

Paarmita Pandey

PhD Candidate — Department of Astronomy — The Ohio State University

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🌐 [Paarmita Pandey](#)

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Research Interests

Astro-Particle Physics: Cosmic-ray acceleration and transport in star-forming regions, particle acceleration by shocks, gamma-ray astronomy.

Time-Domain Astronomy: Nuclear transients, failed supernova searches, AGN variability.

Education

PhD in Astronomy, The Ohio State University Aug 2022 – July 2028 (expected)

Advisors: Prof. Laura Lopez, Prof. Chris Kochanek

MS in Astronomy, The Ohio State University May 2025

BS-MS in Physics, IISER Bhopal, India Aug 2017 – July 2022

Fellowships & Grants

International Astronomical Union (IAU) Travel Grant 2025 (1600 Euro).

Council of Graduate Students (CGS) Career Development Grant (\$350).

Recipient of University Fellowship provided by the Ohio State University (\$30,000 per yr). Fellows are selected based on academic merit (2022–2025).

Recipient of INSPIRE Scholarship given to the Top 1% students in Higher Secondary in Basic Sciences by the Government of India (\$4000) (2017–2022).

Publications

First-Author Publications (4)

- [1] **Pandey, P.**, Hinkle, J., Kochanek, C., et al. 2026, submitted to *The Open Journal of Astrophysics*, *AT2021yky: A Fast-Rising Optical Transient with Evolving Broad Hydrogen Emission Consistent with an Ambiguous Nuclear Transient*.
- [2] **Pandey, P.**, Hinkle, J., Kochanek, C., et al. 2025, *The Open Journal of Astrophysics*, [doi:10.48550/arXiv.2509.03593](https://doi.org/10.48550/arXiv.2509.03593), *Unraveling the Nature of the Nuclear Transient AT2020adpi*.
- [3] **Pandey, P.**, Lenker, S. C.[†], Lopez, L. A., et al. 2025, *ApJ*, [doi:10.3847/1538-4357/ae4690](https://doi.org/10.3847/1538-4357/ae4690). *Investigating the Gamma-ray Emission from Explosive Dispersal Outflows with Fermi-LAT*.
- [4] **Pandey, P.**, Lopez, L. A., Rosen, A. L., et al. 2024, *ApJ* [doi:10.3847/1538-4357/ad83bc](https://doi.org/10.3847/1538-4357/ad83bc). *Gamma-ray Emission from a Young Star Cluster in the Star-Forming Region RCW 38*.

Media Coverage: Highlighted in [AAS Nova](#) — *Gamma Rays from Massive Stars*

[†] Denotes students advised.

Co-Author Publications

- [1] Trinity L. Webb et al. (including **Pandey, P.**) 2024, [doi:10.3847/1538-4357/ad8c41](https://doi.org/10.3847/1538-4357/ad8c41), *ApJ*.

White Paper: Polzin et al. (including **Pandey, P.**) 2025, [Picture an Astronomer: Best Practices for Retaining Talent in Astrophysics](#).

Research Advising and Mentoring

- [1] Stephen Lenker - OSU Astronomy Summer Internship Program (Summer 2024– Summer 2025). Project: Detection of Gamma-ray Emission from the Star-Forming Region DR 21.
*The mentoring initiative led to a publication by the student.
- [2] Vaishnavi Yalamanchi - Polaris Mentorship Program (Spring 2025). Project: Analyzing the most recent nearby supernova SN 2023ixf.
- [3] Ena Chia (CUNY) - Mentoring for graduate school applications as a part of [Científico Latino Program](#)
- [4] Mentor for Nadia Qutob and Angelica Whisnant as a part of [Astronomy first-year graduate student mentoring](#) at OSU Astronomy.

Talks & Presentations

Invited Talks

Beyond Standard Model Physics Group Seminar, University of Stockholm	2026
High Energy Astrophysics and Transients (HEAT) Meeting, University of Maryland	2025
Christ University, Bangalore, India	2024

Contributed Oral Presentations

N3AS Summer School, UC Santa Cruz	2026
IAU Symposium 406: Future Landscape of Astrophysical Transients, Finland	2026
HEAD Frontier Seminar Series (Video)	2026
Rutgers Summer Transient Soirée	2025
TeV Particle Astrophysics Conference, University of Chicago	2024
Multi-messenger Astronomy (EMIT) Summer School, Vanderbilt University	2023
NASA Fermi Summer School, University of Delaware	2023

Poster Presentations

Rise Time Conference, Purdue University	2026
Rapid Response – Time Domain Science, Caltech (Link)	2026
CCAPP Symposium, The Ohio State University	2025
Transients from Space Workshop, Space Telescope Science Institute	2025
TOSCA Workshop, Siena, Italy	2024
SCEECs Summer School, Washington University in St. Louis	2024
20th AAS HEAD Meeting, Hawaii	2023

Skills

Programming: Proficient in Python (numpy, pandas, scipy, sklearn), C, and Mathematica.

Plotting & Visualization: Python packages (Matplotlib, Seaborn) and DS9.

