Zhongtian Zhang

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Appointments

2023– **Carnegie Postdoctoral Fellow**
Earth and Planets Laboratory, Carnegie Institution for Science

Education

2017–2023 **Yale University**
Ph.D., Earth & Planetary Sciences (2023)
M.Phil., Geology & Geophysics (2019)

2013–2017 **Nanjing University**
B.Sc., Geology (2017)

Publications

Articles: Submitted

[12] **Zhang, Z.**, Wang, J., Quantification of classical and non-classical crystallization pathways in calcite precipitation. Under review for Earth Planet. Sci. Lett.

[11] **Zhang, Z.**, Trace elements in IVA iron meteorites explained by limited solid-liquid equilibration during inward solidification. In revision for Icarus.

Articles: Published or Accepted

[10] **Zhang, Z.**, Ice sublimation in planetesimals formed at outward migrating snowline. Astrophys. J. Lett. In press.

[9] **Zhang, Z.**, Bercovici, D., 2023. Generation of a measurable magnetic field in a metal asteroid with a rubble-pile inner core. Proc. Natl. Acad. Sci. 120 (32), e2221696120. https://doi.org/10.1073/pnas.2221696120

[8] Gong, Z., Evans, D. A. D., **Zhang, Z.**, Yan, C., 2023. Mid-Proterozoic geomagnetic field was more consistent with a dipole than a quadrupole. Geology. 51 (6), 571–575. https://doi.org/10.1130/G50941.1

[7] **Zhang, Z.**, Bercovici, D., Elkins-Tanton, L. T., 2023. Melt migration in rubble-pile planetesimals: Implications for the formation of primitive achondrites. Earth Planet. Sci. Lett. 605, 118019. https://doi.org/10.1016/j.epsl.2023.118019

[6] **Zhang, Z.**, Bercovici, D., Elkins-Tanton, L. T., 2022. Cold compaction and macro-porosity removal in rubble-pile asteroids: 2. Applications. J. Geophys. Res., Planets 127, e2022JE007343. https://doi.org/10.1029/2022JE007343

[5] **Zhang, Z.**, Bercovici, D., Elkins-Tanton, L. T., 2022. Cold compaction and macro-porosity removal in rubble-pile asteroids: 1. Theory. J. Geophys. Res., Planets 127, e2022JE007342. https://doi.org/10.1029/2022JE007342

[4] **Zhang, Z.**, Bercovici, D., Jordan, J.S., 2021. A two-phase model for the evolution of planetary embryos with implications for the formation of Mars. J. Geophys. Res., Planets 126, e2020JE006754. https://doi.org/10.1029/2020JE006754

[3] **Zhang, Z.**, Karato, S.-I., 2021. The effect of pressure on grain-growth kinetics in olivine aggregates with some geophysical applications. J. Geophys. Res., Solid Earth 126, e2020JB020886. https://doi.org/10.1029/2020JB020886

[2] **Zhang, Z.**, Wu, B., Wang, T., Hui, H., 2020. Settling of immiscible droplets: A theoretical model for the missing link between microscopic and outcrop observations. J. Geophys. Res., Solid Earth 125, e2019JB018829. https://doi.org/10.1029/2019JB018829

[1] Xu, Y., Tang, W., Hui, H., Rudnick, R. L., Shang, S., **Zhang, Z.**, 2019. Reconciling the discrepancy between the dehydration rates in mantle olivine and pyroxene during xenolith emplacement. Geochim. Cosmochim. Acta. 267, 179–195. https://doi.org/10.1016/j.gca.2019.09.023

Honors

2023 **Carnegie Postdoctoral Fellowship** (EPL, Carnegie Institution for Science)
2022 **Elias Loomis Prize** (Department of Earth & Planetary Sciences, Yale University)

Conference presentations

[8] **Zhang, Z.**, "Melt migration in planetary embryos and planetesimals: Implications for Mars and primitive achondrite parent bodies", Gordon Research Seminars/Conference: Interior of the Earth (Talk for GRS/Poster for GRC, June 2023)

[7] **Zhang, Z.**, "Metallic rubble piles: Implications for the paleomagnetic record of IVA iron meteorite and the densities of M-type asteroids", Gordon Research Seminars/Conference: Origins of Solar Systems (Poster, June 2023)

[6] **Zhang, Z.**, Bercovici, D., Elkins-Tanton, L. T., "Melt migration in rubble-pile planetesimals: Implications for the formation of primitive achondrites", AGU Fall Meeting (Talk, December 2022)

[5] **Zhang, Z.**, Bercovici, D., Elkins-Tanton, L. T., "The physics of cold compaction as a constraint for interpreting the density of asteroid (16) Psyche", AGU Fall Meeting (Poster, December 2021)

[4] **Zhang, Z.**, Bercovici, D., Elkins-Tanton, L. T., "Cold compaction in rubble-pile asteroid", Psyche Team Meeting IX (Talk, October 2021)

[3] **Zhang, Z.**, Karato, S.-I., "The effect of pressure on grain-growth kinetics in olivine aggregates", AGU Fall Meeting (Talk, December 2020)

[2] **Zhang, Z.**, Bercovici, D., Jordan, J. S., "Heat transport in partially molten bodies with strong internal heatin", AGU Fall Meeting (Poster, December 2019)

[1] **Zhang, Z.**, Wu, B., Wang, T., Hui, H.,"Segregation of immiscible liquids: From droplet size to plutonic scale", AGU Fall Meeting (Poster, December 2016)

Teaching experience

Teaching Fellowship at Yale University

Fall 2020	EPS 456/556 Introduction to Seismology
Spring 2020	G&G275b/F&ES716b Renewable Energy
Fall 2019	G&G 428/528 Science of Complex Systems

Service

Peer review for Journal of Geophysical Research: Planets (3), iScience (1)

Colloquium committee, Department of Earth & Planetary Sciences, Yale University (2018–2021)

Treasurer, Dana Club, Department of Earth & Planetary Sciences, Yale University (2019–2020)

IC-FG (International Community and First Generation students) working group, IDEA (Inclusion, Diversity, Equity, Anti-racism and Anti-discrimination) committee of Department of Earth & Planetary Sciences, Yale University (2022–2023)

DiMhCi (Disability, Mental health, and Chronic illness) working group, IDEA committee of Department of Earth & Planetary Sciences, Yale University (2022–2023)

September 27, 2023