

Mami Deka

PHD STUDENT · ASTRONOMY & ASTROPHYSICS

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“Be the change that you want to see in the world.”

Education

Cotton University

PHD CANDIDATE IN ASTROPHYSICS

- Advisor: Dr. Sukanta Deb

Guwahati, India

01/02/2020 - present

Gauhati University

MSC IN PHYSICS

- Advisor: Prof. Madhurjya P Bora
- Specialization- Astrophysics, General theory of relativity and Cosmology

Guwahati, India

August, 2016 - June, 2018

Nalbari College, Gauhati University

BSC IN PHYSICS

- Minors in Mathematics and Chemistry

Nalbari, Assam, India

August, 2012 - June, 2015

Research Experience

Cotton University - Dept of Physics

PHD CANDIDATE IN ASTROPHYSICS

- Advisor: Dr. Sukanta Deb
- Thesis: “Variable Stars as Astrophysical Laboratories”

Guwahati, India

February, 2020 - Present

Max Planck Institute for Astrophysics

MPA-KAVLI SUMMER FELLOW

- Advisor: Dr. Felix Ahlborn, Heidelberg Institute for Theoretical Studies, Germany and Prof. Achim Weiss, MPA - Garching
- Project Title: “Core helium burning using turbulent convection models in intermediate and massive stars: Implications for Cepheid models”

Garching, Germany

June, 2023 - August, 2023

Cotton University - Dept of Physics

JUNIOR RESEARCH FELLOW, CSIR PROJECT

- Advisor: Dr. Sukanta Deb
- Thesis: “Variable Stars as Astrophysical Laboratories”

Guwahati, India

October, 2019 - September, 2022

Konkoly Observatory

IAU INTERNATIONAL SPRING SCHOOL

- Modern methods of cosmic distance determination

Budapest, Hungary

April, 2023

Lyon (LIO, CRAL CNRS UMR5574, UCBL1) and IUCAA

7RD INDO-FRENCH ASTRONOMY SCHOOL ” ON ”SPECTROSCOPY, TREASURES IN THE VOXELS

- Advisor: Jens-Kristian Krogager (CRAL, Lyon, France)
- Project Title: “Chemical composition of neutral gas in a distant galaxy”

IUCAA, Pune, India.

November, 2022

Gauhati University - Dept of Physics

MSC THESIS RESEARCH PROJECT

- Advisor: Prof. Madhurjya P Bora,
- Thesis: “Magnetorotational Instability in Accretion Disks”

Guwahati, India

August, 2017 - June, 2018

Birla Institute of Technology and Science, Pilani

PULSAR ASTRONOMY WITH UGMRT BOOT-CAMP & MULTI-WAVELENGTH NEUTRON STAR WORKSHOP

Hyderabad, India

January, 2018

Awards, Fellowships, & Grants

2023 **Kavli Summer Fellowship**, Kavli Foundation & Max Planck Institute for Astrophysics

2023 **International Travel Grant**, Science and Engineering Research Board (SERB), Government of India

- 2021 **State Level Eligibility Test (SLET) in Physics**, SLET Commission, Assam
- 2021 **Graduate Aptitude Test in Engineering (GATE) in Physics**, Indian Institute of Technology (IITs)
- 2020 **NET-LS in Physical Science**, Council of Scientific and Industrial Research (CSIR), India
- 2019 **NET-LS in Physical Science**, Council of Scientific and Industrial Research (CSIR), India
- 2016-2018 **NEC Merit Scholarship**, North Eastern Council (NEC), India

Publications

PUBLISHED

- 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>
- 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>
- 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>

Presentations

CONTRIBUTED PRESENTATIONS

- Mami Deka**, Shashi M. Kanbur, Sukanta Deb, Susmita Das, 2023. A Study of Stellar Photosphere – Hydrogen Ionization Front Interaction in δ Scuti Stars. Oral presentation: International Astronomical Union (IAU) Symposium 376 "At the cross-roads of astrophysics and cosmology: Period–luminosity relations in the 2020s", Konkoly Observatiry, Budapest, Hungary
- Mami Deka**, Shashi M. Kanbur, Sukanta Deb, 2023. The HIF-stellar photosphere interaction theory: δ Scuti Stars. Poster: 41st meeting of The Astronomical Society of India,Indian Institute of Technology, Indore, 1-5 March, 2023

Skills

- Programming** Python (SciPy, NumPy, AstroPy, Matplotlib, Pandas), IDL, Bash, R, FORTRAN
- Other tools** MESA, Phoebe, IRAF, VOSA (SED fitting), DS9, HPC cluster, Machine learning, LATEX, MS-Office.
- Data handling** OGLE, Gaia, TESS, Kepler Data etc.
- Statistical techniques** MCMC, Bayesian analysis, F-test
- Languages** Assamese, English, Hindi

Mentoring

- 2022 **Liza Devi**, MSc project (Current position: PhD student, Tezpur University) *Cotton University*
- 2022 **Snigdha Sarmah**, MSc project (Current position: PhD student, Tezpur University) *Cotton University*
- 2023 **Anurag Baruah**, MSc project *Cotton University*

References

- Dr. Sukanta Deb**
Connection: PhD advisor
Department of Physics
Cotton University
Guwahati-781001, India
✉ sukanto.deb@gmail.com

Prof. Shashi M. Kanbur
Connection: External Collaborator
Department of Physics
SUNY Oswego
Oswego, NY 13126, USA
✉ shashi.kanbur@oswego.edu

Dr. Earl P Bellinger**Connection:** External Collaborator

Max Planck Institute for Astrophysics, Garching GER

Department of Astronomy, Yale University

✉ earlbellingergmail.com

Prof. Selma E. de Mink**Connection:** MPA-Kavli Summer program

Max Planck Institute for Astrophysics

Garching, Germany

✉ sedemink@mpa-garching.mpg.de