

EDUCATION

UNIVERSITY OF WISCONSIN-MADISON

Expected May 2028

Astronomy Ph.D.

National Science Foundation Graduate Research Fellow

UNIVERSITY OF PITTSBURGH

Conferred May 2022

B.S. in Physics and Astronomy (Summa cum Laude)

RESEARCH EXPERIENCE

- **RUBIES MZR** 2023-Present
Department of Astronomy, University of Wisconsin-Madison, Madison, WI
Characterize mass–metallicity relation of massive galaxies in RUBIES at $z \sim 4$, in collaboration with Prof. Michael Maseda.
- **Mock Catalog MZR Bias Characterization** 2022-Present
Department of Astronomy, University of Wisconsin-Madison, Madison, WI
Use mock catalog to explore bias introduced by selection functions and number statistics of upcoming and current efforts by JWST surveys to characterize the high-redshift mass–metallicity relation, in collaboration with Prof. Michael Maseda.
- **LEGA-C Mass–Metallicity Relation** 2019-2024
Department of Physics and Astronomy, University of Pittsburgh, Pittsburgh, PA
Researched the gas phase mass-metallicity relation of massive star-forming galaxies in the LEGA-C dataset at $z \sim 0.8$, in collaboration with Prof. Brett Andrews and Prof. Rachel Bezanson.
- **ATLAS Collision Detection** 2019
Department of Physics and Astronomy, University of Pittsburgh, Pittsburgh, PA
Worked with ROOT and C macros to analyze particle collisions in the ATLAS Detector at the Large Hadron Collider, in collaboration with Prof. Tae Min Hong.

COMMUNITY INVOLVEMENT

Climate Committee Graduate Student Representative

2023-

- Was elected as one of two graduate student representatives on the UW-Madison Astronomy Department Climate Committee. Primary role included the creation, distribution, and analysis of a department-wide climate survey.

Secretary of Society of Physics Students Chapter

2021-2022

- Was elected secretary of SPS chapter. In this role, I created a “physics survival guide” that included a set of detailed instructions on how to begin coding in Python, including introductory scripts with information relevant to those doing research in astronomy.

Undergraduate Mentoring in Society of Physics Students

2020-2021

- Mentored two undergraduate students through the University of Pittsburgh’s chapter of SPS while an upper-year undergraduate. This experience helped me to develop my mentoring style—such as creating a dynamic, two-way relationship that encourages feedback and allows me to be responsive to the mentee’s changing needs.

Department Equity and Inclusion Committee Member 2020-2021

- Was elected to the Department’s Equity and Inclusion Committee. Throughout my time on this committee, I learned what it takes for department policy to be changed, ways to present ideas for said change so that it is palatable to the many different strata of a department, and how best to use institutional knowledge to the advantage of equity work.

TEACHING EXPERIENCE

Teaching Assistant for Undergraduate Astronomy Course Fall 2023

University of Wisconsin-Madison

- Teaching assistant for undergraduate astronomy course geared at non-majors: “The Dark Side of the Universe”. Topics included black holes, dark matter, and dark energy. In this role I led review sessions and hosted office hours.

CONFERENCES AND WORKSHOPS

IMPRS “Unraveling Galaxy Evolution with JWST” Summer School September 2023

Heidelberg, Germany

- Attended week-long workshop hosted by Max Planck Institute for Astronomy. Lectures and hands-on lessons covered JWST data reduction, proposal writing, and the physics of nearby and distant galaxies.

LEGA-C Collaboration Meeting June 2022

Bruges, Belgium

- Attended collaboration meeting for Large Early Galaxy Astrophysics Census (LEGA-C) survey. Presented on my work on the LEGA-C mass–metallicity relation.

Astrophysics Boot Camp May 2021

Pittsburgh, PA, USA

- Contributed a talk on advanced NumPy techniques to week-long astrophysics boot camp hosted by University of Pittsburgh as an undergraduate. This “camp” taught astronomical coding subjects such as astronomical software libraries and accessible plotting practices.

PUBLICATIONS

The Gas-Phase Mass–Metallicity Relation for Massive Galaxies at $z \sim 0.7$ with the LEGA-C Survey. Lewis, Z., et al. 2023. arXiv:2304.12343.

JWST/NIRSpec Measurements of Extremely Low Metallicities in High Equivalent Width $\text{Ly}\alpha$ Emitters. Maseda, M., Lewis, Z., et al. 2023. ApJ 956 1.