Soumyadeep Das

ENGINEERING PHYSICS PART V · IIT (BHU) VARANASI

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Education

Indian Institute of Technology (BHU), Varanasi *Varanasi, India*
INTEGRATED DUAL DEGREE (B.TECH. + M.TECH.) IN ENGINEERING PHYSICS (PART V) *Aug. 2014 - May. 2019*

- CGPA - 8.75/10. Departmental Rank 2 Holder.
- TOEFL iBTS Score - 109/120 (obtained above 25 in each section).
- Awarded with IIT Color, the second highest honor of IIT Varanasi for contributing to the overall growth of astronomy in and around the institute.

Skills

General Programming	C, Python, Matlab, FORTRAN.
Simulation and Science	AIPS, CASA, SaoImage DS9, Astropy, Scipy, LaTeX.
Amateur Astronomy	Telescope calibration, Night-sky observations, Long exposure astrophotography.
UI/UX and Development	Android, Jekyll, SQL, HTML, CSS, JS, PHP.
Other	Adobe Photoshop, Lightroom, After Effects, Reddit bot-dev.

Courses and Academic Background

Background	Synthesis Imaging in Radio Interferometry, First Course in General Relativity.
Coursework	Classical and Quantum Mechanics, Relativistic Electrodynamics, Magnetohydrodynamics, Linear Algebra, Mathematical and Numerical Methods, Introduction to Astrophysics, Computational and Statistical Physics.
Other Courses	Probability and Statistics, Statistical simulations, Pattern Recognition, Programming and Data-structures.

Experience

Looking from All Angles at a Source Straddling the Radio-loud/Radio-quiet AGN Divide. *Pune, India*
VSRP SUMMER INTERNSHIP UNDER DR. PREETI KHARB, NATIONAL CENTER FOR RADIO ASTROPHYSICS (NCRA-TIFR). *May. 2018 - July. 2018*

- Study of NGC 2329, a peculiar AGN, at different radio bands, resolutions and sensitivities.
- Extensive imaging of archival VLA, VLBA and eVLA data using AIPS, CASA and SAO DS9.

Importance of Polarization Calibration in Radio Interferometry. *Varanasi, India.*
MASTER'S PROJECT UNDER DR. PRASUN DUTTA, IIT (BHU), VARANASI. *Jan. 2017 - May. 2019*

- Aims to provide valuable insight into the power spectrum estimation methods and to construct the reionization signal from the observed data.
- Calibration and imaging using CASA. Used the software VISFITS for visibility simulation and modified it for the addition of antenna gains.

Understanding Stellar Collapse and Formation of Strange Quark Stars. *Hong Kong SAR*
SUMMER INTERNSHIP UNDER PROF. MING CHUNG CHU, CHINESE UNIVERSITY OF HONG KONG. *Jun. 2017 - Aug. 2017*

- Hydrodynamic simulations aimed at understanding stellar collapse and investigating the conditions that lead to formation of Strange Quark Stars, and their attributes and Gravitational Wave signatures.

Star cluster detection and characterization using generalized Parzen density estimation. *Thiruvananthapuram, India*
SUMMER INTERNSHIP UNDER DR. SARITA VIG, INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY (IIST) AND DR. GORTHI RKSS MANYAM, IIT TIRUPATI. *May. 2016 - July. 2016*

- Involved the application of generalized Parzen Windows for star cluster detection and identification.
- Wrote a MATLAB pipeline for semi-automatic detection of star cluster in a given field of stars.
- Presented a paper on the same at conference "Star and Planet Formation : Insights and Intricacies" at IIST Thiruvananthapuram. Paper accepted for publication in MNRAS, Oct 2018.

Teaching Assistant Positions

2019	PHY 304 - Computational Physics (Theory and Lab)
2018	PHY 303 - Electromagnetic Waves
2017	PHY 304 - Solar, Space & Plasma Physics
2017	PHY 303 - Electromagnetic Waves
2016	PHY 102 - Physics II (Electromagnetism)

Publications

2019	(Under Preparation for submission to URSI-RCRS) J. Kumar, P. Dutta, S. Das, N. Roy, "Instrumental Calibration for Observations of Redshifted 21-cm Signal fromNeutral Hydrogen"
2019	(Under Preparation for submission to MNRAS) S. Das, P. Kharb, S. Nandi, R. Morganti, "The Peculiar Wide-Angle-Tailed Galaxy NGC 2329 with an FRI-Seyfert Radio Outflow"
2018	S. Nambiar, S. Das, S. Vig, G.R.K.S.S. Manyam, "Star cluster detection and characterization using generalized Parzen density estimation", MNRAS, accepted for publication, Oct. 17, 2018.

Conferences

2019	Presented a poster on "Instrumental calibration requirements for observation of redshifted 21-cm signal from neutral hydrogen" at the Metre Wavelength Sky II Conference (MYSKY-II) held at National Centre for Radio Astrophysics, Pune, India
2016	Presented a paper on "Star cluster detection using Parzen Window" at the Star and Planet Formation Conference (SPF2016) held at Indian Institute of Space Science and Technology, Thiruvananthapuram, India

Achievements, Awards and Extra-curricular activities

2017	**Winner**, Codefest Appathon - Android Development Competition, Dept. of CSE, IIT (BHU) Varanasi.	*Varanasi, India*
2016	**Founder**, Corona - Bi-monthly collegiate astronomy magazine.	*Varanasi, India*
2016	**Secretary**, Astronomy Club, IIT (BHU) Varanasi.	*Varanasi, India*
2016	**Winner**, Hackathon - Android Development Contest, Technex, IIT (BHU) Varanasi.	*Varanasi, India*
2015	**Global Rank 81**, Open Contest "The Pythonist".	*Hackerrank.com*
2015	**Winner**, Eyes on the Sky - a messier hunting competition.	*Jaipur, India*