

Eshan Raul

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Education

University of Wisconsin–Madison

August 2024-May 2029

Ph.D. in Astronomy

University of Michigan, Ann Arbor

August 2020-May 2024

B.S. in Honors Astronomy/Astrophysics

Research Interests

Astrobiology & habitability

Exoplanetary atmospheres/dynamics

Astrochemistry

Selected Works

[8] “Chemical Divergence and Water Depletion: Gas Properties of Evolved Upper Scorpius Disks Revealed by JWST/MIRI”

Raul, E., et al., 2026, manuscript submitted to AJ

[7] “The JDISC Survey: Linking the Physics and Chemistry of Inner and Outer Protoplanetary Disk Zones”

Arulanantham, N., et al. (including **Raul, E.**), 2025, AJ, 170, 67

[6] “Escaping Helium, Depleted Methane, and Hints of Carbon Dioxide Suggest a High-Metallicity

Atmosphere on Sub-Neptune GJ 3090 b from JWST Transit Spectroscopy”

Ahrer, E., et al. (including **Raul, E.**), 2025, ApJL, 985, L10

[5] “Tracking the Evolution of Hydrocarbons Through Carbon Grain Destruction in Protoplanetary Disks”

Raul, E., Alarcón, F., Bergin, E. A., 2025, ApJ, 982, 155

[4] “JWST/NIRISS Reveals the Water-rich “Steam World” Atmosphere of GJ 9827 d”

Piaulet-Ghorayeb, C., et al. (including **Raul, E.**), 2024, ApJL, 974, L10

[3] “JWST Reveals CH₄, CO₂, and H₂O in a Metal-rich Miscible Atmosphere on a Two-Earth-Radius

Exoplanet”

Benneke, B., et al. (including **Raul, E.**), 2024, manuscript submitted to ApJ

[2] “Recent Swift Observations of NGC 5907 ULX-1”

Raul, E., Bacon, S., Brumback, M., Hoin, S., Miller, J. M., Reynolds, M. T., 2022, ATEL 15809

[1] “Swift Observations of the M51 ULX RX J133007+47110”

Raul, E., Brumback, M., Miller, J. M., Reynolds, M. T., et al., 2022, ATEL 15803

Teaching

Graduate TA, ASTRON 170 (The Dark Side of the Universe)

January-May 2025

Undergraduate Grader, PHYSICS 406 (Statistical and Thermal Physics)

September-December 2023

Public Talks and Outreach

Talk at Kettle Moraine State Park, WI	May 2026
Graduate Research Showcase at the Capitol, WI	April 2026
Science Night Presenter at Emerson Elementary School, Madison, WI	March 2026
Talk at Eisenhower Middle-High School, New Berlin, WI	January 2026
1st Grade Astronomy Unit Teacher at Van Hise Elementary School, Madison, WI	January 2026
Organizer of Stargazing at Science on the Square (Wisconsin Science Festival)	October 2025
Talk at Buckhorn State Park, WI	August 2025
Talk at Newport State Park, WI	August 2025
Talk at Monona Public Library, WI	August 2025
Science Volunteer at UW–Madison Wonders of Physics Fair	February 2025
Physics Demonstrations Volunteer at Metro Detroit Youth Clubs	November 2023

Academic Service

American Association for the Advancement of Science Mass Media Fellowship Location: MIT Technology Review	Summer 2026
American Astronomical Society (AAS) Congressional Visit Days Volunteer	April 2025
Skywatching Volunteer at Horwitz-DeRemer Planetarium	October 2025–
UW–Madison Department of Astronomy Telescope Lead	September 2025–
Washburn Observatory Volunteer	September 2024–

Science Communication and Press Releases

AAS - “Rocket Science Needs Rocket Fuel: An Early Scientist’s Experience on the Hill”	May 2025
Universe Today Podcast - “First Ever Steam World Found by JWST”	December 2024
University of Michigan - “JWST finds first exotic 'steam world' shrouded in water vapor”	October 2024

