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.**, 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
2. **Laferriere, K. L.**, Bramson, A. M., Smith, I. B., (2022) Mars' North Polar Spiral Trough Migration Paths 3D Radar Mapping and Interpretations, *in prep.*
3. Izquierdo, K., Bramson, A. M., McClintock, T., **Laferriere, K. L.**, (2022) Local ice accumulation and retreat rates at the NPLD of Mars from bayesian fit to trough migration paths, *in prep*

POSTERS PRESENTED

1. **Laferriere, K. L.**, Bramson, A. M., Smith, I. B. (2022), "Mars North Polar Spiral Trough Migration Paths Variations Revealed by 3D Radar Mapping", *LPSC 2022*

2. **Laferriere, K. L.**, Bramson, A. M., Smith, I. B. (2021), Mars' North Polar Spiral Trough Migration Paths as Revealed through 3D Radar Mapping, *AGU Fall Meeting*
3. **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, *AGU Fall Meeting*
4. **Laferriere, K. L.**, Bramson, A. M., Smith, I. B., (2021), 3D Mapping of Migration Paths of Mars' North Polar Spiral Troughs, *LPSC 2021*
5. **Laferriere, K.** Moorehead, A., (2019), Survey of low speed meteor showers
   - NASA Marshall Space Flight Center Poster Expo — August 6 2019
   - Conference for Undergraduate Women in Astronomy — November 1 2019
   - Conference for Undergraduate Women in Physics — January 17 2020

TALKS PRESENTED

1. Bambic, C., Carvajal, V., Hinrichs, C., **Laferriere, K.** (Spr. 2018), Probing Metallicity of Open Star Clusters Using Beat Cepheids, *ASTR498S, Dr. Suvi Gezari, Department of Astronomy, University of Maryland*
2. Harada, C., Sitaram, M., **Laferriere, K.** (Fall 2017), Exploring the Cepheid PM-Relation in M31 with iPFT ASTR310, Dr. Melissa Hayes-Gehrke, University of Maryland Observatory Open House

TEACHING AND MENTORING EXPERIENCE

Teaching Assistant — Fall 2020
Purdue University, Department of Earth, Athmospheric, and Planetary Science
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

Residential Counselor — Summer 2018
Upward Bound: Math and Science at Fitchburg State University

OUTREACH

- *Apr 2017-Spring 2020:* Panelist for 10 CMNS Open Houses as a CMNS Recruitment Ambassador
- *Fall 2018-Spring 2020:* Met with 5 of prospective students in Physics and Astronomy
- *Apr 19 2019:* Held Q&A with middle school students from Chapel Hill-Carrboro City Schools NC on STEM at UMD
- *Nov 3 2018:* CMNS Representative at College Fair by Family Development Samaritan Foundation
- *Summer 2018* Residential Counselor (TA, Tutor, Mentor) Upward Bound Math and Science and Fitchburg State University

HONORS AND AWARDS

- 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*

SKILLS

Programming: Python, C, IDL, MatLab, LaTeX

Software: Microsoft Office, SAO DS9, SeisWare

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

UNDERGRADUATES ADVISED

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

SERVICE

- 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

DECLARATION

I hereby declare that all the details furnished above are true to the best of my knowledge and belief.

Revised 8/24/2022