# SARAH STAMER

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## EDUCATION

**University of New Mexico**
Ph.D. Physics with Astrophysics Concentration — August 2024 - May 2030 (Expected)
M.S. Physics with Astrophysics Concentration — August 2024 - May 2026
GPA: 3.93

**University of Arizona**
B.S. Astronomy (with Honors) and Physics — August 2020 - May 2024
Study Abroad with the Arizona In Orvieto (Italy) Program — May 2023 - June 2023
GPA: 3.785, Magna Cum Laude
Honors Thesis: *Analyzing Student Reasoning In Astrobiology MOOC Writing*

## RESEARCH EXPERIENCE

**Graduate Research Assistant** — August 2024 - Present
Project: Analyzing JWST Observations of the Exoplanet LTT 9779 b
Advisor: Dr. Diana Dragomir, University of New Mexico Department of Physics and Astronomy

- Leading the analysis of transmission spectrum data obtained using the NIRSpec instrument on JWST
- Incorporating JWST/NIRISS transmission spectrum data through an independent spectral extraction
- Using the Python code package Eureka! to perform spectral extraction for the NIRSpec and NIRISS data
- Executing atmospheric retrievals on the spectrum using the Python code package petitRADTRANS
- Creating forward models and grids of clouds using the picaso and virga Python code packages
- Utilizing high-performance computing resources to speed up the atmospheric retrievals and cloud modeling

**Undergraduate Research Assistant** — January 2024 - August 2024
Project: Atmospheric Modeling of Post-Habitable Exoplanets with the Habitable Worlds Observatory
Advisor: Dr. Tyler Robinson, University of Arizona Lunar and Planetary Laboratory

- Utilized Venus and its atmosphere as an analog to explore post-habitable exoplanets and atmospheres
- Degraded model spectra based on Venusian spectra to simulate the spectra from an exoplanet mission
- Used the Python code package rfast to execute atmospheric retrievals with different complexities and spectral ranges

**Honors Thesis Research** — January 2023 - August 2024
Project: Analyzing Student Reasoning in Astrobiology Massive Open Online Course Writing
Advisor: Dr. Chris Impey, University of Arizona Department of Astronomy/Steward Observatory

- Examined student versus expert reasoning on a culminating assignment within an Astrobiology MOOC
- Characterized thousands of student writing assignments by the planet they selected and created a sub-sample for analysis
- Developed methods of coding and comparison to analyze hundreds of writing assignments to examine the content they include

**National Science Foundation Research Experience for Undergraduates** — May 2022 - July 2022
Project: Compositional Links Between Rocky Exoplanets and Their Host Stars
Advisor: Dr. Diana Dragomir, University of New Mexico Department of Physics and Astronomy

- One of 9 students and the only rising third-year student selected for the program (149 applicants)
- Used the Python code package SPECIES to obtain stellar elemental abundances directly from spectra
- Developed software to calculate stellar molar ratios, stellar compositional mass fractions, and exoplanetary compositional mass fractions (code on GitHub)
- Compared compositional mass fractions numerically and graphically to examine trends (code on GitHub)

**Undergraduate Research Assistant** January 2021 - August 2024
Projects: Combating Science Misinformation Online and Scalable Grading of Student Writing
Advisor: Dr. Chris Impey, University of Arizona Department of Astronomy/Steward Observatory

- Classified 295+ scientific and pseudoscientific articles (physics, astronomy/astrophysics, and astrology) as real or fake science
- Extracted and tagged 615+ claim-evidence pairs from articles and student writing
- Constructed datasets containing large volumes of validated real and fake scientific content for machine-learning training and evaluation
- Performed comparative analysis of peer, instructor, GPT-3.5, and GPT-4 grading feedback on 120 student writing submissions from three Massive Open Online Courses (MOOCs)
- Developed and implemented a thematic coding framework to quantify feedback trends and patterns across MOOC assessments

## HONORS & AWARDS

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| William G. Larsen, PhD, Memorial Award for Best Teaching Assistant ($300) | 2026 |
| University of New Mexico Lobo Leadership and Involvement Award | 2026 |
| New Mexico Space Grant Graduate Research Fellowship ($10,000) | 2025 - 2026 |
| Sagan Summer Workshop Travel Grant ($1,800) | 2025 |
| Astronaut Scholarship ($15,000) | 2023 |
| Inducted into Phi Beta Kappa, Alpha of Arizona Chapter | 2023 |
| University of Arizona Goldwater Scholarship Nominee | 2023 |
| University of Arizona NASA Space Grant Undergraduate Research Internship | 2021 - 2022 |
| Stamps Scholarship ($30,000/year) | 2020 - 2024 |
| University of Arizona National Merit Scholar ($18,000/year) | 2020 - 2024 |

## TEACHING, SERVICE, & OUTREACH

**Women in Physics, Astronomy, and Optics (WiPAO)** February 2025 - Present
2026: WiPAO Meeting Manager

- Prepare the agenda, announce, moderate, and take minutes in biweekly officer meetings
- Keep track of which officers are assigned to various tasks for events, and follow up on approaching deadlines

