

# 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: Rachel Bernard and Whitney Behr

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

## Publications

**Gu J.T.**, Fischer R.A., Jacobsen L., and Petaev M.I. Metal–silicate partitioning of Pb and the origins of Earth’s volatile depletion trend, *in prep.*

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. (2024). Hydrogen incorporation mechanism in the lower-mantle bridgmanite, *American Mineralogist* (109), 1036-1044.

**Gu J.T.**, Peng B., Ji X., Zhang J., Yang H., Hoyos S., Hirschmann M.M., Kite E.S., Fischer R.A. (2024). Composition of Earth’s initial atmosphere and fate of Earth’s accreted volatiles set by core formation and magma ocean redox evolution, *Earth and Planetary Science Letters* (629), 118618.

- 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 "A multi-chronometer approach to timing Earth's core formation and volatile loss", *AGU Fall Meeting*, San Francisco, CA. [T]
- 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)*, South Hadley, MA. [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 H<sub>2</sub>O on the anomalous velocities of rhyolitic glasses up to 3 GPa", *AGU Fall Meeting*, Washington DC. [P]
- 2018 "The effect of H<sub>2</sub>O 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, PSJ

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, <i>Thinkery</i> , Austin, TX