

Emma “Em” Peplinski

Early-Career Astrophysicist

✉ epeplins@umich.edu
they/them/theirs

Education

August 2020 – May 2024 **B.S. in Astronomy & Astrophysics with Honors**, *University of Michigan*, Ann Arbor, MI

Research Experience

September 2022 **Undergraduate Researcher**, *University of Michigan*, Ann Arbor, MI
- Present Working under the mentorship of Professor Emily Rauscher and graduate student Thomas Kennedy.
May 2023 - Present
Currently investigating the impacts of radiative transfer geometry on hot Jupiter emission spectra calculated with 3D General Circulation Models (GCMs). Two methods are being considered: line-of-sight geometry, and radial geometry.
September 2022 - April 2023
Devised a method for taking GCM outputs and processing them into simulated JWST emission spectra. Wrote a tutorial on this method for the rest of the research group.

Publications

E. Peplinski, Thomas Kennedy, and Emily Rauscher. The impact of geometry on hot Jupiter emission spectra calculated from 3D-GCMs. (*In prep*).

Poster Presentations and Colloquia

April 2024 **“The Impact of Geometry on Spectra Calculated from 3D GCMs”**, *University of Michigan Astronomy Undergraduate Research Symposium*, Ann Arbor, MI, Poster
January 2024 **“The Impact of Geometry on Spectra Calculated from 3D GCMs”**, *Conference for Undergraduate Women in Physics*, Ann Arbor, MI, Poster
October 2023 **“The Impact of Geometry on Spectra Calculated from 3D GCMs”**, *Great Lakes Exoplanet Area Meeting*, Bloomington, IN, Talk
April 2023 **“Creating JWST Emission Spectra from 3D Exoplanet Models”**, *University of Michigan Astronomy Undergraduate Research Symposium*, Ann Arbor, MI, Poster

Grants, Scholarships, and Fellowships

September 2023 **H. Richard & Denise Elmquist MMB Family Scholarship**, \$4,650 USD, University of Michigan
Merit-based scholarship for members of the Michigan Marching Band (MMB).
May 2022 **Polish Language Studies Scholarship**, \$750 USD, University of Michigan
To be awarded, students must submit an application, take two consecutive terms of the appropriate Polish language sequence, and receive a B- or better in both courses.

Honors and Awards

- April 2023 **Inducted into the Phi Beta Kappa Honor Society**, *University of Michigan*
Nomination is based on strength of academic achievement and is most commonly awarded to graduating seniors. Was one of thirty-five juniors at the University of Michigan nominated in 2023.
- April 2022 **Annual Award for Excellence in Polish Language Studies**, *University of Michigan*, \$250 USD
Faculty-nominated award recognizing student work that stands out from their peers and embodies creativity and an understanding beyond the classroom.
- 2021 - 2024 **3x James B. Angell Scholar Designation**, *University of Michigan*
Awarded to students who have all grades of A+, A, or A- for two or more consecutive terms.
- 2020 - 2024 **7x University Honors Designation**, *University of Michigan*
Awarded to students who earned a 3.5 grade point average or higher during a term.
- March 2021 **William J. Branstrom Freshman Prize**, *University of Michigan*
Awarded to first-term freshmen who rank in the top 5% of their class.

Teaching and Outreach

- September 2023 **Telescope Operator**, *University of Michigan*, Part-Time, Ann Arbor, MI
- April 2024 Learned how to operate the 0.4m Ritchey-Chretien reflector telescope in the Angell Hall Observatory at the University of Michigan, along with several smaller telescopes. With this training, helped run weekly observing nights for introductory astronomy courses and answer questions about the telescopes as well as general astronomical knowledge. Additionally helped run observing open houses for the Student Astronomical Society.

Organization Membership

- August 2020 - **Michigan Marching Band**, *University of Michigan*, Ann Arbor, MI
April 2024 Joined the **student leadership team as a Rank Leader** in August 2023, helping to instruct marching technique, refine section performance, and act as a liaison between the directors and section members. Student leadership is also required to attend weekly leadership meetings and host marching office hours. The ensemble rehearses Monday-Thursday for 1.5 hours a day during the Fall semester. During weeks with home games (or away games against rivalry teams), there is an additional 2 hour rehearsal on Friday and a full-day commitment on Saturday. When applicable, post-season travel is further required.
- August 2020 - **Student Astronomical Society**, *University of Michigan*, Ann Arbor, MI
April 2024 Assisted with running the Angell Hall Observatory for public open houses, including operating the telescope when the weather was clear or giving tours when it was cloudy.

Skills

- Programming Experienced – Python, C/C++, LaTeX
Intermediate – MATLAB
- Language English – First Language
Polish – Conversational