Priyam Das

PhD Candidate, UNSW Canberra (ADFA)

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PROFILE

Observational astrophysicist specializing in integral-field spectroscopy of Type Ia supernova remnants. My research combines integral-field spectroscopy, spectral diagnostics, and data-driven analysis to investigate the physical processes forming supernova remnants. I am experienced in conducting large-scale spectral analysis, comparing observational results with hydrodynamical and explosion models and applying machine-learning techniques for kinematic and morphological studies of these systems.

RESEARCH INTERESTS

- Explosion physics and progenitor diagnostics for Type Ia supernovae
- Integral-field spectroscopy and 3D kinematic reconstruction from observations and match with theoretical models.
- Shock physics and non-equilibrium line diagnostics
- Development of automated data reduction techniques and ML tools for large IFU datasets

EDUCATION

PhD in Astrophysics, The University of New South Wales (UNSW Canberra), School of Science
Apr 2023 – present
Thesis: Integral-field spectroscopy of Type Ia supernova remnants
Supervisors: Ivo R. Seitenzahl, Ashley J. Ruiter, Simon Murphy

M.Sc. in Physics, Amity University, India (2019–2021)
B.Sc. (Hons) in Physics, Durgapur Government College, Kazi Nazrul University, India (2016–2019)

APPOINTMENTS

PhD Candidate, UNSW Canberra, School of Science (Apr 2023 – present)
Assistant Professor (Physics), Bengal College of Engineering and Technology, India (Oct 2021 – Apr 2023)
Associate Researcher, Acadecraft Pvt Ltd, India (Jul 2021 – Nov 2021)

SELECTED PUBLICATIONS

- Das, P., Seitenzahl, I., Ruiter, A. J., et al. (2025). Calcium in a supernova remnant as a fingerprint of a sub-Chandrasekhar-mass explosion. Nature Astronomy, 9, 1356.
- Mandal, Ghavamian, Das, et al. (2025). Was SNR 0509–67.5 the result of a double detonation? arXiv:2509.02422 (preprint).
- Das, P., Kalam, M. (2022). Wormhole in the Milky Way galaxy with global monopole charge. Eur. Phys. J. C, 82, 342.

GRANTS & AWARDS

DRTG grant (AUD $2800), UNSW Canberra (2025)
Runner-up, Best Presentation, ANITA (2024)
Press coverage for Nature Astronomy paper: ESO, Reuters, Forbes, etc.

COMPUTATIONAL SKILLS

Programming: Python.
Workflows: ESO Reflex, MUSE DRS, MUSE-ZAP, FORS2 DRS, Git/GitHub, LaTeX, QFitsView.

SELECTED TALKS & PRESENTATIONS

Contributed talk, "One Hundred Years of Supernova Science", Sweden (2025)
Contributed talk, "HITS Winter Workshop", Heidelberg (2024)
Poster, "Supernova Remnant III", Greece (2024)
Contributed talk, "ANITA Summer School", Australia (2024)
Poster, "Transients Down Under", Australia (2024)

TEACHING & MENTORING

Laboratory demonstrations and Physics support for undergraduate students, UNSW Canberra.