Samriddhi Sankar Maity

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Postdoctoral Research Associate
Georgia State University

Experience

- **Postdoctoral Research Associate** at Georgia State University, Atlanta, GA, USA. Project title: A study on anomalous expansion of CMEs (1st October 2025 - ongoing)
- **SCOSTEP Visiting Scholar** at NASA/Goddard Space Flight Centre, Greenbelt, MD, USA. Project title: A study of the twist of CME flux ropes from the solar atmosphere to the heliosphere (12th August 2024 - 31st January 2025)

Education

- **PhD**, Joint Astronomy and Astrophysics Programme at Indian Institute of Science and Indian Institute of Astrophysics, Bengaluru, India. Thesis Title: Confronting realistic MHD simulations of solar eruptions with observed space based data (1st August 2018 – 12th February 2025)
- **Master of Science (M.Sc.)** in Physics (specialisation in Astroparticle Physics) at St. Xavier's College (Autonomous) under the University of Calcutta, India (2015 - 2017)
- **Bachelor of Science (B.Sc.)** in Physics at the Narasinha Dutt College under the University of Calcutta, India (2012 - 2015)

Publications

- Sindhuja, G., Srivastava, N., Gopalswamy, N., **Maity, S. S.**, Mirtoshev, Z., Hegde, D. V., Kumar, S., Understanding Geomagnetic Storms through Early Diagnostics of CME Source Region magnetic flux (in progress)
- Singh, T., **Maity, S. S.**, Chatterjee, P., Pogorelov, N., Combining local and global magnetohydrodynamic simulation frameworks to understand the evolution of coronal mass ejections (submitted in JOAA, under review)
- **Maity, S. S.**, Chatterjee, P., Sarkar, R., Mytheen, S. I., Evolution of reconnection flux during eruption of magnetic flux ropes (submitted in ApJ, under review) [ArXiv ID: 2407:18188v2]
- **Maity, S. S.**, Sarkar, R., Chatterjee, P., Srivastava, N., Photospheric Lorentz force changes in eruptive and confined solar flares. ApJ (2024) 962, 86 [DoI: 10.3847/1538-4357/ad13f0]
- Majumdar, S., Tadepalli, S.P., **Maity, S.S.** et al. Imaging and Spectral Observations of a Type-II Radio Burst Revealing the Section of the CME-Driven Shock That Accelerates Electrons. Sol Phys (2021) 296, 62 [DoI: 10.1007/s11207-021-01810-8]

Projects

- Synthesis for 3D Hydro and Magnetohydrodynamic Simulations of Exo-planet host star surface layers under Prof. S. P. Rajaguru at Indian Institute of Astrophysics, India. (January 2019 – April 2019)

- Trajectory of a neutral particle around a binary black hole spacetime under Dr. Shibaji Bhattacharya at St. Xavier's College, India. (January 2017 – May 2017)

AWARDS

- Awarded SCOSTEP Visiting Scholar (SVS) fellowship in 2024.
- Qualified JEST (a National Eligibility Test in India) with rank 99 in 2018.
- Qualified CSIR-UGC NET (a National Eligibility Test in India conducted by Council of Scientific and Industrial Research) for Junior Research Fellowship in Physical Science with rank 135 in June, 2018.

TEACHING

- Assisted in teaching for the course 'Introduction to Fluid Mechanics and Plasma Physics' at Indian Institute of Science, India (Aug – Dec, 2022)
- Assisted in teaching for the course 'Computational Physics and Statistics' at Indian Institute of Astrophysics, India (Oct – Dec, 2021)
- Assisted in teaching for the course 'Fundamentals of Astrophysics' at Indian Institute of Science, India (Oct 2020 - Feb 2021)

SKILLS

- Expert in C/C++, Python, Fortran, MATLAB, Mathematica, Paraview and IDL.
- Experienced in MPI and used High Performance Computing resources.
- Skilled in utilising Pencil Code (a higher-order finite-difference code for compressible hydrodynamic flows with magnetic fields) for solving magneto-hydrodynamic problems in solar corona.

ORAL AND POSTER PRESENTATIONS

- Talk presented in the IAU Symposium 388: Solar and Stellar Coronal Mass Ejections at Jagiellonian University in Krakow, Poland (May 5 - 10, 2024). Title: Eruption of Coronal Flux Rope under Streamers from Full 3D MHD Simulation.
- Talk presented in the Indo-U.S. Science and Technology Forum at GSFC, NASA, USA (June 5 - 16, 2023). Title: Photospheric Lorentz force changes in Eruptive and Confined Solar flares.
- Poster presented in the In-house Symposium by the Indian Institute of Astrophysics, India (March 30 - 31, 2023). Title: Photospheric magnetic imprints of eruptive and confined solar flares.
- Talk presented in the In-house Symposium by the Department of Physics at Indian Institute of Science, India (January 24 - 25, 2023). Title: Photospheric magnetic imprints of eruptive and confined solar flares.
- Oral presentation in the 18th Annual Pencil Code User Meeting organized by Indian Institute of Astrophysics, Bengaluru, India (May 4 - 10, 2022). Title: Simulation of solar coronal mass ejections due to twisted flux rope emergence.
- Poster presented in the 40th Astronomical Society of India Meeting jointly organised by ARIES, Nainital and IIT Roorkee, Roorkee at IIT Roorkee, India (March 25 - 29, 2022). Title: Simulation of solar coronal mass ejections due to twisted flux rope emergence

- Poster presented in the In-house Symposium by the Department of Physics at Indian Institute of Science, India (January 27 - 28, 2022). Title: Imaging and Spectral Observations of a Type-II Radio Burst Revealing the Section of the CME-Driven Shock That Accelerates Electrons.

Workshops and Schools attended

- Participated in an online workshop on High Performance Computing for Astronomy and Astrophysics organised jointly by the IIT Kharagpur under National Supercomputing Mission (Sep 20 - 23, 2021).
- Participated in COSPAR Capacity Building Workshop titled Coronal and Interplanetary Shocks: Analysis of Data from Space and Ground-based Instruments organised by The Committee on Space Research at Kodaikanal, India (January 6 - 17, 2020).
- Participated in a Short Course on High Performance Computing organised by Supercomputer Education and Research Centre at Indian Institute of Science, India (May 27 – 31, 2019).

Extra Curriculars

- Volunteered as a local organising committee member in 42nd annual meeting of Astronomical Society of India from 31st January 2024 to 4th February 2024 at Indian Institute of Science, Bengaluru.
- Member of the Local Organising Committee for 18th Pencil Code Meeting held at Indian Institute of Astrophysics, Bengaluru in 2022.
- Served as General Secretary of PDA (Phi-Delta-Alpha, an Association of Physics Department at Indian Institute of Science, Bengaluru) from August 2019 - July 2020.

References

- Dr. Talwinder Sngh (Assistant Professor), Georgia State University, Atlanta, USA
- Dr. Piyali Chatterjee (Associate Professor), Indian Institute of Astrophysics, Bengaluru, India. (Email: piyali.chatterjee@iiap.res.in)
- Prof. Nandita Srivastava (Senior Professor), Udaipur Solar Observatory, Physical Research Laboratory, Ahmedabad, India. (Email: nandita@prl.res.in)