

Christine Mazzola

She/Her

Ph.D. Candidate

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Dept. Physics and Astronomy

University of Pittsburgh
3941 O'Hara Street
Pittsburgh, PA 15260
(*US Citizen*)

EDUCATION

Mississippi State University

Fall 2012 – Spring 2016

B.S. Physics, Mathematics minor
Summa cum laude (*GPA: 3.93*)
Member of Shackouls Honors College

University of Pittsburgh

Fall 2016 – Spring 2022

M.S. Physics (*Fall 2016 – Spring 2018*)
Ph.D. Physics (*in progress, GPA: 3.67*)
Advisor: Prof. Carles Badenes
Dissertation: Stellar Multiplicity Statistics in APOGEE

RESEARCH EXPERIENCE

Graduate Student Researcher, Pitt

Summer 2017 – Present

Research Advisor: Prof. Carles Badenes
Topics: Doctoral research in stellar multiplicity in the APOGEE survey using radial velocity, effective gravity, effective temperature, and metallicity measurements. Developed a Monte Carlo script to simulate binary star systems with various parameters.

Undergraduate Student Researcher, Miss. State

Summer 2015

Research Advisor: Prof. Jim Dunne
Topics: Wrote a script in C to evaluate the thermodynamic performance of a heater for the cryogenic hydrogen system of targets at the Thomas Jefferson Accelerator Facility.

Undergraduate Research Assistant, Miss. State

Summer 2013 – Spring 2016

Research Advisor: Jim Gafford
Topics: Managed the Advanced Electronics Laboratory in the Center for Advanced Vehicular Systems. Built prototype circuit boards from copper-coated fiberglass sheets using the lab's milling machine and soldered the boards' components. Tested and studied a Simulink model file for a vehicle's powertrain as part of an externally funded Army project.

PUBLICATIONS

The Close Binary Fraction as a Function of Stellar Parameters in APOGEE: A Strong Anticorrelation With α Abundances

Mazzola, C., Badenes, C., Moe, M., et al. 2020, MNRAS, 499, 1607

Stellar Multiplicity Meets Stellar Evolution and Metallicity: The APOGEE View

Badenes, C., **Mazzola, C.**, Thompson, T. A., et al. 2018, ApJ, 854, 147

HONORS AND AWARDS

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|---|--------------------------|
| Dietrich School of Arts and Sciences Peter F. M. Koehler Predoctoral Fellowship | Fall 2019, Summer 2020 |
| Three Minute Thesis Competition Winner, Dept. Physics and Astronomy, Pitt | Spring 2019, Spring 2020 |
| Dietrich School of Arts and Sciences Predoctoral Summer Research Fellowship | Summer 2017 |
| Miss. State Society of Scholars | Spring 2016 |
| Crow Scholarship, Dept. Physics and Astronomy, Miss. State | Fall 2015 – Spring 2016 |
| Rundel Scholarship, Dept. Physics and Astronomy, Miss. State | Fall 2013 – Spring 2015 |
| Grillot Scholarship, Dept. Physics and Astronomy, Miss. State | Fall 2012 – Spring 2013 |

SCIENTIFIC PRESENTATIONS

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| Contributed Talk, SDSS 2020 Collaboration Meeting, New York, USA <i>Stellar Parameters and Close Binary Fraction in APOGEE</i> | June 2020 |
| Lightning Talk, SDSS 2019 Collaboration Meeting, Ensenada, Mexico <i>Stellar Multiplicity Through the APOGEE Lens</i> Also presented a poster of the same name. | June 2019 |
| Pitt Astrosnacks Seminar Series <i>Stellar Multiplicity Through the APOGEE Lens</i> | Nov. 2018 |
| Pitt Astrosnacks Seminar Series <i>Sparse Sampled RV Curves: Where Stellar Multiplicity, Evolution, and Metallicity Intersect</i> | Feb. 2018 |

