Dian Ji

Department of Earth, Environmental and Planetary Sciences, Rice University, Houston TX 77005
Phone: +1-865-371-7017 | Email: dj56@rice.edu | URL: https://dian01811.github.io

EDUCATION

Department of Earth, Environmental and Planetary Sciences, Rice University Aug 2023 – Present
Ph.D. in Geology Houston, TX
Advisor: Rajdeep Dasgupta
Current GPA: 4.0 / 4.0

Department of Earth and Planetary Sciences, University of Tennessee June 2021 – July 2023
M.S. in Geology Knoxville, TN
Advisor: Nicholas Dygert; Committee: Molly McCanta, Shichun Huang, Bradley Thomson
Thesis: Numerical and Experimental Constraints on Trace Element Fractionation During Lunar Magma Ocean Solidification
GPA: 4.0 / 4.0

College of Geosciences, China University of Petroleum, Beijing Sep 2016 - Jun 2020
B.E. in Resource Exploration Engineering Beijing
Advisor: Huichuan Liu
GPA: 3.9 / 5.0

PUBLICATION

Google Scholar
Total citations = 14; h-index = 2; i10-index = 1

D. Ji, N. Dygert, (2024) Trace element partitioning between apatite and silicate melts: Effects of major element composition, temperature, and oxygen fugacity, and implications for the volatile element budget of the lunar magma ocean. *Geochimica et Cosmochimica Acta*. doi: 10.1016/j.gca.2023.11.004
D. Ji, (2023) Numerical and Experimental Constraints on Trace Element Fractionation During Lunar Magma Ocean Solidification. *MS Thesis*, University of Tennessee.
D. Ji, N. Dygert, (2023) Trace element evidence for serial processing of the lunar flotation crust and a depleted bulk Moon. *Earth and Planetary Science Letters.* doi: 10.1016/j.epsl.2022.117958
D. Ji, H.C. Liu, Y.L. Li, (2020) Large-scale Early Cretaceous lower-crust melting derived adakitic rocks in NE China: implications for convergent bidirectional subduction and slab rollback. *International Geology Review*. doi:10.1080/00206814.2019.1697968

FORTHCOMING

D. Ji, R. Dasgupta, High temperature and pressure experiments on sulfide saturation of Chang'e-5 lunar basalts *in Preparation*

CONFERENCE ABSTRACTS

D. Ji, N. Dygert, 2024. A New Europium in Apatite-Plagioclase Oxybarometer for Lunar and Terrestrial Cumulate Rocks and Meteorites. *Lunar and Planetary Science Conference, LV* #1240. (submitted)
N. Dygert, **D. Ji,** E. Etheridge 2024. Toward a Clinopyroxene-Plagioclase Oxybarometer for Lunar and Terrestrial Cumulates: An fO_2-Dependent Predictive Model for Clinopyroxene-Melt Eu Partitioning. *Lunar and Planetary Science Conference, LV* #2419. (submitted)
N. Dygert, **D. Ji**, 2023. Serial Processing of the Lunar Crust after the Magma Ocean Stage and a Depleted Bulk Moon: Insights from a Europium-in-Plagioclase Partitioning Model. *Goldschmidt Conference*, # 17023.
D. Ji, N. Dygert, 2023. New experimental constraints on REE partitioning between apatite and silicate melts and a temperature and composition-dependent predictive partitioning model. *Lunar and Planetary Science Conference, LIV* #1255.
D. Ji, N. Dygert, 2022. Serial processing after lunar anorthositic crust formation indicated by rare earth elements in plagioclase. *Lunar and Planetary Science Conference, LIII* #1229.

D. Ji, N. Dygert, 2021. Eu anomalies in lunar plagioclase reflect secondary processing by subsolidus reequilibration and introduction of a KREEP component. *Goldschmidt Conference*, #3219.
N. Dygert, **D. Ji**, A.L. Fagan, C.R. Neal, D.S. Draper, J.F. Rapp, T.J. Lapen, 2021. Petrogenesis of and subsolidus reequilibration within lunar ferroan anorthosites: Two demonstrations of a new fO_2-dependent model for plagioclase-melt europium partitioning. *Lunar and Planetary Science Conference*, LII, #2352.