Observing: 3 nights with the Large Binocular Telescope (LBT) as assistant observer.

Data Science: (1.) Participated in the Summer School in Statistics for Astronomers 2026, Penn State (2.) Completed the 12-week Erdős Data Science Bootcamp with **Distinction Award**.

Astronomical Data Analysis: Multiwavelength experience ranging from gamma-rays to Radio: Fermi-LAT, Swift UVOT, ZTF, Gaia, ATLAS, WISE, Spitzer, ATCA.

Teaching Experience

Teaching Assistant – Astro 3350: Observations and Data Analysis

- Led weekly 4-hour laboratory sessions, guiding students through observational and data analysis methods using Python.
- Guest lecturer for 5 classes.
- Graded assignments and lab reports.
- Held regular office hours to mentor students and clarify course material.

Professional Service and Activities

- [Supernova Foundation](#)– Member of the leadership committee, serving as the Outreach and Mentoring Coordinator – global mentoring program empowering women and gender minorities in Physics (400+ members, 50+ countries).
- [POLARIS](#) Mentorship Program – Academic mentor, supporting undergraduates in physics and astronomy at OSU (Fall 2024–Spring 2025).
- [AAS Working Group for International Students and Scholars](#) – Committee Member; Led a panel discussion during a special session dedicated to International Scholars at the AAS 245th meeting (Fall 2024–present).
- [CCAPP AstroParticle lunch](#) – Organizer of weekly journal club involving discussions on papers and advancements in astroparticle physics (Fall 2023–Summer 2025).
- Referee, The Astrophysical Journal
- Member, American Astronomical Society (Fall 2022 – present)
- Member, High Energy Astrophysics Division of the AAS (Fall 2022 – present)
- Department Journal Club OSU – (1) Summarized AAS 245 Poverty survey results on financial hardship in astronomy and led discussion on next steps (Spring 2025). (2) Led discussion on challenges faced by non-native English speakers in science (Fall 2024).

Outreach

- Guest lecturer for General Education course in Astronomy - The Gamma Ray Sky (2025).
- Panelist for Science Identity discussion, Polaris Mentorship Program. (September 2025).
- COSI Science Festival – Exoplanet exhibition booth host – 10,000+ attendees (May 2024).

- Total Solar Eclipse 2024 (OSU Marion) – Eclipse discussion and solar telescope demo.
- FOSAA Solar Eclipse Event – Planetarium show volunteer (March 2024).
- OSU Python Boot Camp – Python lecture and problem set curator (Summer 2023, 2024).
- OSU Astronomy Summer Program – Intro to NASA ADS/ArXiv talk (Summer 2023 – 2026).
- Undergraduate Astronomy Seminar Series – Career Pathways in Science lecture (Fall 2023, 2024).

List of Publications

1. **Pandey, P.**, Lenker, S. C., Lopez, L. A., Rosen, A. L., Linden, T., Thompson, T. A., Offner, S. S. R., Auchettl, K., & Hirata, C. M. (2026). Investigating the γ -Ray Emission from Explosive Dispersal Outflows with Fermi-LAT. *ApJ*, 1000, 102. [doi:10.3847/1538-4357/ae4690](https://doi.org/10.3847/1538-4357/ae4690) [arXiv:2509.02679]
2. **Pandey, P.**, Hinkle, J., Kochanek, C., Tucker, M., Reynolds, M., Neustadt, J., Thompson, T., Auchettl, K., Shappee, B., Do, A., Desai, D., Hoogendam, W., Ashall, C., Lowe, T., Shahbandeh, M., & Payne, A. (2025). Unraveling the Nature of the Nuclear Transient AT2020adpi. *Open J. Astrophys.*, 8, 51453. [doi:10.33232/001c.151453](https://doi.org/10.33232/001c.151453) [arXiv:2509.03593]
3. Webb, T. L., Rodriguez, J. A., Lopez, L. A., Rosen, A. L., Lancaster, L., Nayak, O., McLeod, A. F., **Pandey, P.**, & Olivier, G. M. (2024). Detection of Diffuse Hot Gas around the Young, Potential Superstar Cluster H72.97–69.39. *ApJ*, 977, 45. [doi:10.3847/1538-4357/ad8c41](https://doi.org/10.3847/1538-4357/ad8c41) [arXiv:2402.14056]
4. **Pandey, P.**, Lopez, L. A., Rosen, A. L., Thompson, T. A., Linden, T., & Blackstone, I. (2024). Constraining the Diffusion Coefficient and Cosmic-Ray Acceleration Efficiency Using Gamma-Ray Emission from the Star-forming Region RCW 38. *ApJ*, 976, 98. [doi:10.3847/1538-4357/ad83bc](https://doi.org/10.3847/1538-4357/ad83bc) [arXiv:2404.19001]

In Preparation:

1. **Pandey, P.**, Hinkle, J., Kochanek, C., Tucker, M., et al. 2026, *The Unusual Flaring Event AT2021yky*, **Manuscript available on request.**