Junjie Dong

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EDUCATION

2023 (expected)	**Harvard University**, Cambridge, MA Doctor of Philosophy (Ph.D.) in Earth and Planetary Sciences, secondary field in the History of Science
2021	**Harvard University**, Cambridge, MA Master of Arts (A.M.) in Earth and Planetary Sciences
2017	**University of Michigan,** Ann Arbor, MI Bachelor of Science (B.S.) in Earth and Environmental Sciences with University honors, minor in Environmental History

PROFESSIONAL EXPERIENCE

2017–present	Graduate Research Assistant, Laboratory for Mineral Physics, Harvard University
2015–2017	Undergraduate Research Assistant, Mineral Physics Research Group, University of Michigan

HONORS AND AWARDS

2022	Certificate of Distinction in Teaching, Office of Undergraduate Education, Harvard College
2019	Goldschmidt Planetary Science Grant, National Aeronautics and Space Administration (NASA)
2018	Best Student Presentation Award, 2018 Annual Meeting, Consortium for Materials Properties Research in Earth Sciences (COMPRES)
2017	James Mills Pierce Fellowship, Harvard University
2017	Undergraduate Academic Excellence Award, Department of Earth and Environmental Sciences, University of Michigan
2017	Best Poster Award, Winter School for the Origin and Evolution of Deep Primordial Reservoirs, Ehime University
2016	Scott Turner Award for Undergraduate Research, Department of Earth and Environmental Sciences, University of Michigan

2016, 2015 James B. Angell Scholar, College of Literature, Science, and the Arts, University of Michigan

PUBLICATIONS

Journal Articles Under Review

[8] **J. Dong**, R. A. Fischer, L. P. Stixrude, C. R. Lithgow-Bertelloni, Z. T. Eriksen, M. C. Brennan, *Icarus*: Water storage capacity of the Martian mantle through time.

Published Peer-Reviewed Journal Articles

[7] **J. Dong**, R. A. Fischer, L. P. Stixrude, C. Lithgow-Bertelloni, *AGU Advances*, 2021: Constraining the volume of Earth's early oceans with a temperature-dependent mantle water storage capacity Model.

[6] K. Daviau, R. A. Fischer, M. C. Brennan, **J. Dong**, T.-A. Suer, S. Couper, Y. Meng, V. B. Prakapenka, *Journal of Geophysical Research Solid Earth*, 2020: Equation of state of TiN at high pressures and temperatures: A possible host for nitrogen in planetary mantles.

[5] J. Li, F. Zhu, J. Liu, **J. Dong**, *Carbon in Earth's Interior* (AGU Geophysical Monograph 249, Chapter 15), 2020: Reactive preservation of carbonate in Earth's mantle transition zone.

[4] D. Zhou, **J. Dong**, Y. Si, F. Zhu, J. Li, *Minerals*, 2020: Melting curve of potassium chloride from in situ ionic conduction measurements.

[3] F. Zhu, J. Li, J. Liu, **J. Dong**, Z. Liu, *Proceedings of the National Academy of Sciences*, 2019: Metallic iron limits silicate hydration of Earth's transition zone.

[2] **J. Dong**, J. Li, F. Zhu, *Frontiers in Earth Science*, 2019: Wetting behavior of iron-carbon melt in silicates at mid-mantle pressures with implications for the Earth's deep carbon cycle.

[1] **J. Dong**, J. Li, F. Zhu, Z. Li, R. Farawi, *American Mineralogist*, 2019: Melting curve minimum of barium carbonate $BaCO_3$ near 5 GPa.

INVITED TALKS

2021 "Annals of the Deep Mars", Departmental Colloquium, Department of Earth and Planetary Sciences, Harvard University.

2021 "Watering Down the Mantle: Estimating the Bulk Water Storage Capacities for the Solid Mantles of Earth and Mars", Earth Data Webinar, School of Earth Sciences, Zhejiang University, China.

2018 "Water storage capacity of Earth's mantle and its temporal evolution", Crystallography and Mineral Physics Group, Department of Earth Sciences, University College London, UK.

FIRST-AUTHORED CONFERENCE ABSTRACTS

2022 Statistically learned nonlinearity of the postspinel phase boundary in Mg_2SiO_4 and its implications for slab dynamics and morphology, Goldschmidt Conference 2022, Honolulu, HI.

