

CURRICULUM VITAE

Vasundhara Dutta
M.Sc. Physics (Final Year)
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CARRER OBJECTIVE

This hardworking, diligent, and passionate student likes two things in her life : learning and teaching. For the first part, she is willing to contribute to the scientific discoveries through systematic investigation into the problem and is passionate about venturing into the unknown using remarkable knowledge of several astronomy and astrophysics topics. As for later, her aim and goal are to become a teacher.

EDUCATION

- **Master of Science (Physics)** : 2023-25, From Pt. Ravishankar Shukla University Raipur, India with specialization in astronomy and astrophysics. Currently I am in 4th Semester.
- **Bachelor of Science (Physics, Chemistry, Mathematics)** : 2020-23, From Christ College Jagdalpur, affiliated to Bastar University, Chhattisgarh. Merit holder Rank-9 with 77.89%.
- **Higher Secondary School (XII class, Physics, Chemistry, Mathematics)**: 2018-2020, From Central Board of Secondary Education, New Delhi. Passed with 72.64%.
- **High School (X class, Mathematics, Science, Social Science)**: 2016-2018, From Central Board of Secondary Education, New Delhi. Passed with 85.00%.

EXPERIENCE

Project Experience

- **Study of Type II Third Harmonic Solar Radio Bursts** : Used e-Callisto solar spectrometer data to study the origin of Type II (third harmonic) solar radio bursts and the band splitting phenomenon.
- **Photometric Analysis and Transmission Coefficients** : Performed photometric analysis using Bessel filter system. Utilized IRAF to process images and calculated transmission coefficients.

Laboratory Experience

- **SMC Distance Determination** : Developed a Gnuplot code in Jupyter Notebook to calculate the distance to the Small Magellanic Cloud using the Cepheid Variable's Period-Luminosity relation.
- **Hubble's Constant and age of the Universe** : Created a Gnuplot code to determine the Hubble's constant and estimate the age of the universe.
- **HR Diagram and Main Sequence Fit** : Performed photometry of stars in Pleiades open cluster in B and V filters, constructed an HR diagram, and calculated the distance using the Main Sequence fitting method in Python.
- **Electronics Lab** : Opto Electronic Devices, SRC, Logic Gates, Microprocessor 8085.
- **Computer Lab** : Used FORTRAN 77 for learning Numerical methods like Runge Kutta Method, Gauss Elimination, Gauss-Jordan, Gauss-Seidal, Newton-Raphson's Method etc.
- **Solid State Ionics Lab** : ESR, Farady Effect, Zeeman Effect, Solar Cell, Absorption Coefficient.

COMPUTATIONAL SKILLS

- Operating System - Linux (Ubuntu, Centos, Scientific Linux), Windows (7,10,11,XP).
- Programming Language - Python, FORTRAN 77, Java, HTML, C.
- Office Package - Microsoft Office (Word, Excel, Powerpoint), Libre office etc.
- Python Libraries - Matplotlib, pyCallisto, pyCallistoUtils, Astropy.
- Astronomical package - IRAF

ACADEMIC ACHIEVEMENTS

- Attended a 5-day winter school on solar astrophysics at the Kodaikanal Solar Observatory (KSO) from March 18, 2025, to March 22, 2025, organized by Indian Institute of Astrophysics (IIA) Bengaluru in celebration of its 125th anniversary.
- Selected for the Introductory Summer School in Astronomy and Astrophysics 2024 organised by IUCAA from May 13, 2024, to June 14, 2024, a program introducing the fundamentals of Astronomy and Astrophysics.
- Completed B.Sc. PCM in 2023 with 77.88% aggregate, securing a place in the University Merit List (Rank 9).

CONFERENCES

- Participated in the 31st International Conference of the International Academy of Physical Science (CONIAPS) on emerging trends in physical sciences, organized by Pt. Ravishankar Shukla University, Raipur, Chhattisgarh, on December 20-21, 2024.
- Participated in the National Symposia on Innovation in Computational Methods, organized by Pt. Ravishankar Shukla University, Raipur, Chhattisgarh, on October 22-23, 2024.
- Attended an seminar on "Energy Conservation and Solar Energy" by Chhattisgarh State Renewable Energy Development Agency (CREDA) on 12 March 2024.

EXTRACURRICULAR ACTIVITIES

- Served as Anchor for the 31st International Conference of International Academy of Physical Sciences (CONIAPS XXXI) on Emerging Trends in Physical Sciences1 (December 20-21, 2024).
- Served as Anchor for the National Symposia on Innovation in Computational Methods 2024, organized by S.o.S. in Physics and Astrophysics, Pt. Ravishankar Shukla University, Raipur (October 22-23, 2024).
- Won Speech Competition organised in S.o.S. In Physics and Astrophysics, PRSU for the ViksitBharat@2047 on 26 December 2023.
- Donated blood on 27 September 2023 in Blood Donation camp organised by Ramkrishna CARE Medical Science Ltd. in Pt. Ravishankar Shukla University, Raipur.
- Delivered a lecture on "Carbon Credit" as a Special Guest at J. Yoganandam Chhattisgarh College, Raipur (September 13, 2023).
- Served the specially-abled people with Arfa Foundation an NGO in Jagdalpur, Chhattisgarh during undergraduation (2023).
- Won YouthFest 2022 University level Rangoli Competition. Bastar University.
- Played under-19 State Level Chess tournament in 2019.
- Participated in various olympiad like NAT, NTSE, NMO (and won some) during middle and high school.

INTERESTS

- Bharatnatyam
- Badminton
- Rangoli
- Chess
- Cooking
- Book Reading

LANGUAGE

- English
- Hindi
- Bengali

PROFESSIONAL REFEREES

1. Dr. Nand Kumar Chakradhari

Designation – Associate Professor at Pt. Ravishankar Shukla University, Raipur

Email ID - nkchakradhari@associates.iucaa.in

Contact no. - 8319537125

2. Dr. K. Sasikumar Raja

Designation – Assistant Professor at Indian Institute Astrophysics (IIA), Bengaluru

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