SHUBHONKAR PARAMANICK

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EDUCATION

Aug. '21 to date Graduate Student (Ph.D. Candidate), Physics and Astronomy

University of Rochester, Rochester, New York, USA

Relevant Courses : Astrophysics I & II (Astrophysical Fluid Dynamics), Plasma Physics, Stellar Structure and Atmospheres, High Energy Astrophysics, Quantum Mechanics, Electromagnetic Theory, Statistical Mechanics, Modern Statistics & Exploration

 Aug. '13 – May '17
 Bachelor of Technology, Physical Sciences

 Indian Institute of Space Science and Technology (IIST), Thiruvananthapuram, Kerala, India

 Relevant Courses : Atmospheric Physics, Planetary Science, Radiation Processes in Astrophysics, Introduction to

 Astronomy and Astrophysics, Electromagnetic Theory and Relativity, Quantum Mechanics, Statistical Mechanics

 • Cumulative GPA : 8.91/10
 • Department Rank : 2

• WORK EXPERIENCE

May '22 to date Graduate Research Assistant University of Rochester, Rochester, USA

Aug. '17 – June '21 Scientist/Engineer 'SC' U R Rao Satellite Centre, Bangalore, India Indian Space Research Organization (ISRO) Department of Space, Government of India

Jan. '22 – May '22 Graduate Teaching Assistant PHYS114 (Electricity & Magnetism) University of Rochester, Rochester, USA Aug. '21 – Dec. '21 Graduate Teaching Assistant PHYS113 (Principles of Mechanics) University of Rochester, Rochester, USA

TEACHING EXPERIENCE

RESEARCH INTERESTS

Turbulent rotating convection and origin of stellar and planetary magnetism, Tidal deformation in exoplanets; Electromagnetic star-planet interactions; Effects of stellar winds on planetary atmospheres; Atmospheric escape processes; Stellar and planetary wind mixing in magnetotail

PEER REVIEWED JOURNAL ARTICLES

- Shubhonkar Paramanick, Eric G. Blackman, Jonathan Carroll-Nellenback, and John A. Tarduno. Terrestrial atmospheric ion implantation occurred in the nearside lunar regolith during the history of Earth's dynamo. Under revision in Communications Earth & Environment. URL https://arxiv.org/abs/2412.00519.
- Shubhonkar Paramanick, V.J. Rajesh, M.N. Praveen, K.S. Sajinkumar, and Satadru Bhattacharya. Spectral and Chemical Characterization of Copiapite and Rozenite: Implications for Mars Exploration. *Chemical Geology*, 120043: 1 23, December 2020. doi: 10.1016/j.chemgeo.2020.120043. URL http://www.sciencedirect.com/science/article/pii/S0009254120305829. In Press, Reference No.: CHEMGE 120043.

ARTICLES UNDER PREPARATION

• Shubhonkar Paramanick, Eric G. Blackman, Jonathan Carrol-Nellenback. Flow redirection by ordered stellar magnetic fields as a possible explanation for absorption lines from hot gas giants incurring photo-evaporative mass loss.

- OTHER KEY REFEREED CONTRIBUTIONS [ADS]

- Paramanick, Shubhonkar*, Eric G. Blackman, and John A. Tarduno (2025). Constraints on age and persistence of the geomagnetic field using lunar volatiles implanted from the terrestrial atmosphere. 56th Lunar and Planetary Science Conference, LPI, Texas. LPI Contrib. No. 2514, Volume: 56, #2514. URL https://www.hou.usra.edu/meetings/lpsc2025/pdf/2514.pdf. Oral Presentation.
- Paramanick, Shubhonkar*, Eric G. Blackman, Jonathan Carroll-Nellenback, and John A. Tarduno (2024). Explaining lunar regolith volatile abundances from solar wind and Earth atmosphere material implanted via magnetotail plasma. 45th Committee on Space Research Scientific Assembly, Busan, South Korea. D1.4-0005-24, pp. 151. URL https://app.cospar-assembly.org/2022/browser/presentation/33702. Oral Presentation.

