

# Dian Ji

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## EDUCATION

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

**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

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

*Google Scholar*

## PUBLICATION

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Total citations = 21; h-index = 3; 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

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

## CONFERENCE ABSTRACTS

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**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.

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.

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

55th Lunar and Planetary Science Conference, Houston	Mar 2024
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

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

## HONORS & AWARDS

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

## SERVICE

### Journal Reviewer

Geochimica et Cosmochimica Acta (2023×1); Icarus (2024×1); American Mineralogist (2022×1); Lithos (2024×1); International Geology Review (2019×2)

## TRAINING

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

<b>Research Assistant, University of Tennessee</b>	June 2021 – July 2022
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## RESEARCH

<b>Research on the trace element partitioning between apatite and silicate melts</b>	Apr 2022 – Present
<ul style="list-style-type: none"> <li>Expanded the dataset of partition coefficients between apatite and silicate melt through piston cylinder experiments</li> <li>Conducted a series of experiments with constant initial composition but different metal buffers to characterize the Eu anomaly of apatite under different oxygen fugacities</li> <li>Built predictive models to calculate the partition coefficients of trace elements between apatite and silicate melts</li> </ul>	

- 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**

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- 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