

Thomas S. Duffy

Professor
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Curriculum Vitae, 2024

Professional History

- 2002-2024 Chair, Department of Geosciences, Princeton University
- 1997-2024 Assistant, Associate, and Professor, Department of Geosciences, Princeton University
- 1995-1996 Staff Scientist, Consortium for Advanced Radiation Sources
The University of Chicago
- 1992-1995 Postdoctoral Fellow, Geophysical Laboratory
Carnegie Institution of Washington

Education

- 1992 Ph. D., Geophysics, California Institute of Technology, Pasadena, California
- 1986 M. S., Geological Sciences, University of Illinois, Chicago, Illinois
- 1982 B. S., Physics, Boston College, Chestnut Hill, Massachusetts

Research Interests

Physics and chemistry of minerals. Static and dynamic high-pressure research. Structure, composition, and dynamics of planetary interiors.

Selected Recent Publications

Wicks, J. K., S. Singh, M. Millot, D. E. Fratanduono, F. Coppari, M. G. Gorman, Z. Ye, J. R. Rygg, A. Hari, J. H. Eggert, T. S. Duffy, and R. F. Smith, B1-B2 transition in shock-compressed MgO, *Science Advances*, 10, eadk0306, 2024.

Kim, D., I. K. Ocampo, R. F. Smith, F. Coppari, M. Millot, J. K. Wicks, A. Lazicki, J. R. Rygg, J. H. Eggert, and T. S. Duffy, Ramp compression of germanium dioxide to extreme conditions: Phase transitions in an SiO₂ analog, *Physical Review X*, 13, 031025, 2023.

- Payne, S. S., and T. S. Duffy, The role of calcite mineral elastic moduli in carbonate rock physics, *The Leading Edge*, 42, 277-284, 2023.
- Rucks, M. G. J. Finkelstein, D. Zhang, P. K. Dera, and T. S. Duffy, Single-crystal X-ray diffraction of fluorapatite to 61 GPa, *American Mineralogist*, 109, 731-737, 2023.
- Rucks, M. J., J. M. Winey, Y. Toyoda, Y. M Gupta, and T. S. Duffy, Shock compression of fluorapatite to 120 GPa, *Journal of Geophysical Research*, 128, e2022JE007642, 2023.
- Ocampo, I., J. M. Winey, Y. Toyoda, and T. S. Duffy, Dynamic compression of [100] MgF₂ single crystals: Shock-induced polymorphism to highly coordinated structures, *Physical Review B*, 106, 144108, 2022.
- Duffy, T. S., New analysis of shock compression data for selected silicates, in *Static and Dynamic High-Pressure Mineral Physics*, edited by Y. Fei and M. J. Walter, Cambridge University Press, 113-134, 2022.
- Kim, D. R. F. Smith, I. Ocampo, F. Coppari, M.C. Marshall, M. K. Ginnane, J. K. Wicks, S. J. Tracy, M. Millot, A. Lazicki, J.R. Rygg, J. H. Eggert, T. S. Duffy, Structure and density of silicon carbide to 1.5 TPa: Implications for extrasolar planets, *Nature Communications*, 13, 2260, 2022.
- Dutta, R., S. J. Tracy, F. Miozzi, K. Luo, J. Yang, R. E. Cohen, P. C. Burnley, D Smith, Y. Meng, S. Chariton, V. B. Prakapenka, and T. S. Duffy, Ultra-high pressure disordered, eight-fold coordinated phase of Mg₂GeO₄, Analogue for super-Earth mantles, *Proceedings of the National Academy of Sciences*, 119, e2114424119, 2022.

Honors

AGU College of Fellows Distinguished Lecturer, 2023-2024
 Mercator Fellow, DFG, German Research Foundation, 2019
 Fellow, American Geophysical Union, 2013
 Fellow, Mineralogical Society of America, 2010
 Fellow, David and Lucile Packard Foundation, 1999

Membership in Professional Societies

American Geophysical Union
 Mineralogical Society of America
 American Physical Society

Selected Professional Affiliations, Service, and Outreach

Affiliated Faculty, Princeton Institute of Materials
 Affiliated Faculty, High Meadows Environmental Institute
 2021- Academic Freedom Alliance

2021-2022 Chair, Steering Committee for the “Management and operations of synchrotron-hosted analytical capabilities for Earth sciences research”
2020-2023 National Ignition Facility User Group Executive Committee
2017-2020 Treasurer (elected), Mineralogical Society of America
2011- Visiting Scientist, Lawrence Livermore National Laboratory
2009- Curator, Princeton University Mineral Collection