2025: WiPAO Chief of Communications and Web

- Making and distributing posters and advertisements for biweekly social and educational events
- Update Instagram, website, and Discord with event information, flyers, and resources for members

**Volunteer Telescope Operator, UNM Campus Observatory** August 2024 - Present

- Working with other operators to find and show objects of interest in the night sky, providing the public and students in astronomy courses with information on these objects as they look through the telescope
- Entertaining guests and answering their questions about astronomy as they wait in the telescope lines

**Physics and Astronomy Graduate Student Association (PandA GSA)** August 2024 - Present
2026-2027 Academic Year: GSA Co-President

- Support the general functioning of the GSA and the rest of the cabinet in their duties
- Act as a liaison between students, the department chair, and the graduate committee

2025-2026 Academic Year: GSA Communications Officer and Secretary

- Sending biweekly GSA event information and flyers through email and Discord to keep students updated
- Taking meeting minutes during GSA cabinet meetings to ensure events are effective and successful
- Reviving the PandA GSA Instagram account to share event flyers and content from events

2024-2025 Academic Year: GSA Web Technology Officer; Representative to UNM Graduate and Professional Student Association (GPSA)

- Developed a list of resources for new and current grad students to utilize during their graduate career
- Attended monthly GPSA meetings and reported back to the GSA cabinet on what was discussed

**Graduate Teaching Assistant** August 2024 - May 2026

Spring 2026: PHYS 1125 Lecture, 47 students enrolled
Fall 2025: Two Sections of ASTR 1115L, 57 total students enrolled
Spring 2025: Two Sections of ASTR 1115L, 60 total students enrolled
Fall 2024: One Section of ASTR 1115L, 24 students enrolled

- ASTR 1115L (Introductory Astronomy Lab): Develop and deliver presentations to students to help them understand concepts in the week's lab, answer student questions during the lab, and grade labs and observing projects
- PHYS 1125 (Physics of Music): Host twice-weekly office hours to help students with worksheets and online quizzes, grade weekly worksheets and monthly in-class quizzes

**LOC, From Transits to Trends: The Next Decade of Long-Period Exoplanets** August 2025

- Provided tech support and training, filmed talks and discussions, assisted with planning and hosting LOC-led social activities, and created a Slack channel for conference attendees to utilize

**From Dark Skies to Distant Worlds** March 2025

- Invited by the Astronaut Scholarship Foundation to share about my journey in STEM as part of the Women's History Month Speaker Series at Space Center Houston

## PUBLICATIONS

Saha, S., Jenkins, J. S., Brande, J., et al. (incl. **Stamer, S.**), 2026, *Glossy Silicate Clouds on the Scorched Dayside of LTT9779b*. Submitted to ApJ Letters.

Brande, J., Crossfield, I. J. M., Ashtari, R., et al. (incl. **Stamer, S.**), 2026, *Carbon dioxide and evidence for water in a stripped Hot Jupiter*. Submitted to AJ.

Ashtari, R., Collins, S., Splinter, J., et al. (incl. **Stamer, S.**), 2026, *Heat Reveals What Clouds Conceal: Global Carbon & Longitudinally Asymmetric Chemistry on LTT 9779 b*. AJ, 171, 215.

Impey, C., Wenger, M., Garuda, N., Golchin, S., and **Stamer, S.**, 2025, *Using Large Language Models for Automated Grading of Student Writing about Science*. IJAIED, 35, 1825–1859.

## SELECTED PRESENTATIONS

**As First Author:**

*Analyzing the JWST/NIRSpec Transmission Spectrum of LTT 9779 b* April 2026
Contributed Talk, New Mexico Space Grant Consortium Virtual Research Colloquium

*Analyzing the JWST/NIRSpec Transmission Spectrum of LTT 9779 b* January 2026
Contributed Talk, 247th Meeting of the American Astronomical Society

*JWST/NIRSpec Transmission Spectrum of the Ultrahot Neptune LTT 9779 b* November 2025
Poster, 41st Annual New Mexico Symposium

*Analyzing Spectral Features in the JWST/NIRSpec Transmission Spectrum of LTT 9779b* July 2025
Poster, 2025 Sagan Summer Workshop (Silver Jubilee: Exoplanet Demographics)

*Exploring the Atmosphere of Desert-Dwelling LTT 9779b using JWST/NIRSpec* April 2025
Poster, Atmospheric Characterization of Rocky to Giant Exoplanets in Thermal Emission with JWST

*Using Machine Learning to Detect Science Misinformation* January 2023
iPoster, 241st Meeting of the American Astronomical Society

*Super-Earths, Super-Mercuries, and Solar-Type Stars: Compositional Similarities Between Rocky Exoplanets and Their Host Stars* January 2023
Contributed Talk, 241st Meeting of the American Astronomical Society

**As Co-Author:**

*Using Large Language Models for Automated Grading of Student Writing about Science* January 2026
iPoster, 247th Meeting of the American Astronomical Society

*Using Large Language Models to Assess Student Writing* January 2025
iPoster, 245th Meeting of the American Astronomical Society

*Using Large Language Models to Assess Student Writing* August 2024
Contributed Talk, Astronomical Society of the Pacific 2024: Astronomy Across the Spectrum