

MEGAN CHRISTINA DAVIS

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EDUCATION

2015 – 2019 Michigan State University (MSU), East Lansing, MI.
Bachelors of Science from the Honors College in Astrophysics with a minor
in Computational Mathematics, Science, and Engineering.

Thesis: Modeling the Radial Migration of Stars and Gas in the Milky Way
Advisors: Dr. Brian O'Shea (MSU/JINA-CEE) and Dr. Benoit Côté
(MSU/Konkoly Observatory)

WORK AND RESEARCH EXPERIENCE

May – Aug. 2018 **National Aeronautics and Space Administration (NASA) Intern**
Jet Propulsion Laboratory in Pasadena, California under Dr. M. Bottom

- Built a fully-automated testbed model of a Starshade-Telescope System to test formation flying concepts to be used in direct exoplanet imaging

May – Aug. 2017 **IceCube International Research Experience for Students (IRES)**
Vrije Universiteit Brussel in Brussels, Belgium under Dr. K. Mulrey

- Worked on data reduction and analysis for the LOFAR Radio Telescope LORA scintillating detectors and made Monte Carlo simulations of cosmic ray showers

May – Aug. 2016 **IceCube Research Experience for Undergraduates (REU)**
University of Wisconsin in River Falls, Wisconsin under Dr. L. McCann

- Studied optical fibers and their properties for possible use in IceCube Gen2 light detectors

*Michigan State University**2019 – Present* **Summer Undergraduate Research Assistant**

Under Dr. A. Stevens and Dr. J. Strader

- Studies compact objects and their spectral variability in the X-ray wavelength via *NICER* data
- Develops new scripts and features for the Stingray Python package that is used for astrophysical spectral-timing analysis

2018 – 2019 **Undergraduate Research Assistant**

Under Dr. B. O'Shea

- Used the NuPyCEE Galactic Chemical Evolution Python code to make simulations of the Milky Way
- Built new functionality to account for radial migration of gas and stars in the thin disk of the Milky Way

2017 – Present **Expert Observer at the Campus Observatory**

- Takes calibration frames and images of various sources, like exoplanet candidates, cataclysmic variable stars, or microlensing events
- Reduces raw data and submits it to the American Association of Variable Star Observers, KELT Collaboration, and Center for Backyard Astrophysics
- Contributed data to the publication: Patterson et al. 2017. OV Bootis: Forty Nights Of World-Wide Photometry. The Society for Astronomical Sciences 36th Annual Symposium on Telescope Science and AAVSO Spring 2017 Meeting. Published by Society for Astronomical Sciences, pp.1-6.

TEACHING AND OUTREACH EXPERIENCE*2019 – Present* **Outreach Coordinator at the MSU Campus Observatory**

- Develops educational activities and displays for the Public Outreach Program, runs social media accounts, and recruits and organizes volunteers for monthly outreach events

2017 – 2019 **Learning Assistant**

- ISP 205 (two semesters): an introductory astronomy course for non-science majors
- AST 207: an introductory course for astronomy majors
- AST 208: an introduction to exoplanets and observational techniques

2016 – 2017 **Resident Assistant in *Case Hall***

- Assisted fellow undergraduate students by providing resources and support to the building community

January 2019 MSU Honors College Student Recruitment Weekend Panelist
November 2018 *Storytellers: The Insight on InSight-* Impact89 FM Radio Interview
October 2018 *Interview a Professional* at Freeman Elementary School in Flint, MI
2015 – 2019 Abrams Planetarium and MSU Observatory Outreach Assistant

PUBLICATIONS

M. Bottom, S. Martin, E. Cady, **M. C. Davis**, et al. 2019. *Starshade formation flying I: optical sensing*, submitted to **Journal for Astronomical Telescopes, Instruments, and Systems** on 28 May 2019.

Flinois, T. L. B., M. Bottom, S. Martin, D. Scharf, **M. C. Davis**, and S. B. Shaklan, 2018. *S5: Starshade technology to TRL 5 Milestone 4 Final Report: Lateral formation sensing and control*, internal NASA [report](#).

AWARDS AND SCHOLARSHIPS

2019 1st Prize in the University Undergraduate Research and Arts Forum (UURAF) for presenting a poster titled Modeling the Radial Migration of Stars and Gas in the Milky Way
2019 Outstanding Teaching Assistant Award from the Department of Physics and Astronomy
2016 – 2017 Most Compassionate Campus Resident Assistant
2016 Alternate Student selected to be sent to the Amundsen-Scott South Pole Station in Antarctica due to excellent work done during [my] IceCube REU
2015 – 2019 The John F. and Edith L. Wilsterman Scholarship Trust
2015 – 2019 Flint Kiwanis Educational Foundation Scholarship

CONFERENCES ATTENDED AND PRESENTATIONS

January 2020 235th meeting of the American Astronomical Society (AAS) in Honolulu, Hawaii- Poster presentation planned
May 2019 JINA-CEE Frontiers and the First Frontiers Summer School at MSU
April 2019 University Undergraduate Research and Arts Forum (UURAF)- Poster presented
January 2019 Conference for Undergraduate Women in Physics (CUWiP) at MSU

COMMITTEES

2019 – Present Astronomy Department Reporting Task Force

- Developing the infrastructure for reporting harassment/bullying/bad behavior within the Astronomy group for students, faculty, and staff

2019 – Present Co-Lead of the Stellar Mentorship Program

- Overseeing the development and implementation of a mentor/mentee program for undergraduates, graduates, and post-doctoral researchers within the Astronomy group

ADDITIONAL SKILLS

Software and Hardware:

- Competent in Python and familiar with C++, HTML, and bash scripting
 - For examples, see my portfolio under my Github username: [davis191](#)
- Regularly uses version control software, like Github, for academic and research work
- Proficient in using AstroImageJ, MaximDL, and XSPEC
- Regularly uses a DSLR and CCD cameras for astrophotography and photometry

Personal Development:

- Proficient in French with elementary German and Dutch language skills
- Trained in conflict resolution and emergency trauma response

EXTRACURRICULAR ACTIVITIES

2016 – 2019 Alpha Omicron Pi Sorority, Beta Gamma Chapter

2018 – 2019 Sigma Pi Sigma Physics Honors Society (President)

2017 – 2019 Order of Omega Honors Society

2015 – 2019 MSU Astronomy Club

2015 – 2019 Society of Physics Students

2018 – 2019 President

2017 – 2018 Vice President

2016 – 2017 Treasurer