2022 Water storage capacity of the Martian mantle through time, The 53rd Lunar and Planetary Science Conference, The Woodlands, TX.

2021 The effects of bulk composition, temperature, and chemical stratification on Martian mantle mineralogy and seismic structure, AGU Fall Meeting 2021, New Orleans, LA.

2021 Determining phase transition Clapeyron slopes in Mg_2SiO_4 for the mantle transition zone: A multiple logistic regression analysis on experimental data, AGU Fall Meeting 2021, New Orleans, LA.

2021 The effects of bulk composition and temperature on Martian mantle mineralogy, COMPRES 2021 Virtual Annual Meeting, Online Everywhere.

2020 Subsolidus phase relations for Mg_2SiO_4 at mantle transition zone conditions, AGU Fall Meeting 2020, Online Everywhere.

2020 Phase equilibria and water storage capacities of Martian mantle materials, COMPRES 2020 Virtual Annual Meeting, Online Everywhere.

2019 Water storage in the Martian mantle, AGU Fall Meeting 2019, San Francisco, CA.

2019 Water storage in the Martian mantle, Goldschmidt Conference 2018, Barcelona, Spain.

2019 Subsolidus phase transitions in $(Mg,Fe)_2SiO_4$ at transition zone conditions, COMPRES 2019 Annual Meeting, Big Sky, MT.

2018 The volume of Archean oceans constrained by temperature-dependent mantle water storage capacity, AGU Fall Meeting 2018, Washington D.C.

2018 Water storage capacity of Earth's mantle and its temporal evolution, Goldschmidt Conference 2018, Boston, MA.

2018 Water storage capacity of Earth's mantle and its temporal evolution, COMPRES 2018 Annual Meeting, Albuquerque, NM.

2017 Melting curve of compressed barium carbonate from in situ ionic conductivity measurements: Implications for the melting behavior of alkaline earth carbonates in Earth's deep carbon cycle, AGU Fall Meeting 2017, New Orleans, LA.

2017 Melting curve of compressed barium carbonate from in situ ionic conductivity measurements: Implications for the melting behavior of alkaline earth carbonates in Earth's deep carbon cycle, Deep Carbon Observatory (DCO) Extreme Physics and Chemistry (EPC) Workshop 2017, Tempe, AZ.

2017	Is the Earth's core still growing? Assessing the fate of molten iron-carbon alloy by investigating its wetting of mantle silicates, Winter School for the Origin and Evolution of Deep Primordial Reservoirs, Ehime University, Kusatsu, Japan.
2016	Is the Earth's core still growing? Assessing the fate of molten iron-carbon alloy by investigating its wetting of mantle silicates", DCO EPC Workshop 2016 at Stanford University, Palo Alto, CA.
2016	Is the Earth's core still growing? Assessing the fate of molten iron-carbon alloy by investigating its wetting of mantle silicates, COMPRES 2016 Annual Meeting, Albuquerque, NM.

SYNCHROTRON EXPERIENCE

Advanced Photon Source (APS) at Argonne National Laboratory

13-ID-D	June 30–July 01, 2018; October 11–12, 2018; February 17–18, 2019
03-ID-B	November 03–09, 2017
13-BM-C	October, 2016

TEACHING AND MENTORING EXPERIENCE

Classes

2022	Spring	Earth and Planetary Sciences 54 (EPS 54): "Minerals and Rocks of the Earth and Planets", with Prof. Rebecca A. Fischer, Harvard University (Teaching Fellow)
2022	Fall	Earth and Planetary Sciences 10 (EPS 10): "A Brief History of the Earth", with Profs. Jerry X. Mitrovica and Rebecca A. Fischer, Harvard University (Teaching Fellow)
2021	January Term	Earth and Planetary Sciences 101 (EPS 101): "Global Warming Science", with Prof. Eli Tziperman, Harvard University (Programming Coach)
2019	Spring	Science of the Physical Universe 30 (SPU 30): "Life as a Planetary Phenomenon", with Prof. Dimitar D. Sasselov, Harvard University (Teaching Fellow)

Undergraduate Student Research Mentorship

2021–present	Darius Mardaru, Harvard College (Herchel Smith Undergraduate Science Research Program; 2021 EPS Summer Short-Term Student Program)
2021	Robert Greene, Harvard College (2021 EPS Summer Short-Term Student Program)

