Matthew C. Brennan

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Education

2017 –   **Harvard University**
                Ph.D. candidate in Earth & Planetary Sciences
2013 – 2017   **University of Chicago**
                B.S. with honors in Geophysical Sciences.
                B.S. in Environmental Sciences

Research Positions

2017 –   **Graduate student**
                Laboratory for Mineral Physics, Harvard University
                Advisor: Rebecca A. Fischer
2016 –   **Synchrotron user**
                GSECARS, Advanced Photon Source, Argonne National Laboratory
                Beamline 12.2.2, Advanced Light Source, Berkley National Laboratory
2015 – 2017   **Undergraduate lab technician**
                Laboratory for Mineral Physics, University of Chicago
                Advisor: Andrew J. Campbell
                Thesis: "Molten Iron – Solid Silicate Interactions in Earth's Deep Interior"
2016   **Summer Undergraduate Laboratory Internships (SULI) researcher**
                Energy Systems Division, Argonne National Laboratory
                Advisor: May Wu
                Project: "Water Use for Power Generation in the United States"

Presentations, Publications, and Proposals

2020   **"Core Formation and Geophysical Properties of Mars."**
                Publication
                Earth and Planetary Science Letters (530), 115923
2019   **"Martian Core Formation: Implications from the Hf–W System."**
                Poster Presentation
                Goldschmidt Conference
2019   **"Using Core Formation and Geophysical Modelling to Predict the Core Radius and Seismic Properties of Mars."**
                Oral Presentation
                Lunar and Planetary Science Conference

2018	**"A Core Formation Model with Implications for the Properties of the Martian Interior."**
	Oral Presentation
	American Geophysical Union Fall Meeting
2018	**"The Composition and Seismic Properties of the Martian Interior."**
	Oral Presentation
	Goldschmidt Conference
2018	**"Mantle Melting Temperatures of the Earth and Mars"**
	Synchrotron Proposal
	GSECARS, Advanced Photon Source, University of Chicago
2017	**"Deep-Earth Partitioning between Molten Iron Alloys and Solid Silicates."**
	Poster Presentation
	American Geophysical Union Fall Meeting

Teaching

Fall 2019	**Teaching Fellow for E-PSCI 142 (Mineralogy)**

Honors and Awards

2019 –	**National Science Foundation Graduate Research Fellowship**
2019 –	**Associate Membership in Sigma Xi**
2017	**Departmental Honors in Geophysical Sciences**
	University of Chicago
2014 – 2017	**Dean's List**
	University of Chicago

Service and Outreach

2020	**Journal Reviewer**
	Physics and Chemistry of Minerals
2020	**Science Education Partner**
	Harvard Museum of Natural History
2018 –	**Museum volunteer trainer**
	Harvard Museum of Natural History
2018 – 2019	**Graduate Outreach Chair**
	Department of Earth & Planetary Sciences, Harvard University
2018	**Volunteer tutor (science & mathematics)**
	Cambridge School Volunteers, Cambridge Public Schools
2017 –	**Laboratory Safety Officer**
	Department of Environmental Health & Safety, Harvard University
2017 – 2018	**Gallery guide (Earth & Planetary Science Gallery)**
	Harvard Museum of Natural History

Skills

Experiment	**Diamond Anvil Cell**
	(assembly, sample loading, ruby fluorescence, laser heating, Raman spectroscopy)
	Synchrotron X–ray Diffraction
	(axial and radial geometries, beamline operation, diffraction pattern analysis)
	Scanning Electron Microscope
	(focused ion beam, backscattered electron detector, EDS elemental analysis)
	Piston–Cylinder Press
	(stack assembly, hydraulic operation, thermocouple operation, sample recovery)
Computation	**Programming**
	(MATLAB, Python, Mathematica, R, L^{A}T$_E$X, HTML)
	X-Ray Diffraction
	(DIOPTAS, MAUD, BEARTEX, FIT2D, APEX3, Olex^2)

Professional Societies

2018 –	**Geological Society of America**
2017 –	**American Geophysical Union**
2017 –	**Geochemical Society**

Last updated on February 6th, 2020