

Arnab Biswas

2nd year Integrated MSc. student
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Research Interests: Astrophysics and Cosmology

Projects

Estimating the Precession of Mercury's Orbit May 2023 - July 2023

- Project guide: Dr. Nishikanta Khandai (<https://niser.irins.org/profile/241972>)
- Brief description: This was a reading project. I learned how we can predict the Keplerian orbits depending upon the initial conditions. Later, I solved the relativistic Binet equation using perturbative method that counts for the precession of perihelion of planetary orbits as predicted by Einstein's general theory of relativity. The project has helped me gain deep insights about planetary orbits.

Skills

- Programming: Python (especially numpy, matplotlib and openCV modules), Wolfram (basics)
- Tools: \LaTeX
- Setting up and operating 6" and 8" Newtonian telescopes and Celestron's CPC DELUXE 1100 HD Computerized Telescope
- Characterization of CMOS sensor as a part of photometry
- UV-visible spectroscopy

Awards and Achievements

DAE-DISHA scholar

Qualified International Astronomy and Astrophysics Competetion, 2023

- Winner of 'Integration+C' March 2023
-A mathematics competetion held in NISER's intercollege fest
- Second runner-up in 'Antariksh' March 2023
-An astronomy quiz held in NISER's intercollege fest

Education

- CGPA till 3rd semester: 9.11 August 2022 - Present
[National Institute of Science Education and Research, Bhubaneswar](#)
Relevant Coursework: Classical Mechanics(P201), Linear Optics(P207), Mathematical Methods-I(P202), Linear Algebra(M205), Quantum Mechanics(P206), Electromagnetism(P204), Group Theory(M202), Mathematical Methods-II(P205) etc.
- AIR 389, Percentile: 97%
[National Entrance Screening Test \(NEST\) 2022](#)
- 93% marks in WBCHSE 2022 (Class 12 board exam)
95.57% marks in WBBSE 2020 (Class 10 board exam) (Block Topper)
[Karimpur Jagannath High School \(H.S.\)](#) 2014 - 2022

Other Experiences

- The representative of NISER Astronomy Club's Telescope Training Committee.
(August 2023 - Present)
- Actively associated with NISER Astronomy Club's 'Experiments' group that has been doing spectrophotometry to determine features of a binary star system. The 'Experiments' group has conducted an experiment to determine the orbital periods of the Galilean moons of Jupiter in the past.
- An active member of Vikiran, NISER's physics club.
- Quiz master of 'Scientia', a physics quiz organised by Vikiran for NISER's student community.
- Demonstrated a simulation of 'gravitational lensing' using handy items to school students on NISER open day, 2023.

Hobbies

Stargazing and reading books