

Joni Marie Clark Cunningham

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Education

Fisk University Nashville, TN

Fall 2017 - Currently

Masters of Science in Physics

Courses Completed:

Math Methods for Physicists, Stellar Astrophysics, Structure and Dynamics of Galaxies, Orders of Magnitude, Professional Development, Structure and Formation in the Universe, Radiative Processes, Electricity and Magnetism, Orders of Magnitude, Professional Development

New Mexico State University, Las Cruces, NM

Spring 2012 – Spring 2016

Bachelors of Science in Physics, Astronomy minor

Graduated May 2016

Courses Completed:

Revolutionary Ideas in Science, Into the Final Frontier: The History of Human Space Flight, Engineering Physics, Life in the Universe, Introductory Computational Physics, Astronomical Observation, Science Ethics and Society, Electricity and Magnetism, Topics in Modern Astrophysics, Modern Physics, Research and Writing, Intermediate Mechanics, Thermodynamics, Forensic Physics, Advanced Physics and Quantum Physics

Experience

Research Assistant Fisk/Vanderbilt University I, II

August 2017 - Currently

Nashville, TN

I: Organized and analyzed near infrared spectra from the Sloan Digital Sky Survey for a subset of binary stars also observed by the Kepler spacecraft. Extracted orbital and stellar parameters through combined spectral-light curve analysis and used these parameters to test stellar theory. Effectively communicated findings in publication and in a Talk Session at the AAS 233rd meeting in Seattle, Washington.

II: Explore stellar origins and evolution using Gaia common kinematics and distance estimates.

Research Assistant New Mexico State University I, II, III

August 2011 - August 2017

Las Cruces, New Mexico

III: Organized and analyzed near infrared spectra from the Apache Point Observatory telescopes.

Effectively modeled these data for future publication and presented research at the American Astrophysical Society 228th meeting in San Diego, poster session.

II: Created and ran gravitational simulations to determine orbital stability in binary systems and extracted organized and analyzed resultant data. Effectively communicated findings through publication and presented research at the American Astrophysical Society 222nd meeting in Indianapolis, poster session.

III: Organized and analyzed data on stellar evolution and effectively modeled these data for publication. Presented results at the American Astrophysical Society 221st meeting in Long Beach, poster session.

Dona Ana Community College Science Learning Assistant

January 2011 – May 2016

Created lesson plans and lectures, lead and coordinated laboratory assignments for Astronomy and Physics classes. Assessed students' grades for assignments and provided tutoring services. Co-authored *Virtual Laboratory Exercises for Introductory Astronomy* ISBN: 978-073808210-3. Constructed and maintained webpages and digital content for a variety of classes.

Publications

APOGEE/Kepler Overlap Yields Orbital Solutions for a Variety of Eclipsing Binaries

Joni Marie Clark Cunningham, Meredith Rawls, Diana Windemuth, Aleezah Asis, Jason Jackiewicz, Eric Agol, Keivan Stassun
July 2019, The Astronomical Journal

Rotational Synchronization May Enhance Habitability for Circumbinary Planets

P. A. Mason, J. I. Zuluaga, J. Clark, P. A. Cuartas
2013, Kepler Case Studies, The Astronomical Journal 774 L26

Circumbinary Habitability Niches

P. A. Mason, J. I. Zuluaga, P. A. Cuartas-Restrepo, J. Clark
July 2015, International Journal of Astrobiology, Volume 14, Issue 3

Virtual Laboratory Exercises for Introductory Astronomy

P.A. Mason, H. Noriega – Mendoza, J. M. C. Cunningham
Hayden-McNeil Publishing, ISBN 978-0-7380-8210-3

Engagement

American Astronomical Society

(2011 - Currently)

Society of Astronomy Students Vice President - New Mexico State University

(2013 - 2015)

Society of Physics Students Associate Zone Councilor – New Mexico State University

(2014 - 2016)

Big Brothers Big Sisters of Southwestern New Mexico

(2013 - 2017)

Awards and Accomplishments

The National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP) competition

Honorable Mention, (2019)

Vanderbilt PhD Program

Accepted into the Vanderbilt PhD Program (2019).

Fisk-Vanderbilt Masters to PhD Program

Accepted into the Fisk-Vanderbilt Masters to PhD Program (2017).

Sloan Foundation Faculty and Student Team (FAST) Fellowship

Awarded a FAST Fellowship for two years in a row for research under the Sloan Digital Sky Survey (2014 – 2016).