHYSICAL REVIEW LETTERS*
  Mao, H. K., Shirley, E. L., Ding, Y., Eng, P., Cai, Y. Q., Chow, P., Xiao, Y., Shu, J., Hemley, R. J., Kao, C., Mao, W. L.
  2010; 105 (18)
- **High-pressure evolution of Fe2O3 electronic structure revealed by x-ray absorption** *PHYSICAL REVIEW B*
  Wang, S., Mao, W. L., Sorini, A. P., Chen, C., Devereaux, T. P., Ding, Y., Xiao, Y., Chow, P., Hiraoka, N., Ishii, H., Cai, Y. Q., Kao, C.
  2010; 82 (14)
- **Pressure-induced behavior of the hydrogen-dominant compound SiH4(H-2)(2) from first-principles calculations** *PHYSICAL REVIEW B*
  Chen, X., Wang, S., Mao, W. L., Fu, C. L.
  2010; 82 (10)
- **Size-Dependent Amorphization of Nanoscale Y2O3 at High Pressure** *PHYSICAL REVIEW LETTERS*
  Wang, L., Yang, W., Ding, Y., Ren, Y., Xiao, S., Liu, B., Sinogeikin, S. V., Meng, Y., Gosztola, D. J., Shen, G., Hemley, R. J., Mao, W. L., Mao, et al
  2010; 105 (9)
- **Properties of polyamorphous Ce75Al25 metallic glasses** *PHYSICAL REVIEW B*

Zeng, Q. S., Struzhkin, V. V., Fang, Y. Z., Gao, C. X., Luo, H. B., Wang, X. D., Lathe, C., Mao, W. L., Wu, F. M., Mao, H., Jiang, J. Z.
2010; 82 (5)

- **Distortions and stabilization of simple-cubic calcium at high pressure and low temperature** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Mao, W. L., Wang, L., Ding, Y., Yang, W., Liu, W., Kim, D. Y., Luo, W., Ahuja, R., Meng, Y., Sinogeikin, S., Shu, J., Mao, H.
  2010; 107 (22): 9965-9968
- **Elastic anisotropy of ferromagnesian post-perovskite in Earth's D '' layer** *PHYSICS OF THE EARTH AND PLANETARY INTERIORS*
  Mao, W. L., Meng, Y., Mao, H.
  2010; 180 (3-4): 203-208
- **Elastic anisotropy of ferromagnesian post-perovskite in Earth's D '' layer** *PHYSICS OF THE EARTH AND PLANETARY INTERIORS*
  Mao, W. L., Meng, Y., Mao, H.
  2010; 180 (3-4): 203-208
- **Nanoprobe measurements of materials at megabar pressures** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Wang, L., Ding, Y., Yang, W., Liu, W., Cai, Z., Kung, J., Shu, J., Hemley, R. J., Mao, W. L., Mao, H.
  2010; 107 (14): 6140-6145
- **Origin of Pressure-Induced Polyamorphism in Ce75Al25 Metallic Glass** *PHYSICAL REVIEW LETTERS*
  Zeng, Q., Ding, Y., Mao, W. L., Yang, W., Sinogeikin, S. V., Shu, J., Mao, H., Jiang, J. Z.
  2010; 104 (10)
- **High-pressure EXAFS study of vitreous GeO2 up to 44 GPa** *PHYSICAL REVIEW B*
  Baldini, M., Aquilanti, G., Mao, H., Yang, W., Shen, G., Pascarelli, S., Mao, W. L.
  2010; 81 (2)
- **New Structure and Spin State of Iron-Rich (Mg,Fe)SiO3 Post-Perovskite** *Joint AIRAPT-22 and HPCJ-50 Conference/International Conference on High Pressure Science and Technology*
  Yamanaka, T., Mao, W. L., Mao, H., Hemley, R. J., Shen, G.
  IOP PUBLISHING LTD.2010
- **Bonding in boranes and their interaction with molecular hydrogen at extreme conditions** *JOURNAL OF CHEMICAL PHYSICS*
  Wang, S., Mao, W. L., Autrey, T.
  2009; 131 (14)
- **High pressure chemistry in the H-2-SiH4 system** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Wang, S., Mao, H., Chen, X., Mao, W. L.
  2009; 106 (35): 14763-14767
- **Storage of molecular hydrogen in an ammonia borane compound at high pressure** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Lin, Y., Mao, W. L., Mao, H.
  2009; 106 (20): 8113-8116
- **X-ray diffraction studies and equation of state of methane at 202 GPa** *CHEMICAL PHYSICS LETTERS*
  Sun, L., Yi, W., Wang, L., Shu, J., Sinogeikin, S., Meng, Y., Shen, G., Bai, L., Li, Y., Liu, J., Mao, H., Mao, W. L.
  2009; 473 (1-3): 72-74
- **Substitutional alloy of Ce and Al** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Zeng, Q., Ding, Y., Mao, W. L., Luo, W., Blomqvist, A., Ahuja, R., Yang, W., Shu, J., Sinogeikin, S. V., Meng, Y., Brewe, D. L., Jiang, J., Mao, et al
  2009; 106 (8): 2515-2518
- **High-pressure induced phase transitions of Y2O3 and Y2O3:Eu3+** *APPLIED PHYSICS LETTERS*
  Wang, L., Pan, Y., Ding, Y., Yang, W., Mao, W. L., Sinogeikin, S. V., Meng, Y., Shen, G., Mao, H.
  2009; 94 (6)
- **Raman spectroscopy study of ammonia borane at high pressure** *JOURNAL OF CHEMICAL PHYSICS*