CONFERENCE TALKS

54th Lunar and Planetary Science Conference, Houston — Mar 2023
53rd Lunar and Planetary Science Conference, Houston — Mar 2022
31st Goldschmidt Conference, Virtual — Jul 2021

GRANTS

Trace element partitioning between apatite and silicate melts 2023 - 2024
MSA Grant for Student Research in Mineralogy and Petrology, Mineralogical Society of America
$5,000 to Student PI: Ji

HONORS & AWARDS

- **The Chair's Fellowship**, Rice University ($10,000) 2023
- **Virginia & James Bibee Graduate Student Professional Promise Award**
  University of Tennessee ($500) 2023
- **Excellence in Teaching by GTA's Award**, University of Tennessee ($500) 2023
- **Member**, *The Honor Society of Phi Kappa Phi* 2023
- **Jimmy Walls Colloquium Presentation Award**, University of Tennessee ($500) 2022
- **Li Siguang Outstanding Student Award** (¥15,000) 2020
- **Excellent Senior Thesis Award**, Beijing 2020
- **Dean's Nomination Award of College of Geosciences**, China University of Petroleum (¥5,000) 2020
- **First-class Scholarship**, China University of Petroleum (¥2,000) 2019
- **Oriental Geophysics Company Scholarship** (¥3,000) 2018
- **Second-class Scholarship**, China University of Petroleum (¥1,000) 2017

SERVICE

Journal Reviewer
Geochimica et Cosmochimica Acta (×1); American Mineralogist (×1); Lithos (×1); International Geology Review (×2)

TRAINING

Teaching Assistant, University of Tennessee Aug 2022 – May 2023
GEOL330: Igneous and Metamorphic Petrology Student evaluation 5.0/5.0
GEOL310: Mineralogy Student evaluation 4.8/5.0

Research Assistant, University of Tennessee June 2021 – July 2022

RESEARCH

Research on the trace element partitioning between apatite and silicate melts Apr 2022 – Present

- Expanded the dataset of partition coefficients between apatite and silicate melt through piston cylinder experiments
- Conducted a series of experiments with constant initial composition but different metal buffers to characterize the Eu anomaly of apatite under different oxygen fugacities
- Built predictive models to calculate the partition coefficients of trace elements between apatite and silicate melts

Research on the Eu anomalies in lunar plagioclase Sep 2020 – Apr 2022

- Compiled published crystallization sequences and cumulate products of the lunar magma ocean
- Numerical modeled the trace element abundances of crystallized plagioclase, and tested the reasons of Eu anomalies by subsolidus reequilibration and KREEP addition
- Proposed a post-LMO model to explain the petrogenesis of lunar anorthosites and to reconcile the trace elements, isotopic evidence, and the overlap in ages of Mg-suite, KREEP basalt, and ferroan anorthosites

Laboratory Work and Visiting in UT Dallas Jul 2019 – Sep 2019

- Worked in the Global Magmatic and Tectonic Research Laboratory with Dr. Robert Stern at UT Dallas on a project aims at determining the petrogenesis of Early Cretaceous adakites in China

Research on Petrogenesis of Early Cretaceous Adakites in Northeast China Oct 2018 – Apr 2019

- Aimed at figuring out the controversial tectonic settings in NE China by confirming the petrogenesis of the large-scale Early Cretaceous adakitic rocks
- Compiled the temporal and spatial distribution as well as the major elements, trace elements, and Sr-Nd, Lu-Hf isotopic data of the Early Cretaceous adakites
- Proposed a convergent bidirectional subduction model to explain the tectonic settings

FIELD EXPERIENCE

Rio Grande Rift and Jemez Lineament xenolith sampling, New Mexico 2022

- Collected mantle and crustal xenolith from Kilbourne Hole to Cerro de Guadalupe in New Mexico for a week led by Dr. Nicholas Dygert

McClung Blue Ridge Foothills Field Trip 2022

- Observed part of the transition from the external foreland fold-thrust belt of the Appalachians into the internal metamorphic core led by Dr. Bob Hatcher

Archean Basic Rock Collection, Miyun 2019

- Collected Archean garnet pyroxenite
- Measured geological occurrence of basaltic dyke group led by Dr. Huichuan Liu

Field Practice in Oilfield, Dagang Oilfield 2019

- Learned the working methods of oilfield engineers, and interpretation of seismic data as well as logging data for two weeks

Comprehensive Geological Field Practice, Liujiang Basin 2018

- A month-long geological field practice includes surveys of stratigraphic profiles and geological mapping, and observation of structural geological phenomena led by Dr. Liang Luo
- Analyzed the structure phenomena logically and drew geologic maps with CorelDraw

General Field Practice, Western Hills of Beijing 2017

- A two-week geological field practice for learning to recognize magmatic rocks, sedimentary rocks, and metamorphic rocks led by Dr. Qin Zhang
- Described how rock and fossil evidence are used to infer Earth's history