

Anna Ruth Taylor

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Website: <http://astro.physics.ncsu.edu/~ataylo24/index.html>

EDUCATION

North Carolina State University - Raleigh, NC

AUGUST 2019 - MAY 2023

- Honors B.S. in Physics - GPA: 3.97
- Minors in Math and Computer Science

Lunar and Planetary Laboratory, University of Arizona - Tucson, AZ

AUGUST 2023 - EXPECTED 2028

- Ph.D. in Planetary Sciences, Minor in Astronomy
 - Thesis Advisor: Dr. Tommi Koskinen
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PROFESSIONAL EXPERIENCE

Lunar and Planetary Laboratory/Dr. Tommi Koskinen - Research Assistant

AUGUST 2023 - PRESENT

- Investigating the He I triplet absorption at 1083 nm in hot escaping exoplanet atmosphere to understand trends in the transit depths and make connections to mass-loss
- Run Fortran/C++ atmosphere modeling codes and analyze output with Python

NASA/GSFC Internship/Dr. Sarah Peacock - Astrophysics Researcher

JUNE 2022 - FEBRUARY 2023

- Compute photosphere+chromosphere models and ultraviolet-to-near-infrared synthetic spectra for AFGKM type stars using the PHOENIX atmosphere code.
- Use Python and IDL programs to analyze and visualize stars' synthetic spectra.
- Wrote the first-author publication on results accepted in the Astrophysical Journal.

North Carolina State University/Dr. John Blondin - Astrophysics Researcher

APRIL 2020 - AUGUST 2023

- Study shocks and gas flow in astrophysical objects on a stellar scale using the Fortran code VH-1 developed by Dr. John Blondin and collaborators.
- Use Python and Ensign programs to analyze and visualize data from computational binary star models.
- Writing publication on results to be submitted to the Astrophysical Journal.

Women in Physics Club - Vice President

AUGUST 2022 - MAY 2023

- Organized and attended career talks, social gatherings, and panel discussions.
- Provided resources and advice to other women in the undergraduate physics program.

Senior Design - Critical Lead

AUGUST 2022 - DECEMBER 2022

- Participation in a senior design project in which we had to create a precise positioning system for a lead gamma ray collimator in a vertical plane.
- As the critical lead, I kept design plans realistic, managed our time, and recorded notes.

Post Road Foundation - Researcher

FEBRUARY 2022 - AUGUST 2023

- Ran energy modeling simulations using NREL's ReStock housing stock code
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PRESENTATIONS

NASA Goddard's Code 660 Summer Intern Symposium

AUGUST 2022

- I presented a poster titled "Stellar activity, structure, and the chromosphere" on refining stellar parameters with the PHOENIX atmospheric code to find chromospheric correlations.

North Carolina State Physics Department McCormick Undergraduate Research Symposium

MAY 2022

- Presented a poster on my X-ray binary Vela X-1 research titled "The Effect of Wind Speed and Roche Lobe Geometries on the Wind Dynamics of Vela X-1."

Senior Design Presentation

DECEMBER 2022

- Presented Senior Design project to the NCSU Physics department
- [Link to Presentation](#)

American Astronomical Society iPoster Presentation

JANUARY 2023

- Presented my research on stellar chromospheres with NASA at the AAS Meeting in Seattle, WA
- [Link to iPoster](#)

NCSU Abstract YouTube Presentation

JANUARY 2023

- Presented my research on X-ray binary Vela X-1 through a video abstract presentation
- [Link to Video](#)

Rodney I. McCormick Award Presentation

MAY 2023

- Gave a 30-minute talk on my research on X-ray binary Vela X-1 and stellar chromospheres in honor of receiving the Rodney I. McCormick Award

AWARDS & ACHIEVEMENTS

- **2023 Rodney I. McCormick Award:** Awarded the Rodney I. McCormick Award in recognition of my research accomplishments as a physics undergraduate student.
- **John Mather Nobel Scholar:** Awarded the John Mather Nobel Scholar travel award in 2022
- **The Office of Undergraduate Research 2021 Envisioning Research contest:** won the contest in the undergraduate student video and interactive category for "Wind Driven Accretion onto a Black Hole," a visualization of the M33 binary system using VH-1 hydrocode and Ensight.

PUBLICATIONS

- **Anna Taylor,** Audrey Dunn, Sarah Peacock, Allison Youngblood, and Seth Redfield, *Correlating Intrinsic Stellar Parameters with Mg II Self-Reversal Depths:* (Accepted for Publication in ApJ)

MANUSCRIPTS

- John Blondin, **Anna Taylor,** *Wind Captured Disk:* (In Prep, to be submitted to ApJ)
- Sarah Peacock, Lori Husbey, Malia Barker, **Anna Taylor,** Audrey Dunn, Travis S. Barman, Dominik Hintz, Evgenya L. Shkolnik, *PEGASUS: PHOENIX EUV Grid And Stellar Ultraviolet Spectra :* (In Prep, to be submitted to ApJ)

OUTREACH

Arizona Science Center Volunteer and Girls Who STEM Mentor - AUGUST 2023 - PRESENT

- Serve as a mentor to young girls participating in Girls Who STEM events

CUWiP Grad Student Admissions Panel - JANUARY 2024

- Served in a panel discussing graduate admissions to undergraduates at the 2024 CUWiP conference

STEAM Night at Esmond Station K-8 School - JANUARY 2024

- Represented LPL at STEAM night, an outreach event with booths for departments/clubs to get elementary/middle schoolers interested in STEAM