Lin, Y., Mao, W. L., Drozd, V., Chen, J., Daemen, L. L.
2008; 129 (23)

- **Experimental determination of the elasticity of iron at high pressure** *JOURNAL OF GEOPHYSICAL RESEARCH-SOLID EARTH*
  Mao, W. L., Struzhkin, V. V., Baron, A. Q., Tsutsui, S., Tommaseo, C. E., Wenk, H., Hu, M. Y., Chow, P., Sturhahn, W., Shu, J., Hemley, R. J., Heinz, D. L., Mao, et al
  2008; 113 (B9)

- **Cubic to tetragonal phase transformation in cold-compressed Pd nanocubes** *NANO LETTERS*
  Guo, Q., Zhao, Y., Mao, W. L., Wang, Z., Xiong, Y., Xia, Y.
  2008; 8 (3): 972-975

- **Phase transformation in Sm2O3 at high pressure: In situ synchrotron X-ray diffraction study and ab initio DFT calculation** *SOLID STATE COMMUNICATIONS*
  Guo, Q., Zhao, Y., Jiang, C., Mao, W. L., Wang, Z.
  2008; 145 (5-6): 250-254

- **Hydrogen storage in molecular clathrates** *CHEMICAL REVIEWS*
  Struzhkin, V. V., Militzer, B., Mao, W. L., Mao, H., Hemley, R. J.
  2007; 107 (10): 4133-4151

- **Pressure-induced cubic to monoclinic phase transformation in erbium sesquioxide Er2O3** *INORGANIC CHEMISTRY*
  Guo, Q., Zhao, Y., Jiang, C., Mao, W. L., Wang, Z., Zhang, J., Wang, Y.
  2007; 46 (15): 6164-6169

- **High-pressure/low-temperature neutron scattering of gas inclusion compounds: Progress and prospects** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Zhao, Y., Xu, H., Daemen, L. L., Lokshin, K., Tait, K. T., Mao, W. L., Luo, J., Currier, R. P., Hickmott, D. D.
  2007; 104 (14): 5727-5731

- **Pressure-induced distortive phase transition in chromite-spinel at 29 GPa** *Symposium on Materials Research at High Pressure held at the 2006 MRS Fall Meeting*
  Shu, J., Mao, W. L., Hemley, R. J., Mao, H.
  MATERIALS RESEARCH SOCIETY.2007: 179–184

- **Effect of iron on the properties of post-perovskite silicate,** *The Last Mantle Phase Transition*
  Mao, W. L., Campbell , A. J., Prakapenka, V. B., Hemley , R. J., H-k. Mao , H.
  edited by Hirose, K., Brodholt, J., Lay, T., Yuen, D.
  American Geophysical Union.2007: 37–46

- **Diamond Anvil Cells and Ultra-High P/T Experimental Methods** *Treatise on Geophysics*
  Mao, H., Mao, W. L.
  edited by Price, G. D.
  Elsevier, Amsterdam.2007: 231–267

- **High-P/Low-T Neutron Scattering of Hydrogen Inclusion Compounds-Progress and Prospects** *Proceedings of the National Academy of Sciences*
  Zhao, Y., Xu, H., Daemen, L. L., Lokshin, K., Mao, W. L., Luo, J., Currier, R. P., Hickmott, D. D.
  2007; 104: 5727-5731

- **Clathrate hydrates under pressure** *Physics Today*
  Mao, W. L., Koh, C. A., Sloan, E. D.
  2007; 60: 42-47

- **X-ray-induced dissociation of H2O and formation of an O-2-H-2 alloy at high pressure** *SCIENCE*
  Mao, W. L., Mao, H., Meng, Y., Eng, P. J., Hu, M. Y., Chow, P., Cai, Y. Q., Shu, J., Hemley, R. J.
  2006; 314 (5799): 636-638

- **Ultrahigh-pressure experiment with a motor-driven diamond anvil cell** *JOURNAL OF PHYSICS-CONDENSED MATTER*
  Mao, W. L., Mao, H.

