Hannah J. Bausch

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EDUCATION

2017 - Present	Ph.D. candidate in Earth and Planetary Sciences, Northwestern University
2017	B.S. in Geophysical Sciences and Environmental Sciences, University of Chicago

RESEARCH AND PROFESSIONAL EXPERIENCE

Research Statement: I study minerals under high pressures and temperatures to simulate conditions deep inside planetary interiors. By investigating minerals' physical and chemical properties at these extreme conditions, we can gain a better understanding of what's inside planetary objects and how they formed. In my Ph.D. research, I am investigating ferropericlase [(Mg,Fe)O], which is a solid solution with endmembers that have very different physical properties. By studying (Mg,Fe)O using dynamic compression techniques my group and I aim to answer how the phase diagrams of MgO and FeO merge and how different amounts of iron defects affect material properties at extreme conditions. The answers to these questions are relevant to understanding planetary formation processes as well as the compositions of exoplanetary interiors from observational data (mass-radius relations). In addition, the equation of state data will add to the growing thermodynamic database useful for numerous applications in HED physics and stockpile stewardship.

2017 - Present	**Graduate Research Assistant**, Department of Earth and Planetary Sciences, Northwestern University. Advisor: Professor Steven D. Jacobsen.
2015 - 2017	**Undergraduate Research Assistant**, Department of Geophysical Sciences, Laboratory for Mineral Physics, University of Chicago. Advisor: Professor Andrew J. Campbell. Training: Diamond Anvil Cell and powder x-ray diffraction.
2016, Summer	**Undergraduate Research Intern**, Lamont-Doherty Earth Observatory, Columbia University. Advisors: Professor Terry A. Plank and Dr. Elizbeth Ferriss. Hydrogren diffusion in olivine phenocrysts from Episode 1 of the 1959 Kilauea Iki eruption. Training: Scanning electron microscopy and FTIR spectroscopy.

ACHEIVEMENTS, GRANTS, & AWARDS

Travel Grants: ZFSP Student Session travel support (2018), UChicago Dean's Fund for Student Life Award (2016)
Dean's List: University of Chicago 2013-14, 2014-15, 2015-16, 2016-17
Awards: Neighborhood Schools Program Above and Beyond Award (2015)

PROFESSIONAL DEVELOPMENT

2019	Three-week tutorial on Density Functional Theory under the guidance of Josh Townsend, Sandia National Laboratory, NM
2018,19	Z Fundamental Science Program Workshop and User Meeting: Fundamental Science with Pulsed Power, Sandia National Laboratory, NM

2018	Dynamic Compression Summer School at the Advanced Photon Source, Argonne National Laboratory, IL
2018	Northwestern University's New TA Conference and Workshop

TEACHING

2020, Winter	Teaching Assistant, Earth 300: Earth and Planetary Materials, Northwestern University
2018, Fall	Teaching Assistant, Earth 106: The Ocean, the Atmosphere, and Our Climate, Northwestern University

COMMUNITY OUTREACH

2014 - 2015	Tutor and Teacher's Assistant, Neighborhood Schools Program at The University of Chicago

CONFERENCE PRESENTATIONS

H.J. Bausch, S.D. Jacobsen, A.E. Clark, C. Seagle, S. Root, L. Schulenburger, and J. Townsend (2019) Exploring anomalous velocity structures on the earth's core-mantle boundary using dynamic compression. *Z Fundamental Science Program Workshop and User Meeting.*

E.C. Thompson, A.H. Davis, H.J. Bausch, Z. Liu, A.J. Campbell, J. Tsuchiya, and S.D. Jacobsen (2018) The influence of hydrogen bonding on the material properties of hydrous phases. *American Geophysical Union Fall Meeting*.

H.J. Bausch, S.D. Jacobsen, A.E. Clark, C. Seagle, S. Root, and J. Townsend (2018) Shock properties and equations of state of (Mg,Fe)O up to TPa pressures. *Z Fundamental Science Program Workshop and User Meeting.*

A.J. Campbell, A. Matillion, H.J. Bausch, S. Tecklenburg, R.A. Fisher, B.A. Chidester, and V.B. Prakapenka (2016) Equation of state of Fe3S and limits on the sulfur content of Earth's core. *American Geophysical Union Fall Meeting.*

H.J. Bausch, E. Ferriss, M. Dia, and T.A. Plank (2016) Hydrogen diffusion in olivine phenocrysts from Episode 1 of the 1959 Kilauea Iki eruption. *University of Chicago STEM Undergraduate Research Symposium.*

PAPER

M.D. Wenz, S.D. Jacobsen, D. Zhang, M. Regier, H.J. Bausch, P.K. Dera, M. Rivers, P. Eng, S.B. Shirey, and D.G. Pearson (2019), High-throughput identification of mineral inclusions in diamond at GSECARS using synchrotron X-ray microtomography, radiography, and diffraction