- Paramanick, Shubhonkar*, Eric G. Blackman, Jonathan Carroll-Nellenback, and John A. Tarduno (2023). Investigating the influence of an unmagnetized versus magnetized Earth on the relative solar wind and Earth atmosphere contributions to lunar soil. 55th Annual Meeting of the Division for Planetary Sciences, San Antonio, TX. 215.04. URL https://ui.adsabs.harvard.edu/abs/2023DPS....5521504P/abstract. Oral Presentation.
- Jaiswal, Bhavesh, [et al., including **Paramanick, Shubhonkar**] (2020). Spectro-polarimetric Signatures of Earth in Near-Infrared: A Science Case. Submitted. AASTCS 8: Habitable Worlds 2021. Nexus for Exoplanet System Science (NExSS). URL https: //aas.org/meetings/aastcs8/habitable.
- Paramanick, Shubhonkar*, V.J., Rajesh; Praveen, M. N.; K. S., Sajin Kumar; Bhattacharya, Satadru (2018). Spectral and Chemical analyses of probable Martian analogue minerals, Copiapite and Rozenite: Implications for hydration processes on Mars. 42nd Committee on Space Research Scientific Assembly, Pasadena, CA. B4.1-0023-18, pp. 441-442. URL http://adsabs.harvard.edu/abs/2018cosp...42E2580P. Oral, and Poster Presentation.
- Paramanick, Shubhonkar*; V.J., Rajesh, Praveen, M. N.; K. S., Sajin Kumar (2018). Spectral Characterization of Copiapite and Rozenite and its implications. 49th Lunar and Planetary Science Conference, LPI, Texas. LPI Contrib. No. 2083, Volume: 49, #2299. URL https://www.hou.usra.edu/meetings/lpsc2018/pdf/2299.pdf.

- CONFERENCE PRESENTATIONS

- 56th Lunar and Planetary Science Conference, Lunar and Planetary Institute, The Woodlands, TX, USA. March 2025.
- 45th Committee on Space Research Scientific Assembly, Busan, South Korea. August 2024.
- 55th Annual Meeting of the Division for Planetary Sciences, San Antonio, TX, USA. October 2023.
- Sagan Exoplanet Summer Meeting, California Institute of Technology, Pasadena, CA, USA. July 2023 (Poster).
- 42nd Committee on Space Research Scientific Assembly, Pasadena, CA, USA. August 2018.
- 49th Lunar and Planetary Science Conference, Lunar and Planetary Institute, The Woodlands, TX, USA. March 2018.

SELECTED AWARDS AND HONORS

- Received the Frank J. Horton Graduate Research Fellowships from the Laboratory for Laser Energetics, 2022 to date.
- Received the COSPAR Travel Grant from the Committee on Space Research for COSPAR-2024 (£ 800).
- Received the Tamor Travel Grant from the Department of Physics and Astronomy for COSPAR-2024 (\$1000).
- Awarded the *OWL Travel Grant* from the Other Worlds Laboratory at UC Santa Cruz for the Exoplanet Summer Program, 2023 (\$1700).
- Awarded the Hartmann Travel Grant from the American Astronomical Society for the 55th Annual DPS Meeting, 2023 (\$650).
- Awarded the Sagan Travel Grant from the NASA Exoplanet Science Institute for the 2023 Sagan Exoplanet Meeting (\$600).
- Awarded the *IIST Academic Scholarship*, 2013-2017 funded by the Department of Space, Government of India.
- Awarded the Summer Research Fellowship by the Jawaharlal Nehru Centre For Advanced Scientific Research, Bangalore, in 2016.
- Awarded the Vacation Students' Programme Fellowship by IUCAA, Pune, in 2016.
- Received the INSPIRE Scholarship from the Department of Science and Technology, Government of India, for the year 2013.

– SELECTED ADDITIONAL TRAINING

- Other Worlds Laboratory Summer Program at UC Santa Cruz (2023). Instructor: Prof. Ruth Murray-Clay. Mode: In-person (2 weeks). Skills: Advanced methods in computational magnetohydrodynamics and development of a scientific project.
- SHIELD Summer School at Boston University (2024). Mode: In-person (1 weeks). Skills: Plasma processes at the edge of the solar system, Heliophysics.

SKILLS

- Programming Languages : C, C++, Python, MATLAB, Fortran, IDL, JavaScript, Perl.
- Markup Languages : LAT_EX, HTML5, CSS, Sass.
- **Operating Systems :** Linux, Windows, Mac OS (X).
- Applications/Astronomy Packages : Dedalus, AstroBEAR, VisIt, Astropy, Mathematica, Git, AIPS, CASA, CIAO, HEASoft, SAOImage DS9, IRAF, MayaVi, Adobe Illustrator, SimuLink, Mupad, Matplotlib, Gnuplot, Microsoft Office Suite.

PROFESSIONAL AFFILIATIONS

- Member of the American Physical Society & APS Topical Group in Plasma Astrophysics (APS ID: 62156375).
- Life Member of the Astronomical Society of India (Membership No.: L2321).
- Member of the American Astronomical Society (Member ID: 69226).
- Member of The Planetary Society (Membership ID: 762883).

REFERENCES

DR. ERIC BLACKMAN, Professor Department of Physics & Astronomy, University of Rochester, # 417, Bausch & Lomb Hall, Rochester, NY, USA — 14627. ☎ +1 (585) 275-0537 ➡ blackman@pas.rochester.edu