2006; 18 (25): S1069-S1073

- **The effect of pressure on the structure and volume of ferromagnesian post-perovskite** *GEOPHYSICAL RESEARCH LETTERS*
  Mao, W. L., Mao, H. K., Prakapenka, V. B., Shu, J. F., Hemley, R. J.
  2006; 33 (12)
- **Iron-rich post-perovskite and the origin of ultralow-velocity zones** *SCIENCE*
  Mao, W. L., Mao, H. K., Sturhahn, W., Zhao, J. Y., Prakapenka, V. B., Meng, Y., Shu, J. F., Fei, Y. W., Hemley, R. J.
  2006; 312 (5773): 564-565
- **Phase relations of Fe-Ni alloys at high pressure and temperature** *PHYSICS OF THE EARTH AND PLANETARY INTERIORS*
  Mao, W. L., Campbell, A. J., Heinz, D. L., Shen, G. Y.
  2006; 155 (1-2): 146-151
- **Ultrahigh pressure experiment with a motor-driven diamond anvil cell** *Journal of Physics: Condensed Matter*
  Mao, W., Mao, H.
  2006; 18: S1069-S1073
- **Phase relations in Fe-Ni alloys at high pressure and temperature** *Physics of the Earth and Planetary Interiors*
  Mao, W. L., Campbell, A. J., Heinz, D. L., Shen, G.
  2006; 155: 146-151
- **Iron-rich silicates in the Earth's D '' layer** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Mao, W. L., Meng, Y., Shen, G. Y., Prakapenka, V. B., Campbell, A. J., Heinz, D. L., Shu, J. F., Caracas, R., Cohen, R. E., Fei, Y. W., Hemley, R. J., Mao, H. K.
  2005; 102 (28): 9751-9753
- **Pressure-temperature stability of the van der Waals compound (H-2)(4)CH4** *CHEMICAL PHYSICS LETTERS*
  Mao, W. L., Struzhkin, V. V., Mao, H. K., Hemley, R. J.
  2005; 402 (1-3): 66-70
- **The stability and Raman spectra of ikaite, CaCO3•6H2O, at high pressure and temperature** *American Mineralogist*
  Shahar, A., Bassett, W., Mao, H., Chou, I., Mao, W.
  2005; 90: 1835-1839
- **Ferromagnesian postperovskite silicates in the D '' layer of the Earth** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Mao, W. L., Shen, G. Y., Prakapenka, V. B., Meng, Y., Campbell, A. J., Heinz, D. L., Shu, J. F., Hemley, R. J., Mao, H. K.
  2004; 101 (45): 15867-15869
- **Structure and dynamics of hydrogen molecules in the novel clathrate hydrate by high pressure neutron diffraction** *PHYSICAL REVIEW LETTERS*
  Lokshin, K. A., Zhao, Y. S., He, D. W., Mao, W. L., Mao, H. K., Hemley, R. J., Lobanov, M. V., Greenblatt, M.
  2004; 93 (12)
- **Nuclear resonant x-ray scattering of iron hydride at high pressure** *GEOPHYSICAL RESEARCH LETTERS*
  Mao, W. L., Sturhahn, W., Heinz, D. L., Mao, H. K., Shu, J. F., Hemley, R. J.
  2004; 31 (15)
- **Hydrogen storage in molecular compounds** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Mao, W. L., Mao, H. K.
  2004; 101 (3): 708-710
- **Phonon density of states and elastic properties of Fe-based materials under compression** *3rd Nassau Mossbauer Conference on Development and Novel Application of the Technique to Science*
  Struzhkin, V. V., Mao, H. K., Mao, W. L., Hemley, R. J., Sturhahn, W., Alp, E. E., L'abbe, C., Hu, M. Y., Errandonea, D.
  SPRINGER.2004: 3–15
- **Generation of ultrahigh pressure using single-crystal chemical-vapor-deposition diamond anvils** *APPLIED PHYSICS LETTERS*

Mao, W. L., Mao, H. K., Yan, C. S., Shu, J. F., Hu, J. Z., Hemley, R. J.
2003; 83 (25): 5190-5192

- **Bonding changes in compressed superhard graphite** *SCIENCE*
  Mao, W. L., Mao, H. K., Eng, P. J., Trainor, T. P., Newville, M., Kao, C. C., Heinz, D. L., Shu, J. F., Meng, Y., Hemley, R. J.
  2003; 302 (5644): 425-427
- **Displacive transition in magnesiowustite** *JOURNAL OF PHYSICS-CONDENSED MATTER*
  Mao, W. L., Shu, J. F., Hu, J. Z., Hemley, R., Mao, H.
  2002; 14 (44): 11349-11354
- **Hydrogen clusters in clathrate hydrate** *SCIENCE*
  Mao, W. L., Mao, H. K., Goncharov, A. F., Struzhkin, V. V., Guo, Q. Z., Hu, J. Z., Shu, J. F., Hemley, R. J., Somayazulu, M., Zhao, Y. S.
  2002; 297 (5590): 2247-2249
- **Iron-nickel alloy in the Earth's Core** *Geophysical Research Letters*
  Lin, J., Heinz, D., Campbell, A., Devine, J., Mao, W., Shen, G.
  2002; 29