

# KRIS LAFERRIERE

*Curriculum Vitae*  
klaferri@purdue.edu

## EDUCATION

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**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

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**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<sub>2</sub> and dust coma of Comet 9P with DCT and Spitzer-IRAC

## PAPERS

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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](https://doi.org/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

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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

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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

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<b>Teaching Assistant</b>	Fall 2020
<i>Purdue University, Department of Earth, Atmospheric, and Planetary Science</i>	
<i>EAPS111 - Physical Geology 120 (2 Lab sections)</i>	
<b>Academic Peer Mentor</b>	Fall 2019
<i>University of Maryland, Department of Astronomy</i>	
<i>ASTR120 - The Solar System (Majors course)</i>	
<b>Astronomy Peer Mentor (APM Program)</b>	Fall 2018 - Spring 2018
<i>University of Maryland, Department of Astronomy</i>	
<b>Residential Counselor</b>	Summer 2018
<i>Upward Bound: Math and Science at Fitchburg State University</i>	

## OUTREACH

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- *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

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- 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

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*Programming:* Python, C, IDL, MatLab, L<sup>A</sup>T<sub>E</sub>X

*Software:* Microsoft Office, SAO DS9, SeisWare

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

## UNDERGRADUATES ADVISED

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

## SERVICE

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- 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

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