Curriculum Vitae

MAMI DEKA

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Present Designation

PhD Student, *Date of Joining-01/02/2020*, Department of Physics, Cotton University Guwahati-781001, Assam, India

Supervisor **Dr. Sukanta Deb**, *Assistant Professor*, Cotton University, Guwahati-781001

Research Field *Astronomy and Astrophysics*

Research Topic **Variable Stars as Astrophysical Laboratories**

List of Publications

1 Kerdaris Kurbah, Sukanta Deb, Shashi M Kanbur, Susmita Das, **Mami Deka**, Anupam Bhardwaj, Hugh Riley Randall, Selim Kalici. **A multiphase study of theoretical and observed light curves of classical Cepheids in the Magellanic Clouds**, Monthly Notices of the Royal Astronomical Society, Volume 521, Issue 4, June 2023, Pages 6034–6052, https://doi.org/10.1093/mnras/stad806

2 **Mami Deka**, Shashi M Kanbur, Sukanta Deb, Susmita Das, Kerdaris Kurbah, Earl P Bellinger, Anupam Bhardwaj. **Period-Colour and Amplitude-Colour relations for OGLE-δ Scuti stars in the Galactic Bulge and LMC**, Monthly Notices of the Royal Astronomical Society, stac2457, https://doi.org/10.1093/mnras/stac2457

3 **Mami Deka**, Sukanta Deb, Kerdaris Kurbah. **An MCMC approach to the three-dimensional structure of the Milky Way bulge using OGLE-IV δ Scuti stars**, Monthly Notices of the Royal Astronomical Society, Volume 514, Issue 3, August 2022, Pages 3984–3992, https://doi.org/10.1093/mnras/stac1596

Conferences

1 **International Astronomical Union (IAU) Symposium 376 "At the cross-roads of astrophysics and cosmology: Period–luminosity relations in the 2020s"**

Konkoly Observatiry, Budapest, Hungary

A Study of Stellar Photosphere – Hydrogen Ionization Front Interaction in δ Scuti Stars

2 **41st meeting of The Astronomical Society of India**

Indian Institute of Technology, Indore, 1-5 March, 2023

The HIF-stellar photosphere interaction theory: δ Scuti Stars

Computational Skills

Data Handling: OGLE, Gaia, TESS, Kepler Data etc.

Languages: Python (SciPy, NumPy, AstroPy, Matplotlib, Pandas), IDL, Bash, R, FORTRAN.

Statistical Techniques: MCMC, Bayesian analysis, F-test.

Other Tools: MESA, Phoebe, IRAF, VOSA (SED fitting), DS9, parallal computation tools such as OpenMP and MPI, High Performance Computing cluster, Machine learning, LATEX, MS-Office.

Achievements

2023	Selected in the Kavli Summer Program In Astrophysics 2023: "**The lives, deaths and afterlives of interacting stars**" organized by MPA, Garching, Germany
2023	**International Travel Grant** by Science and Engineering Research Board (SERB), Government of India to attend the International Astronomical Union (IAU) Symposium 376 "At the cross-roads of astrophysics and cosmology: Period–luminosity relations in the 2020s", Hungary
2021	Qualified State Level Eligibility Test (**SLET**) conducted by SLET Commission, Assam (PHs).
2020	Qualified **GATE** Exam conducted by Indian Institute of Technology (IITs) (PH).
2020	Qualified **NET**-**LS** in Physical Science conducted by Council of Scientific and Industrial Research (CSIR), India.
2019	Qualified **NET**-**LS** in Physical Science conducted by CSIR, with All India Rank 70.
2016-18	Received NEC Merit Scholarship.

Education

2019-2022	**Junior Research Fellow, CSIR Project**, *Tiltle:Variable Stars as Astrophysical Laboratories*
2016-2018	**M.Sc. (PHYSICS)**, *Area of specialization- Astrophysics, General theory of relativity and Cosmology*, Department of Physics, Gauhati University, Guwahati
2012-2015	**B.Sc. (PHYSICS)**, *Nalbari College*, Gauhati University, Guwahati

Research Experience: Master Thesis

Title	Magnetorotational Instability in Accretion Disks
Supervisor	Dr Madhurjya P Bora, Professor, Department of Physics, Gauhati University
Description	*In the dissertation, we have studied the mechanism called 'magnetorotational instability', which to some extent can explain the turbulent angular momentum transport phenomena in accretion disk, which is a longstanding puzzle to the theory of accretion disk. Accretion disks are differentially rotating systems and magnetic field is present everywhere which is the necessary condition for magnetorotational instability. The instability does not depend upon the strength of the magnetic field. To know the nature of the instability, we have perturbed the system with very small perturbation so that resultant equations are linearized. The linearized equations are then used to obtain the dispersion relation. We have considered the axisymmetric disturbance only.*

Research Schools Attended

2023	Particaipated in the IAU International Spring School "Modern methods of cosmic distance determination" organized by Konkoly Observatory, Budapest, Hungary.
2022	Particaipated in the "7rd Indo-French Astronomy School " on "Spectroscopy, Treasures in the voxels" jointly organized by Lyon (LIO, CRAL CNRS UMR5574, UCBL1) and IUCAA in Pune, India.
Project Tiltle	Chemical composition of neutral gas in a distant galaxy.
Advisor	Jens-Kristian Krogager (CRAL, Lyon, France)
2018	Participated in "Pulsar Astronomy with uGMRT Boot-Camp & Multi-Wavelength Neutron Star Workshop" at Birla Institute of Technology and Science, Pilani, Hyderabad Campus.