

Ishan Mishra

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Research Interests: Planetary Science, Spectroscopy and Photometry of Planetary Surfaces in the Solar System and Beyond

Career & Education

- JPL Postdoctoral Fellow October 2022 - present
Jet Propulsion Laboratory, California Institute of Technology
- PhD in Astronomy *Cornell University* 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

- OPAG Meeting Early Career Travel Stipend, *USRA* 2022
- Graduate Conference Grant, *Cornell University* 2018, 2021
- 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* 2018, 2020
- Other Worlds Lab Summer Research Fellowship, *U.C. Santa Cruz* 2019
- Summer Research Fellowship, *Academia Sinica Institute of Astronomy and Astrophysics, Taiwan* 2016
- KVPY fellowship (declined), *Indian Academy of Sciences* 2011

Peer-Reviewed/Refereed Publications

- **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.
Performed a statistical analysis on a grid of forward models of the transmission spectra of HAT-P-41b's atmosphere.
- Bhattacharya, S., **Mishra, I.**, Vaidya, K., & Chen, W.P., *Disintegration of the Aged Open Cluster Berkeley 17*, 2017, *The Astrophysical Journal*, 847, 138
Co-led the analysis of imaging data of the open cluster taken by Pan-STARRS survey that revealed its tidal tails.

Conference Proceedings/Abstracts

- White, J., **Mishra, I.** and Lewis, N., *High Resolution JWST Transmission Spectra and Their Retrievals for GJ1214b*, 2021, *American Astronomical Society Meeting Abstracts*, 531.03
- Kutsop, N. + 12 co-authors including **Mishra, I.**, *Addressing Diversity, Inclusion, and Values in the Cornell Astronomy Community: The Graduate Students Response*, 2021, *AAS/Division for Planetary Sciences Meeting Abstracts*, 502.08
- **Mishra, I.**, Lewis, N. and Lunine, J., *Revisiting select Galileo/NIMS observations of Europa with Bayesian inference*, 2020, *AAS/Division for Planetary Sciences Meeting Abstracts*, 106.01

- Schwamb, Megan E. + 6 co-authors including **Mishra, I.**, *Assessing the Main-Belt Comet Population with Comet Hunters*, 2017, American Astronomical Society Meeting Abstracts, 112.04

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

- *Europa Clipper: Exploring an Alien Ocean World (talk)* 2023
SPACEweek at Dawson College, Montreal (*invited*)
- *How Widespread are the Bladed Terrains on Pluto? (talk)* 2023
54th Lunar and Planetary Science Conference
- *Providing new constraints on Europa's surface composition (talk)*
University of Arizona Origins Seminar Series (*invited*) 2022
UC Berkeley CIPS Seminar Series (*invited*) 2022
Yale Exoplanets and Stars Seminar Series (*invited*) 2022
Carnegie Earth and Planets Laboratory exoplanets seminar (*invited*) 2022
- *Assessing the feasibility of detection and characterization of organics on Europa (talk)* 2021
American Geophysical Union Fall 2021 meeting
- *Revisiting select Galileo/NIMS observations of Europa with Bayesian inference (talk)* 2020
AAS Division of Planetary Science meeting #52
- *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

Outreach/Media

- *Co-leader of NYS-4H 2021 Challenge: Galactic Quest* 2021-2022
Hands-on learning projects and workshops conducted virtually for school kids to get them interested in STEM
- *Author for astrobites.org* 2020-Present
Write brief paper summaries accessible to undergraduate level students
- *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.
- *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/Mentoring experience

- *Graduate student mentor for Cornell Astronomy's REU program* Summers 2020 & 2021
Mentored two undergraduate students in separate projects involving analysis of transmission spectra of super-Earths and reflectance spectra of rocky planetary surfaces respectively.
- *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 1101/1102) (Cornell University)* Fall 2017-Spring 2018
Taught recitation sections and lab sections that involved exercises on introductory astronomy topics. Assisted in writing and grading homework assignments and exams.

Professional service and affiliations

- Member of the Science Organizing Committee (SOC) of the joint *DPS-EPSC 2023* meeting 2023
- Executive Secretary for NASA's *New Frontiers Data Analysis Program (NFDAP)*
review panel (Asteroids) 2023
- Reviewer for *AAS Journals* and *Icarus* (2 papers reviewed), 2021-
- Graduate student affiliate, *Europa Clipper Mapping and Imaging Spectrometer (MISE) team* 2020-2022
- Postdoctoral Affiliate, *Europa Clipper Project Science team* 2022-present
- *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 at ERES-V* 2019
Conducted a 3-hour workshop on open-source software development using GitHub.