

Thomas S. Duffy

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Professional Preparation:

Boston College	B. S., Physics	1982
University of Illinois – Chicago	M. S., Geological Sciences	1986
California Institute of Technology	Ph.D., Geophysics	1992

Appointments:

Assistant, Associate, and Professor, Department of Geosciences Princeton University	1997-2008
Staff Scientist, Consortium for Advanced Radiation Sources The University of Chicago	1995-1996
Postdoctoral Fellow, Geophysical Laboratory Carnegie Institution of Washington	1993-1995

Selected Publications:

- Kubo, A., B. Kiefer, S.-H. Shim, G. Shen, V. B. Prakapenka, and T. S. Duffy, Rietveld structure refinements of MgGeO_3 post-perovskite phase to 1 Mbar, *American Mineralogist*, in press, 2008
- Merkel, S., A. K. McNamara, A. Kubo, S. Speziale, L. Miyagi, Y. Meng, T. S. Duffy, and H.-R. Wenk, Deformation of $(\text{Mg,Fe})\text{SiO}_3$ post-perovskite and modeling of D" anisotropy, *Science*, 316, 1729-1732, 2007.
- Runge, C. E., A. Kubo, B. Kiefer, Y. Meng, V. Prakapenka, G. Shen, R. J. Cava, and T. S. Duffy, Equation of state of MgGeO_3 perovskite to 65 GPa: Comparison with the post-perovskite phase, *Physics and Chemistry of Minerals*, 33, 699-709, 2006.
- Kubo, A., B. Kiefer, G. Shen, V. Prakapenka, R. J. Cava, and T. S. Duffy, Stability and equation of state of the post-perovskite phase in MgGeO_3 to 2 Mbar, *Geophysical Research Letters*, 33, L12S12, 2006.
- Shieh, S. R., T. S. Duffy, A. Kubo, G. Shen, V. B. Prakapenka, N. Sata, K. Hirose, and Y. Ohishi, Equation of state of the post-perovskite phase synthesized from a natural $(\text{Mg,Fe})\text{SiO}_3$ orthopyroxene, *Proceedings of the National Academy of Sciences*, 103, 3039-3043, 2006.
- Kubo, A, Y. Wang, C. E. Runge T. Uchida, B. Kiefer, N. Nishiyama, and T. S. Duffy, Melting curve of silicon to 15 GPa determined by angle-dispersive x-ray diffraction using a Kawai-type apparatus, *Journal of the Physics and Chemistry of Solids*, in press, 2008.
- Miyagi, L., N. Nishiyama, Y. Wang, A. Kubo, D. V. West, R. J. Cava, T. S. Duffy, and H.-R. Wenk, Deformation and texture development in CaIrO_3 post-perovskite phase

to 6 GPa and 1300 K, *Earth and Planetary Science Letters*, 268, 515-525, 2008.
Duffy T. S., Mineralogy at the extremes, *Nature*, 451, 269-270, 2008.
Merkel, S., A. Kubo, L. Miyagi, S. Speziale, H.-k. Mao, T. S. Duffy, and H.-R. Wenk,
Plastic deformation of MgGeO₃ post-perovskite at lower mantle pressures, *Science*,
311, 644-646, 2006.
Duffy, T. S., Synchrotron facilities and the study of deep planetary interiors, *Reports of
Progress in Physics*, 68, 1811-1859, 2005.

Selected Synergistic Activities:

Co-PI, COMPRES X17C and X17B3 beamlines, National Synchrotron Light Source, 2007-08;
Facilities and Infrastructure Committee, COMPRES, 2003-2007, Chair, 2007-2008; Proposal
Review Panel, Advanced Photon Source, 2005-2008, Chair, 2007-2008; Proposal Review Panel,
National Synchrotron Light Source, 2004-2008; Beamline Advisory Team, NSLS-II, 2008; Co-
editor, Special issue of *High-Pressure Research* on "Prospects for Establishing High-
Pressure Scales at High Temperatures"; Co-editor, Special issue of *Journal of Physics:
Condensed Matter* on "Rheology and Elasticity Studies at Ultra-High Pressures and
Temperatures, 2006; Co-organizer, "NSLS X-ray High-Pressure Research Workshop: Current
Operation and Vision into NSLS II", 2006; Co-editor, *Advances in High-Pressure Technology for
Geophysical Applications*, Elsevier, Amsterdam, pp. 512, 2005; Program committee,
COMPRES 4th Annual Meeting, Mohonk, New York, 2005; Co-organizer,
GSECARS/COMPRES Workshop on "Future of Laser Heating at the Advanced Photon Source",
2004; Co-editor, *New Developments in High-Pressure Mineral Physics and Applications to the
Earth's Interior*, Elsevier, Amsterdam, pp. 625, 2004; Mineral and Rock and Rock Physics Focus
Group, AGU, 1999-2008, Chair 2002-2004; MSA Award Committee, Mineralogical Society of
America, 2003-2005; Associate Editor, *American Mineralogist*, 2000-2003, David and Lucille
Packard Foundation Fellowship, 2000-2004.

Collaborations and Affiliations:

Recent Collaborators (48 months):

K. Hirose (Tokyo), S. Jacobsen (NU), J. Majzlan (Freiburg), L. Miyagi (Berkeley), S. Merkel
(Lille), V. Prakapenka (Chicago), Y. Raiteses (PPPL), S. Scandolo (ICTP), G. Shen (CIW), J.
Smyth (Colorado), J. Wan (Hong Kong), H. R. Wenk (Berkeley)

Graduate and Postdoctoral Advisors:

M. T. Vaughan (Stony Brook), T. J. Ahrens (Caltech), R. J. Hemley (CIW), H. K. Mao (CIW)

Graduate Students and Postdoctoral Associates

Graduate Students (6): S.-H. Shim (MIT), S. Speziale (Potsdam), S. Hongsresawat, C. Runge, Z.
Mao (current), S. Dorfman (current), L. Xie (current)

Post-doctoral Associates (6): A. Kavner (UCLA), S. Shieh (Western Ontario), B. Kiefer (New
Mexico St.), A. Kubo (Sumitomo, Inc.), D. He (Sichuan U.), F. Jiang (current)