

Dr. Debojoti Kuzur

Raghunathpur College, West Bengal, India

🌐 My Website

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RESEARCH EXPERTISE

Theoretical and computational Astrophysics, especially studying the structure of neutron stars and their interior, investing various hadronic and quark equations of states, studying effects of misalignment of the rotation and magnetic axis in the surrounding space-time for general relativistic compact stars and various multimessenger signals from such compact stars such as neutrino-antineutrino annihilation during phase transition, gravitational waves and the possibility of emission of strangelets and its presence in cosmic rays.

ACADEMIA TIMELINE

Raghunathpur College, Purulia

Assistant Professor, Department of Physics

- Astrophysics

West Bengal, India

Nov 2023 - Present

Indian Institute of Science Education and Research - Bhopal

Doctor of Philosophy, PhD

- Physics (Astrophysics)

Madhya Pradesh, India

Dec 2016 - July 2022

Indian Institute of Science Education and Research - Kolkata

Masters Of Science, MS (Percentage - 75.3 %)

- Major: Physical Sciences

West Bengal, India

Jul 2014 - Jul 2016

Indian Institute of Science Education and Research - Kolkata

Bachelors Of Science, BS (Percentage - 72.5 %)

- Major: Physical Sciences

West Bengal, India

Jul 2011 - Jul 2014

SCHOLARSHIPS

CSIR, Senior Research Fellowship (NET-JRF)

Jan 2017 - Jan 2022

DST INSPIRE Fellowship for Ph.D.

Qualified

DST INSPIRE Fellowship for BS-MS

Jul 2011 - Jul 2016

HIGHLIGHTS OF RESEARCH WORKS

1. **D. Kuzur** et al, “Examination of the multitude of signals from the phase transition of a neutron star to a quark star” Phys. Rev. C 105, 065807 [10.1103/PhysRevC.105.065807](https://doi.org/10.1103/PhysRevC.105.065807)
2. **D. Kuzur**, R. Bhattacharyya, R. Mallick, “Acceleration of charged particles in rotating magnetized star.” J. Phys. G: Nucl. Part. Phys. 47 105203 (2020), [10.1088/1361-6471/aba9b0](https://doi.org/10.1088/1361-6471/aba9b0)
3. **D. Kuzur** & R. Mallick, “Frame-dragging effects in obliquely rotating magnetars.” J Astrophys Astron 42, 87 (2021) [10.1007/s12036-021-09735-1](https://doi.org/10.1007/s12036-021-09735-1)
4. R. Mallick, **D. Kuzur**, R. Nandi, “Semi-empirical relation to understand matter properties at neutron star interiors.” Eur. Phys. J. C 82, 512 (2022) [10.1140/epjc/s10052-022-10468-w](https://doi.org/10.1140/epjc/s10052-022-10468-w)
5. K. Nath, **D. Kuzur**, R. Mallick, “Tidal effect on the gyroscopic precession around a compact star.” IJMPD, 31, 06, 2250047 (2022) [10.1142/S021827182250047X](https://doi.org/10.1142/S021827182250047X)
6. S. Chatterjee, R. Mallick, **D. Kuzur**, “General relativistic calculation of magnetic field and Power loss for a misaligned pulsar.” JHEAp, 34, 10-18 (2022) [10.1016/j.jheap.2022.03.002](https://doi.org/10.1016/j.jheap.2022.03.002)

PROGRAMMING & SOFTWARE SKILLS

- Rotating Neutron Star Code: [RNS](#)
- [Wolfram Mathematica](#)
- [GNU Fortran 95](#)
- [Java](#)
- [Python](#)
- [C](#)

PROJECTS

- Summer project titled “*Hydrodynamics and Shock waves in Supernovas*”, Supervisor - Dr. Surajit Paul (IUCAA-Pune), 2014-15.
- Summer project titled “*Radio Signatures of Galaxy Clusters*”, Supervisor - Dr. Surajit Paul (IUCAA-Pune), 2013-14.
- Summer project titled “*Tensor Calculus and Special and General Theory of Relativity*”, Supervisor - Dr. Abhijit Bhattacharya (University of Calcutta), 2012-13.
- Summer project titled “*Feynman Diagram using Fortran Programming Language*”, Supervisor - Dr. Ritesh Singh (IISER - Kolkata), 2011-12.

OTHER ACHIEVEMENTS

- Was selected for visiting a conference “*Application of data science in Astrophysics and Gravitational wave research*” in IIIT- Allahabad.
- Supervised and attended a conference “*Topical conference in Gravitation and Cosmology (Eastern Divison)* in IISER-Kolkata.”
- Was selected for the radio astronomy winter school held at IUCAA-Pune.
- Was selected to visit National Institute of Technology-Goa for a workshop in Photonics.
- Qualified for West Bengal Joint Entrance Examination and All India Engineering Entrance Examination but didn't applied because of interest in Basic Sciences.