PAARMITA PANDEY

✉ pandey.176@osu.edu   ⬡ paarmitap   in Paarmita Pandey   ⓘ ORCiD

Education

Aug 2022 - July 2028 (expected)   ▮ The Ohio State University (OSU)
4th year PhD Candidate in the Department of Astronomy

Aug 2017 – July 2022   ▮ Indian Institute of Science Education and Research (IISER)
Bhopal, India, BS-MS Dual degree in Physics

PhD Projects

▮ **Cosmic-Ray Acceleration and Transport in Star-Forming Galaxies** − Prof. Laura Lopez.

▮ **The growing class of Ambiguous Nuclear Transients** − Prof. Chris Kochanek.

Publications (3 first-author)

▮ **Pandey, P.**, Kochanek, C., et al. 2025, DOI, Published in OJAp
Unraveling the Nature of the Nuclear Transient AT2020adpi

▮ **Pandey, P.**, Lenker, S. A.†, Lopez, L. A., et al. 2025, arxiv.org/abs/2509.02679, submitted to ApJ
Explosive Dispersal Outflows as a New Class of Fermi Gamma-Ray Sources: The Case of DR21

▮ **Pandey, P.**, Lopez, L. A., Rosen, A. L., et al. 2024, DOI , Published in ApJ
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

▮ Webb and Rodriguez et al. 2024, including **Pandey, P.**, DOI, Published in ApJ
Detection of Diffuse Hot Gas Around the Young Superstar Cluster H72.97 − 69.39

† denotes the students advised.

Fellowships and Grants

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

Aug 2017 – May 2022   ▮ Recipient of **INSPIRE** Scholarship given to the Top 1% students in Higher
Secondary in Basic Sciences by the Government of India ($3750).

Research Advising

▮ **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.

▮ **Vaishnavi Yalamanchi** - Polaris Mentorship Program (Spring 2025).
Project: Analyzing the most recent nearby supernova SN 2023ixf.

Oral Presentations

- *"Unraveling the Nature of the Nuclear Transient AT2020adpi"*
  Invited seminar talk, November 2025, High Energy Astrophysics and Transients (HEAT) meeting, University of Maryland, College Park, MD.
- *"Cosmic-ray acceleration in Star-Forming Regions"*
  Invited seminar talk, September 2024, Christ University, Bangalore, India.
- *"Unraveling the Nature of the Nuclear Transient AT2020adpi"*
  July 2025, Rutgers Summer Transient Soirée.
- *"Gamma-ray Emission from a Young Star Cluster in the Star-Forming Region RCW 38"*
  August 2024, TeV Particle Astrophysics Conference, University of Chicago.
- *"Cosmic-ray acceleration in young massive star clusters"*
  July 2023, Multi-messenger Astronomy (EMIT) Summer School, Vanderbilt University.
- *"Analyzing Massive Star Clusters as Cosmic-Ray Acceleration Sites "*
  May 2023, NASA Fermi summer school, University of Delaware.

Poster Presentations

- *"Explosive Dispersal Outflows as a New Class of Fermi Gamma-Ray Sources: The Case of DR21"*
  September 2025, CCAPP Symposium, The Ohio State University.
- *"Analyzing the Ambiguous Nuclear Transient AT2020adpi"*
  March 2025, Transients from Space Workshop, STScI, MD.
- *"Constraining the Diffusion Coefficient and Cosmic-Ray Acceleration Efficiency Using Gamma-Ray Emission from the Star-forming Region RCW 38"*
  October 2024, TOSCA Workshop, Siena, Italy.
- *"Gamma-ray Emission from a Young Star Cluster in the Star-Forming Region RCW 38"*
  June 2024, SCEECS Summer School, Washington University in St. Louis.
- *"Evaluating Stellar Winds from Young Massive Star Clusters as Cosmic-Ray Acceleration Sites"*
  March 2023, 20th AAS HEAD Meeting, Hawaii.

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.

Leadership, Mentoring and Service Initiatives

- Supernova Foundation– Part of the leadership team as the Outreach and Mentoring Coordinator. This is a global mentoring program dedicated to empowering young women and gender minorities pursuing careers in Physics. As of October 2025, the Supernova Foundation has more than 400 members from over 50 countries.

Leadership, Mentoring and Service Initiatives (continued)

- 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).
- Diversity 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 Initiatives

- 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 (OSU Marion) – Eclipse discussion and solar telescope demo − 500 attendees.
- 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 – NASA ADS and ArXiv talk (Summer 2023, 2024).
- Undergraduate Astronomy Seminar Series – Career Pathways in Science lecture (Fall 2023, 2024).

Skills

Programming	Proficient in `Python` (numpy, pandas, scipy, sklearn), C, and `Mathematica`.
Plotting and Visualization	Experienced with `Python` packages (Matplotlib, Seaborn) and DS9.
Observing Experience	2 nights of observations with the Large Binocular Telescope (LBT) as an assistant observer.
Data Science	Completed the 12−week Erdős Data Science Bootcamp with **Distinction Award** in Summer 2025. Worked on a team project: "Tracking the Shift of Tornado Alley Using NOAA Storm Data", analyzed 70 years of storm frequency, magnitude, and area-of-effect data across the continental US to model geographic shifts in Tornado Alley using machine learning techniques and regression.
Astronomical Data Analysis	Experience with multiwavelength data ranging from gamma-rays to infrared: Fermi-LAT, Swift UVOT, ZTF, Gaia, ATLAS, WISE, Spitzer.