

Ishan Mishra

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Research Interests: Planetary Science, Spectroscopic Retrieval Methods, Astrobiology

Education

- PhD in Astronomy. *Cornell University* Expected August 2022
- M.S. in Astronomy. *Cornell University* February 2020
- B.Tech. in Electronics & Communications Engineering May 2016
Indian Institute of Technology, Guwahati, India

Honors and Awards

- Future Investigators in NASA Earth and Space Science and Technology (FINESST) 2020
- Research Travel Grant (suspended due to COVID-19), *Cornell University* 2020
- Carl Sagan Institute Travel Grant, *Cornell University* 2020, 2018
- Other Worlds Lab Summer Research Fellowship, *U.C. Santa Cruz* 2019
- Graduate Conference Grant, *Cornell University* 2018
- Summer Research Fellowship, *Academia Sinica Institute of Astronomy and Astrophysics, Taiwan* 2016
- KVPY fellowship (declined), *Indian Academy of Sciences* 2011

Peer-Reviewed Publications

- **Mishra, I.**, Lewis, N.K., & Lunine, J., *A python-based open-source version of Hapke's model*, in preparation for the Journal of Open Source Software.
- **Mishra, I.**, White, J.J., Lewis, N.K., MacDonald, R.J., & Valenti, J., *Probing the the Aerosol-Laden Atmosphere of GJ-1214b with JWST*, in preparation for the Astrophysical Journal.
- **Mishra, I.**, Lewis, N., Lunine, J., Hand, Kevin P., Helfenstein, P., Carlson, R.W., & MacDonald, R.J., *A comprehensive revisit of select Galileo/NIMS observations of Europa*, 2021, Planetary Science Journal 2, 183.
- **Mishra, I.**, Lewis, N., Lunine, J., Helfenstein, P., MacDonald, R.J., Filacchione, & G., Ciarniello, M., *Bayesian analysis of Juno/JIRAM's NIR observations of Europa*, 2021, Icarus 357, 114215.
- Lewis, N.K. + 21 co-authors including **Mishra, I.**, *Into the UV: The Atmosphere of the Hot Jupiter HAT-P-41b Revealed*, 2020, The Astrophysical Journal Letters, 902, L19.
- Bhattacharya, S., **Mishra, I.**, Vaidya, K., & Chen, W.P., *Disintegration of the Aged Open Cluster Berkeley 17*, 2017, The Astrophysical Journal, 847, 138

Approved Grants and Observing Proposals

- JWST Cycle 1, 13 hrs, GO 2358 (PI: MacDonald, R.J. + 14 Co-I's including **Mishra, I.**) 2021
Revealing the Atmospheric Composition of a White Dwarf Planet
- Future Investigators in NASA Earth and Space Science and Technology (FINESST) 2020
(FI: **Mishra, I.**; PI: Lewis, N.K.)
Providing new constraints on Europa's surface composition

Select Presentations

- *Revisiting select Galileo/NIMS observations of Europa with Bayesian inference (talk)* 2020
AAS Division of Planetary Science meeting #52
- *Planetary spectroscopy retrievals: from Hot Jupiters to icy moons (talk)* 2019
OWL summer program, U.C. Santa Cruz, USA

- *Unlocking the secrets of HAT-P-41b's atmosphere (poster)* 2019
ERES-V, Cornell University, USA
- *Detectability of Organics on Europa's Surface (poster)* 2018
AGU Fall Meeting, Washington D.C., USA
- *Detectability of Organics on Europa's Surface (poster)* 2018
Europa Deep Dive 2, LPI, Houston, Texas, USA

Outreach/Media

- *Author for astrobites.org* 2020-Present
Write brief paper summaries accessible to undergraduate level students.
- *Member of the science communications team of Carl Sagan Institute (Ithaca, NY)* 2020-Present
Help produce public outreach videos to promote astrobiology and science being conducted at the Carl Sagan Institute through its [YouTube channel](#).
- *Volunteer for Museum in the Dark (Ithaca, NY)* 2017 - Present
Co-organize an annual Halloween-themed outreach event at a local museum with astronomy and planetary science related demos.
- *Invited talk on 'History of Human Space Exploration'* 2018
Southworth Library, Dryden, NY
- *Invited talk on 'Asteroids'* 2018
Kopernik Observatory, Dryden, Vestal, NY
- *Volunteer for Expanding Your Horizons (Cornell University)* 2018 - Present
Helped run astronomy workshop activities for this yearly STEM outreach event for middle school girls.
- *Intern for citizen science project 'Comet Hunters'* 2016
Academia Sinica Institute of Astronomy and Astrophysics, Taiwan

Teaching positions

- *Astronomy Teaching Assistant (ASTRO 2202) (Cornell University)* Fall 2018
Assisted in teaching students how to write popular science articles, graded written homework and gave feedback and held office hours.
- *Astronomy Teaching Assistant (ASTRO 1102) (Cornell University)* Spring 2018
Taught recitation sections and held office hours. Assisted in writing and grading homework assignments and exams.
- *Astronomy Teaching Assistant (ASTRO 1101) (Cornell University)* Fall 2017
Taught lab sections that involved exercises on core astronomy topics. Assisted in writing and grading homework assignments and exams.

Relevant Training

- *Code/Astro 2021 (remotely from Cal Tech)* Summer 2021
A 40-hour course in Python-based software development for astronomers, covering software development paradigms and environments, version tracking, testing, documentation, packaging, and profiling.
- *Workshop on Data-Driven Mathematical & Statistical Modeling for Graduate Students (remotely from SAMSI)* Summer 2021
Annual workshop that introduces graduate students to topics in mathematical and statistical modeling that are needed to carry out advanced research in a data-driven context, via tutorials and a week-long project.

Professional service and affiliations

- Graduate student member, *American Astronomical Society* 2020-
- Graduate student affiliate, *Europa Clipper Mapping and Imaging Spectrometer (MISE) team* 2020-
- *Co-organizer of Cornell Astronomy REU Program's Python workshop* 2020
Conducted a multi-day workshop on introduction to scientific programming with python.
- *Co-organizer of Introduction to GitHub workshop* 2019
ERES-V, Cornell University. Conducted a 3-hour workshop on open-source software development using

GitHub.

- *Secretary of the Astronomy Grads Network (AGN)*, (Cornell University) 2018 - 2019
Organized a weekly Graduate Students and Post-docs Seminar. Liaison between the Astronomy Department's Outreach coordinator and the graduate students. Member of Cornell's Ask an Astronomer team that answers weekly questions from the general public.