Honors and Awards

NASA Wisconsin Space Grant Consortium: Graduate & Professional Research Fellowship Grant award: \$4,381	Summer 2026
Blair Savage Astronomy Travel Fund Grant award: \$750	Winter 2026
University Honors/Dean’s List/James B. Angell Scholar	Fall 2020–Winter 2024

Selected Presentations

Accepted Talk, Discs on the Exe, Exeter, UK	July 2026
Accepted Talk, Emerging Researchers in Exoplanet Science Symposium XI, Ann Arbor, MI	July 2026
Contributed Talk, Cool Stars 23, Tokyo, Japan	June 2026
Contributed Talk/ SOC , Great Lakes Exoplanet Area Meeting, Madison, WI	November 2025
Contributed Talk/Dwornik Judge, Lunar & Planetary Science Conference, The Woodlands, TX	March 2025
Contributed Talk, Bay Area Exoplanet Meeting 47, San Francisco, CA	December 2024
Contributed Poster, Astrobiology and the Future of Life Meeting, Houston, TX	October 2024
Contributed Talk, Emerging Researchers in Exoplanet Science Symposium IX, Ithaca, NY	July 2024
Contributed Talk, American Astronomical Society Meeting 243, New Orleans, LA	January 2024
Contributed Lightning Talk, Great Lakes Exoplanet Area Meeting, Bloomington, IN	October 2023

In my experience, one of the most difficult parts of being an early-career researcher is not the science itself, but knowing which opportunities exist and how to take advantage of them. Looking back, I often wonder how different my trajectory might have been had I known earlier about the research experiences, conferences, leadership roles, and advocacy opportunities that ultimately ended up shaping my career. Many of these experiences were ones I had to discover for myself, and that realization is what has led me to run for Student Representative this term.

Like many other early-career researchers, my path into planetary science has been anything but straightforward: after spending almost the entire first half of my undergraduate career in engineering, I eventually learned that academia was a possible path, that researching planetary science could be a career, and that I could find a place in astronomy by seeking out mentors and opportunities myself. While I am proud of the persistence that brought me here, it's easy to see that a career should not depend so heavily on discovering the right information at the right time.

I also directly understand how difficult it can be for early-career researchers to find and obtain funding for their own professional development. Research grants and travel/conference support are often essential for students to participate in the broader planetary science community, yet can be incredibly difficult to approach without the proper guidance. Through my own experiences applying for, getting rejected from, and eventually receiving different funding opportunities, (e.g., the Wisconsin Space Grant Consortium and the AAAS Mass Media Fellowship), I have seen how transformative these resources can be. I want to help ensure that other students know what opportunities exist and have the information needed to decide whether to pursue them.

In my own time, I have led outreach events at the annual Wisconsin Science Festival, served as the Telescope Lead for my department, and have become well practiced in all types of scientific communication. I also participated in the American Astronomical Society's Congressional Visit Days, where I met with members of Congress to advocate for scientific research funding, and later wrote about that experience to encourage other scientists to become more involved in advocacy. My experiences navigating barriers along my journey has also made me especially conscious of the additional barriers faced by students from even more historically underrepresented backgrounds. I am entirely committed to advocating for a planetary science community where those from marginalized groups know that they are seen and have equal consideration to the same opportunities as others.

If elected, I would like to increase awareness of grants, conferences, committee positions, mentoring opportunities, and advocacy efforts that can shape a student's career but are

often difficult to discover. I also hope to encourage discussions around issues that directly affect early-career scientists, from changes in federal science policy to conference accessibility and affordability. Above all, I want to be a representative who listens, so that I can ensure that students across planetary science and *all* its neighboring disciplines feel both informed and supported.

I would be exceedingly honored to serve DPS as your Student Representative, and thank you for your consideration!

Eshan Raul, Nominee for DPS Student Representative