

JESSE T. GU

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Education

Harvard University 2020 –
Ph.D. in Earth and Planetary Sciences
Advisor: Rebecca Fischer

The University of Texas at Austin 2016 – 2020
B.S. with High Honors, Geological Sciences, Geophysics
Advisor: Jung-Fu Lin
Thesis: High-pressure elasticity of anhydrous and hydrous rhyolitic glasses

Research Experience

Graduate Research Assistant 2020 –
Laboratory for Mineral Physics, Harvard University
Advisor: Rebecca Fischer

Undergraduate Research Assistant 2017 – 2020
Mineral Physics Lab, The University of Texas at Austin
Advisor: Jung-Fu Lin

Visiting Researcher Summer 2018
Institute for Planetary Materials, Okayama University
Advisor: Takuo Okuchi

Undergraduate Research Assistant Summer 2017
JSG Catalyst Program, The University of Texas at Austin
Advisor: Whitney Behr

Undergraduate Research Assistant 2016 – 2017
The University of Texas at Austin
Advisor: Nicholas Dygert

Publications

Gu J.T., Peng B., Ji X., Zhang J., Yang H., Hoyos S., Hirschmann M.M., Kite E.S., Fischer R.A. (2023). Composition of Earth's initial atmosphere and fate of Earth's accreted volatiles set by core formation and magma ocean redox evolution, *in review*.

Purevjav N., Tomioka N., Yamashita S., Shinoda K., Kobayashi S., Shimizu K., Ito M., Fu S., **Gu J.T.**, Hoffmann C., Lin J.F., and Okuchi, T. (2023). Hydrogen incorporation mechanism in the lower-mantle bridgmanite, *in revision*.

Gu J.T., Fischer R.A., Brennan M.C., Clement M.S., Jacobson S.A., Kaib N.A., O'Brien D.P., and Raymond S.N. (2023). Comparisons of the core and mantle compositions of earth analogs from different terrestrial planet formation scenarios, *Icarus* (394), 115425.

Gu J.T., Fu S., Gardner J.E., Yamashita S., Okuchi T., and Lin J.F. (2021). Anomalous elasticity of dry and hydrous rhyolitic glasses up to 3 GPa, *American Mineralogist* (106), 1143-1152.

Dygert N., Jackson C.R.M., Hesse M.A., Tremblay M.M., Shuster, D.L. and **Gu J.T.** (2018). Plate tectonic cycling modulates Earth's $^3\text{He}/^{22}\text{Ne}$ ratio, *Earth and Planetary Science Letters* (498), 309-321.

Presentations ([T] = Talk, [P] = Poster)

- 2023 "Fate of Earth's accreted volatiles set by core formation and magma ocean redox evolution", *Gordon Research Seminar (Interior of the Earth)*, South Hadley, MA. [T]
- 2023 "Earth's earliest atmosphere and volatile loss during accretion", *Gordon Research Conference (Origins of Solar Systems and Interior of the Earth)*, IL. [P]
- 2022 "Earth's earliest atmosphere and volatile loss during accretion", *AGU Fall Meeting*, Chicago, IL. [T]
- 2021 "Incorporation of melt-scaling laws into models of Earth's accretion and core formation", *AGU Fall Meeting*, New Orleans, LA. [P]
- 2021 "Incorporation of melt-scaling laws into models of Earth's accretion and core formation", *COMPRES Annual Meeting*, Online everywhere. [T]
- 2019 "Anomalous elasticity of dry and hydrous rhyolitic glasses up to 3 GPa", *AGU Fall Meeting*, San Francisco, CA. [P]
- 2019 "Anomalous elasticity of dry and hydrous rhyolitic glasses up to 3 GPa", *COMPRES Annual Meeting*, Big Sky, MO. [P]
- 2018 "The effect of H₂O on the anomalous velocities of rhyolitic glasses up to 3 GPa", *AGU Fall Meeting*, Washington DC. [P]
- 2018 "The effect of H₂O on the anomalous behavior of hydrous rhyolitic glass up to 3 GPa", *COMPRES Annual Meeting*, Albuquerque, NM. [P]
- 2017 "Pore-scale dissociation of methane hydrate under conditions relevant to Gulf of Mexico reservoirs.", *DCO EPC Workshop*, Tempe, AZ. [P]
- 2017 " $^3\text{He}/^{22}\text{Ne}$ variations among ocean island, mid-ocean ridge, and backarc basalts", *GSA South-Central Meeting*, San Antonio, TX. [P]

Honors and Awards

- 2022 NSF Graduate Research Fellowship
- 2020 James Mills Peirce Fellowship, Harvard University
- 2018 – 2019 UT Distinguished College Scholar
- 2018 UT Undergraduate Research Fellowship and JSG Matching Fund
- 2017 Mineralogical Society of America Undergraduate Prize
- 2017 – 2020 Jackson School of Geosciences merit-based scholarship
- 2016 – 2020 University Honors

Service and Outreach

Reviewer for GRL, GCA

2023 – Undergrad mentor, Lucy Jacobsen

2022 – Lab Safety Officer

2021 – Mentor, Harvard-MIT Science Research Mentoring Program

2020 Graduate Application Assistance Initiative

2019 – 2020 Volunteer, *Thinkery*, Austin, TX