Mairead Heiger

Toronto, ON, Canada | mairead.heiger@mail.utoronto.ca | https://heigerm.github.io/

EDUCATION

PhD in Astronomy and Astrophysics, University of Toronto — 2021-Present
In progress

B.S with Honors in Physics, University of Pittsburgh — 2016-2020
Minors: Mathematics and Economics
Member Phi Beta Kappa and $\Sigma\Pi\Sigma$ honor societies

RESEARCH EXPERIENCE

University of Toronto — Oct. 2021-Present
Hydrodynamics of Pulsational Pair Instability Supernovae
Supervisor: Dr. Christopher Matzner

University of Pittsburgh — 2017-2020
The Delay-time Distribution of Variable Stars
Supervisor: Dr. Carles Badenes
Studied the evolution, lifetimes, and progenitors of variable stars

Kansas State University — 2018
Towards the Simulation of Bulk Properties via Molecular Dynamics
Supervisor: Dr. Jeremy Schmit
Constructed analytic models to quantify effects of fluctuations in local salt content on biomolecular interactions, to improve molecular dynamics simulations

TEACHING EXPERIENCE

Teaching Assistant — 2022, 2021
AST201: Stars and Galaxies AND AST101: The Sun and its Neighbors
University of Toronto

- Lead multiple weekly tutorials with one other TA for 20-40 students in introductory astronomy courses
- Facilitate small group discussion, interactive poll questions, and review of course material; answer student questions
- Mark term projects and exams

PUBLICATIONS

Sarbadhicary, S. K., **Heiger, M.,** Badenes, C., Mateu, C., Newman, J. A., Ciardullo, R., Hallakoun, N., Maoz, D., & Chomiuk, L. (**2021**). *The RR Lyrae Delay-Time distribution: A novel perspective on models of old stellar populations*. The Astrophysical Journal, 912(2), 140. https://doi.org/10.3847/1538-4357/abca86

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AWARDS

Honorable mention, NSF Graduate Research Fellowship — 2020

NASA PA Space Grant Consortium Scholarship — SUMMER 2019, FALL 2018, SPRING 2018

Best Oral Presentation, *Conference for Undergraduate Women in Physics at the College of New Jersey* — JAN. 2019

Julia Thompson Award for Excellence in Undergraduate Writing, *University of Pittsburgh* — 2019, 2018

Thomas-Lain Scholarship Award, *University of Pittsburgh* — 2019

NSF Research Experience for Undergraduates at Kansas State University — 2018

PRESENTATIONS

Oral Presentation**,** "Over the Hills and Star Delay: Investigating the Evolution of Variable Stars," *PGH Conference for Undergraduate Women in Physics* — 2020

Poster**,** "Time after Time: The Delay-Time Distribution of δ Scuti Variable Stars," *PGH Conference for Undergraduate Women in Physics* — 2020

Plenary Talk, "Scuti-Dooby Doo: The Delay-Time Distribution of δ-Scuti Variable Stars", *Duquesne Research Symposium* — 2019

Oral Presentation, "Candles in the Cosmic Wind: Lifetimes of Cepheid Variable Stars", *Conference for Undergraduate Women in Physics at the College of New Jersey* — 2019

OUTREACH AND EXTRACURRICULAR

Mediation Committee, *Graduate Astronomical Student Association* — 2021-2022

- Mediate discussions between faculty and students
- Research issues brought up by graduate students to present to faculty
- Compile yearly report on graduate student finances

How to Apply to Graduate School, *workshop at the University of Toronto* — MARCH 2022

- Led workshop for undergrads in astronomy on applying to graduate school as part of the undergraduate mentorship program

SKILLS

Python, MATLAB, R
Data visualization

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REFERENCES

Dr. Carles Badenes
Associate Professor, University of Pittsburgh
badenes@pitt.edu
Relationship: former research advisor

Dr. Jeremy Schmit
Associate Professor, Kansas State University
schmit@phys.ksu.edu
Relationship: former research advisor

Dr. William Layton
Professor, University of Pittsburgh
wjl@pitt.edu
Relationship: former professor