

# KAYLEE BARRERA

Undergraduate Planetary Science and Physics Student at MIT

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## EDUCATION

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**B.S in Earth, Atmospheric, and Planetary Sciences & B.S in Physics**

Massachusetts Institute of Technology

June 2026 (Expected)

Cambridge, MA

## RESEARCH

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**MIT Kavli Institute**, Cambridge, MA

Undergraduate Researcher

June 2024 – Present

*Advisors: Dr. Sarah Blunt & Prof. Andrew Vanderburg*

- Developed a Python package titled *eurydice* to perform cross-validation tests on Gaussian Process (GP) models of stellar activity for radial velocity measurements
- Utilized *eurydice* to perform cross-validation tests on the HD63433 planetary system to search for signs of overfitting on a pre-existing GP model and update planetary parameters

**MIT Wallace Observatory**, Westford, MA

Undergraduate Researcher

May 2023 – August 2023

*Advisor: Dr. Michael Person*

- Planned and captured 100+ hours of photometric observations with 5 different telescopes
- Processed and analyzed light curves for 7 Koronis family asteroids (*Anubis*, *Chang*, *Corvina*, *Hamiltonia*, *Moultona*, *Rumoi*, *Urumqi*) and Pluto

## PUBLICATIONS

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### *Peer-Reviewed*

2. Slivan, S.; **Barrera, K.**; Colclasure, A.; Cusson, E.; Larsen, S.; McLellan-Cassivi, C.; Moulder, S.; Nair, P.; Namphy, P.; Neto, O.; Noto, M.; Redden, M.; Rhodes, S.; Youssef, S. *Lightcurves and Derived Results for Koronis Family Member (452) Hamiltonia*, 2024, Minor Planet Bulletin, 51, 176.
1. Slivan, S.; **Barrera, K.**; Colclasure, A.; Cusson, E.; Larsen, S.; McLellan-Cassivi, C.; Moulder, S.; Nair, P.; Namphy, P.; Neto, O.; Noto, M.; Redden, M.; Rhodes, S.; Youssef, S. *Lightcurves and Derived Results for Koronis Family Member (5139) Rumoi Including a Discussion of Measurements for Epochs Analysis*, 2024, Minor Planet Bulletin, 51, 6.

## ACADEMIC PRESENTATIONS

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### *Contributed Talks*

MIT Stellar Contamination Workshop

September 2024

Summer MIT Kavli Institute Undergraduate Research Forum

August 2024

## LEADERSHIP

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**Inform Committee Lead**, MITvote

September 2024 – Present

**Co-Vice President of Social**, Undergraduate Women in Physics (UWiP)

March 2024 – Present

*Last updated: October 24, 2024*