

MARY GEER DETHERO

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EDUCATION

Georgia State University

PhD in Astronomy

MS in Physics, Astronomy Concentration

Expected May 2024

Lehigh University

Bachelor of Science, Astrophysics

Minor in Applied Mathematics

August 2015 - May 2019

RESEARCH EXPERIENCE

Graduate Research Assistant, Georgia State University

Advisor: Jane Pratt

Investigate hydrodynamic simulations of binary stars with MUSIC code.

July 2019 - present

Eckardt Senior Thesis Project, Lehigh University

Advisor: M. Virginia McSwain

Used Gaia data to investigate galactic structure and model the stellar density of the Milky Way galaxy.

August 2018 - May 2019

Independent Research Project, Lehigh University

Advisor: M. Virginia McSwain

Compared Gaia data for massive O stars in order to investigate the kinematics and rotation curve of the Milky Way Galaxy and behavior of runaway stars.

January 2018 - May 2018

Summer Intern, National University of Ireland in Galway

Advisor: Matthew Redman

Assisted with the development of computer program PyCross to analyze spectral data from 3-D digital models of nebulae created in the Shape program.

June 2017 - July 2017

PRESENTATIONS

Talks:

M. G. Dethero, “Stellar Convection,” Summer Lunch Talk for Undergraduates, Georgia State University, Virtual, 15 July 2021.

J. Pratt, I. Baraffe, **M. G. Dethero**, K. Gartner, Convective overshooting in hydrodynamic simulations of the F-type eclipsing binary BW Aquarii, American Astronomical Society, 235th meeting, Honolulu, HI, 6 Jan. 2020.

Dethero, M. G., McSwain, M. V., “Investigating Milky Way Structure with Gaia,” Eckardt Scholar Senior Thesis Presentation, Bethlehem, PA, 5 May 2019.

Posters:

Dethero, M. G., Pratt, J., Baraffe, I. “A comparison of the filling factor in hydrodynamic simulations of pre-main-sequence stars,” Cool Stars 20.5, Virtual, 25 Feb. 2021. Poster.

Dethero, M. G., Pratt, J., “A first look at convective overshooting in hydrodynamic simulations of the F-type eclipsing binary BW Aquarii,” Royal Astronomical Societys Early Career Poster Exhibition, Virtual, 14-28 Sept. 2020. Poster.

Dethero, M. G., McSwain, M. V., “Investigating Milky Way Structure with Gaia,” 39th Annual Central Pennsylvania Consortium Astronomers Meeting, Gettysburg, PA, 27 Apr. 2019. Poster.

Dethero, M. G., McSwain, M. V., “Kinematics of the Milky Way Galaxy,” Lehigh University Undergraduate Research Symposium, Bethlehem, PA, 3 May 2018. Poster.

TEACHING EXPERIENCE

Teaching Assistant, Georgia State University *August 2020 - present*
PHY 3550 - Mathematical Methods and Computational Physics I (1 section, online)
PHY 3560 - Mathematical Methods and Computational Physics II (1 section, online)
Lecturer, Georgia State University *February 2020*
ASTR 1010 - Solar System Astronomy (1 75 minute lecture)
Lab Instructor, Georgia State University *August 2019 - August 2020*
ASTR 1020 - Stellar and Galactic Astronomy (2 sections)
ASTR 1010 - Solar System Astronomy (4 sections: 3 in person, 1 online)

SKILLS

Computer Skills:

Python, Fortran, Linux, Bash, Emacs, L^AT_EX.

Astrophysical Codes:

MESA, MUSIC, Rayleigh.

Workshops:

XSEDE HPC Workshop: MPI *September 1-2, 2020*

UKMHD 2021 *May 17-23, 2021*

Kavli Summer Program in Astrophysics Conference: Fluid of the Sun and Stars *June 6-11, 2021*

AWARDS AND HONORS

Second Century Initiative Fellow, Georgia State University *August 2019 - present*

Eckardt Scholar, Lehigh University *August 2015 - May 2019*

Alice P. Gast Women in STEM Scholarship, Lehigh University *August 2015 - May 2019*

Lehigh Scholar Award, Lehigh University *August 2015 - May 2019*