High School Student Research Mentorship

2021	Rafid M. Quayum, Montclair High School, NJ (2021 EPS Summer Short-Term Student Program)

2021	Darius Mardaru, Bătrân High School, Constanța, Romania (2021 EPS Summer Short-Term Student Program)

PROFESSIONAL SERVICE

Leadership

2022	Co-chair, Working Group for Imagery, Signage, and History of Racism, Diversity, Inclusion and Belonging Council, Department of Earth and Planetary Sciences, Harvard University
2020	Student Representative, Meeting Planning Committee, COMPRES 2020 Annual Meeting
2019–2020	Chair, Student and Postdoc Committee, COMPRES
2018–2019	Member, Student and Postdoc Committee, COMPRES
2018–2019	Organizer, Solid Earth Graduate Student Lunch Seminar, Department of Earth and Planetary Sciences, Harvard University

Conference Session Organized

2021	Convener, "MR24A: Hydrogen and Carbon in the Solid Earth from Crust to Core", AGU Fall Meeting 2021
2020	Convener (student mentee), "DI023: A Multidisciplinary Approach to Understanding Volatiles in Earth's Mantle", AGU Fall Meeting 2020
2020	Session Chair, "Student/Postdoc Breakout Session: Conducting Research and Managing Your Career in the Time of a Pandemic", COMPRES 2020 Annual Meeting
2020	Session Chair, "Contributed Talks Session: Advances in High-Pressure Techniques", COMPRES 2020 Annual Meeting
2020	Session Chair, "Contributed Talks Session: Water, Water Everywhere", COMPRES 2020 Annual Meeting

Journal Reviewer

American Mineralogist, Astronomy & Astrophysics, Nature

PUBLIC AND COMMUNITY ENGAGEMENT

2022	Guest Speaker, "From Blue to Red: How Mars Got and Lost Its Oceans", Science in the News Seminar Series, Harvard University
2021	Guest Speaker, Astronomy Club, Cambridge Rindge and Latin School
2020	Interviewed for #AGU20 Scientific Roll Call (https://youtu.be/bQxVCHEvSlg?t=1394), AGU 2020 Fall Meeting

2019 Guest Speaker, EPS Day Talk, Department of Earth and Planetary Sciences, Harvard University

2019 Volunteer, I Heart Science Festival, Harvard Museum of Natural History

SELECT MEDIA COVERAGE

2022 "How Much Did the Moon Heat Young Earth?" *Eos*, January 11, 2021. By Jure Japelj. https://eos.org/articles/how-much-did-the-moon-heat-young-earth

2021 "Earth may have been a water world 3 billion years ago." *Harvard Gazette*, April 30, 2021. By J. Siliezar. https://news.harvard.edu/gazette/story/2021/04/harvard-scientists-determine-early-earth-may-have-been-a-water-world/

2021 "Early Earth's hot mantle may have led to Archean 'water world.'" *Astrobiology*, March 30, 2021. http://astrobiology.com/2021/03/early-earths-hot-mantle-may-have-led-to-an-archean-water-world.html

2021 "Early Earth's hot mantle may have led to Archean 'water world.'" *Phys.org*, March 30, 2021. https://phys.org/news/2021-03-early-earth-hot-mantle-archean.html

2021 "Was Earth once a water world?" *Syfy Wire*, March 21, 2021. By Phil Plait. https://www.syfy.com/syfy-wire/was-earth-once-a-water-world

2021 "Surprise evidence: Ancient Earth was entirely covered in water." *What Da Math*, March 16, 2021. by Anton Petrov. https://www.youtube.com/watch?v=oDLNuhnMKwg

2021 "Watering down the mantle." *Eos*, Editor's Highlights, March 9, 2021. By V. Salters. https://eos.org/editor-highlights/watering-down-the-mantle

2021 "Ancient Earth was a water world." *Science*, 9 March 2021, doi: 10.1126/science.371.6534.1088. By P. Voosen. https://www.sciencemag.org/news/2021/03/ancient-earth-was-water-world

PROFESSIONAL AFFILIATIONS

American Association for the Advancement of Science

American Geophysical Union

Geochemical Society

History of Science Society

Mineralogical Society of America