Kris Laferriere

Curriculum Vitae
klaferri@purdue.edu

EDUCATION

Purdue University, West Lafayette, IN Expected: May 2025
Department of Earth, Atmospheric, and Planetary Science, PhD in Planetary Science
Thesis: Mars Spiral Polar Troughs as Paleoclimate Recorders

University of Maryland, College Park, MD May 2020
B.S. in Astronomy (High Honors) and Physics GPA : 3.46
Honors Thesis: Exploring Spatial and Temporal Changes in Hydration across the Lunar South Pole

RESEARCH EXPERIENCE

Purdue University, Department of Earth, Atmospheric, and Planetary Science Fall 2020 - Present
Planetary Science PhD
Advisor: Ali Bramson

Project Title: Mapping Mars' Polar Spiral Trough Migration Paths with 3D Radar from SHARAD

University of Maryland, Department of Astronomy Fall 2019 - Fall 2020
Academic Honors Thesis
Advisor: Lori Feaga and Jessica Sunshine

Project Title: Evolution of hydration signatures from the Lunar South Pole utilizing Deep Impact HRI-IR

NASA Marshall Space Flight Center Summer 2019
Meteoroid Environment Office (Code EV44)
Advisor: Althea Moorehead

Project Title: Survey of low speed meteor showers using NASA All Sky Fireball Network

University of Maryland, Department of Astronomy Spring 2018 - Spring 2019
Advisor: Lori Feaga and Jessica Sunshine

Project Title: Exploring the morphology of the CO_2 and dust coma of Comet 9P with DCT and Spitzer-IRAC

PAPERS

1. **Laferriere, K. L.**, Bramson, A. M., Smith, I. B., (2023) Mars' North Polar Spiral Trough Migration Paths as revealed through 3D Radar Mapping, *in prep.*
2. Izquierdo, K., Bramson, A. M., McClintock, T., **Laferriere, K. L.**, (2023) Local ice accumulation and retreat rates at the NPLD of Mars from bayesian fit to trough migration paths, *in prep*
3. **Laferriere, K. L.**, Sunshine, J. M., Feaga, L. M., (2022) Variability of Hydration across the Southern Hemisphere of the Moon as observed by Deep Impact, *JGR Planets*, 127, doi:10.1029/2022JE007361

CONFERENCE PRESENTATIONS

1. **Laferriere, K. L.**, Bramson, A., Gleason, A. (2023), Temperature Driven Transport of Lunar Hydration on Diurnal Timescales, *Talk, 54th LPSC*

2. **Laferriere, K. L.**, Bramson, A. M., Smith, I. B. (2022), Mars North Polar Spiral Trough Migration Paths Variations Revealed by 3D Radar Mapping, *Poster, 53rd LPSC*
3. **Laferriere, K. L.**, Bramson, A. M., Smith, I. B. (2021), Mars' North Polar Spiral Trough Migration Paths as Revealed through 3D Radar Mapping, *Poster, AGU Fall Meeting*
4. **Laferriere, K. L.**, Sunshine, J. M., Feaga, L. M. (2021), Spatial and temporal variability of lunar hydration across the southern hemisphere as observed by Deep Impact, *Poster, AGU Fall Meeting*
5. **Laferriere, K. L.**, Bramson, A. M., Smith, I. B., (2021), 3D Mapping of Migration Paths of Mars' North Polar Spiral Troughs, *Poster, 52nd LPSC*
6. **Laferriere, K.**, Moorehead, A., (2019), Survey of low speed meteor showers, *NASA Marshall Space Flight Center Poster Expo*

TEACHING AND MENTORING

Teaching Assistant Spring 2023
Purdue University, Department of Earth, Atmospheric, and Planetary Sciences
EAPS100 - Planet Earth (online)

Teaching Assistant Fall 2020
Purdue University, Department of Earth, Atmospheric, and Planetary Sciences
EAPS111 - Physical Geology 120 (2 Lab sections)

Academic Peer Mentor Fall 2019
University of Maryland, Department of Astronomy
ASTR120 - The Solar System (Majors course)

Astronomy Peer Mentor (APM Program) Fall 2018 - Spring 2018
University of Maryland, Department of Astronomy

HONORS AND AWARDS

- LPI Career Development Award (Spring 2023)
- Purdue Graduate Student Government Travel Award (Spring 2023)
- Certificate in College Teaching, (Spring 2022), *Purdue University*
- Department Teaching Honor Roll, (Fall 2020), *Department of Earth, Atmospheric, and Planetary Science, Purdue University*
- High Honors in Astronomy, (Spring 2020), *Department of Astronomy, University of Maryland, College Park*

UNDERGRADUATES ADVISED

- Alex Gleason (Purdue PHYS), **Main Advisor: Ali Bramson**, *Fall 2022 - Spring 2023*
- Ashwin Nomi (Purdue AAE), **Main Advisor: Ali Bramson**, *Fall 2021 - Spring 2022*

SERVICE

- Moderator: LPSC 2022, "the Martian Cryosphere: A Frozen Red Planet"
- Reviewer: Planetary Science Journal

- EAPS Graduate Student Association President, *Purdue EAPS*, Fall 2022 - Spring 2023
- Equity, Diversity, and Inclusion Committee (Grad Rep.), *Purdue EAPS*, Fall 2021 - Spring 2022
- Diversity, Equity, and Inclusion Committee (Undergrad Rep.), *UMD Astronomy*, 2017-2020

OUTREACH

- *Apr 2017-Spring 2020:* Panelist for 10 CMNS Open Houses as a CMNS Recruitment Ambassador
- *Fall 2018-Spring 2020:* Met with 5 prospective students in Physics and Astronomy at UMD
- *Apr 19 2019:* Held Q&A with middle school students from Chapel Hill-Carrboro City Schools NC on STEM at UMD
- *Summer 2018*: Residential Counselor (TA, Tutor, Mentor) Upward Bound Math and Science and Fitchburg State University
- *Spring 2018*: Public Talk at UMD, *Metallicity of Open Star Clusters Using Beat Cepheids*, with C. Bambic, V. Carvajal, and C. Hinrichs.
- *Fall 2017*: Public Talk at UMD Observatory, *Exploring the Cepheid PM-Relation in M31 with iPFT*, with C. Harada and M. Sitaram.

SKILLS

Programming: Python, C, IDL, MatLab, LaTeX

Software: Microsoft Office, SAO DS9, SeisWare, ENVI

Methods: N-Body Numerical Integration (ex. Euler, RK4), Monte Carlo Integration, Image Calibration, Data Visualization