INSTRUCTIONAL PRESENTATIONS

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| Pitt AstroPGH Research Boot Camp <i>Matplotlib I: Basics of Formatting</i> <i>Matplotlib II: Advanced Techniques</i> | May 2020 |
| Carnegie Mellon University Astrosnacks Seminar Series <i>Python Plotting 101</i> | Sept. 2019 |

MENTORING AND SUPERVISION

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| Graduate Student Mentor and Teaching Assistant/Fellow Mentor, Pitt Mentoring three new students through their first year of graduate school as well as serving as a mentor to all physics and astronomy teaching assistants and fellows. | Fall 2020 – Spring 2021 |
| Graduate Student Mentor, Pitt Mentored four new students through their first year of graduate school. | Fall 2019 – Spring 2020 |
| Undergraduate Student Research Co-Supervisor, Pitt Co-supervised Victoria Bonidie and Polina Petrov in summer research alongside Prof. Carles Badenes. | Summer 2019 |
| Graduate Student Mentor, Pitt Mentored three new students through their first year of graduate school. | Fall 2018 – Spring 2019 |

TEACHING

Graduate Teaching Assistant, Pitt

Spring 2020

Course: PHYS 0091: Conceptual Physics

Responsibilities: Prepared and taught 1-hour recitations for 1 section of 26 undergraduates. Held weekly office hours and graded recitation sheets. Second half of semester was entirely online, so held online review sessions for both recitation sections.

Graduate Teaching Assistant, Pitt

Spring 2019

Courses: ASTRON 0088: Stonehenge to Hubble and ASTRON 0089: Stars, Galaxies, and the Cosmos

Responsibilities: Prepared and taught 1-hour recitations for 3 sections of ASTRON 0088 under 2 different instructors and 1 section of ASTRON 0089. Attended instructor's lectures for 1 section of ASTRON 0088. Held weekly office hours and graded recitation sheets.

Graduate Teaching Assistant, Pitt

Fall 2016 – Spring 2017

Course: ASTRON 0089: Stars, Galaxies, and the Cosmos

Responsibilities: Prepared and taught 1-hour recitations for 5 sections of 30-40 undergraduates. Attended professor's lectures. Held weekly office hours and graded recitation sheets.

Laboratory Supervisor, Miss. State

Spring 2015, Spring 2016

Course: ECE 4653/6653: Introduction to Power Electronics

Responsibilities: Ordered parts for and created student kits. Set up laboratory space and scheduled student time slots. Monitored student use of lab equipment and answered student questions, including Skyping distance students.

WORKSHOP/CONFERENCE ATTENDANCE

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| SDSS 2020 Collaboration Meeting, New York, USA | June 2020 |
| Women in Medicine and Science Forum, Pitt | Nov. 2019 |
| Negotiation and Management Workshop for Women in Sciences, Pitt | Nov. 2019 |
| APOGEE Stellar Companions Paper Sprint, UVA | Oct. 2019 |
| SDSS 2019 Collaboration Meeting, Ensenada, Mexico | June 2019 |
| LSST Community Brokers Workshop, Seattle, Washington | June 2019 |
| APS Conference for Undergraduate Women in Physics, Georgia Tech | Jan. 2016 |
| APS Conference for Undergraduate Women in Physics, UM | Jan. 2015 |

PROFESSIONAL MEMBERSHIPS

Sloan Digital Sky Survey IV: APOGEE-2 Survey

Sloan Digital Sky Survey V

BROADER IMPACT

Pitt Women and Minorities in Physics

Fall 2019 – Present

Member; attend bi-weekly meetings and helped with with various efforts, including participating in an APS Committee on the Status of Women climate visit.

Volunteer at APS Conference for Undergraduate Women in Physics at Pitt

Jan. 2020

Helped present a variety of physics demonstrations to conference attendees as they waited for the conference to formally begin.

Miss. State Society of Physics Students Vice President

2015

Member from Spring 2014 until graduation in Spring 2016.