Megan Christina Davis

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Education

2020 – Present **University of Connecticut (UConn)**, Storrs, CT.
PhD in Physics, expected in 2024. MSc in Physics, conferred in 2022.

Thesis: Binary Black Holes and Hypervariable Quasars in Massive Time-Domain Surveys
Advisor: Dr. Jonathan Trump

2020 – Present **NSF Graduate Research Fellow**
University of Connecticut with Dr. J. Trump

- Simulates and analyzes time-domain optical observations of binary supermassive black holes (SMBHs) as will be observed via the Vera Rubin Observatory (VRO/LSST)
- Studies the hypervariability and accretion of SMBHs found within the Sloan Digital Sky Survey (SDSS)

2020 – 2022 **Isaac S. and Lois W. Blonder Graduate Research Fellow**
University of Connecticut with Dr. J. Trump

- Curated custom observation designs for the SDSS-V Black Hole Mapper (BHM) Reverberation Mapping (RM) working group
- Compiled the SDSS BHM-RM parent catalog of targets, guiding the future of all observing campaigns within SDSS with this information
- Created a multi-epoch, spectral visualization tool for SDSS observations

2015 – 2019 **Michigan State University (MSU)**, East Lansing, MI.
Bachelors of Science 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)

Five years of research, outreach, and teaching experience, including:

- A NASA internship (Jet Propulsion Laboratory, California, 2018)
- REU and IRES positions with the IceCube collaboration (Wisconsin, 2016 and Brussels, Belgium, 2017)
- Undergraduate (thesis work, 2018-2019) and Post-Baccalaureate (X-ray binaries, 2019-2020) Research Assistant positions

- Three years of Undergraduate Teaching Assistant positions, leading monthly outreach events, and participating in department-wide DEI committees and efforts

Teaching and Outreach Experience

2022 – Present **Co-Organizer of Astronomy on Tap- Storrs, CT**

- Organizes monthly public outreach events comprising of astronomy-themed talks and trivia at local restaurants and bars

2019 – 2020 **Outreach Coordinator at the MSU Campus Observatory**

With Dr. L. Chomiuk

- Developed educational activities and displays for the Public Outreach Program, ran social media accounts, and recruited and organized 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

2015 – 2019 Abrams Planetarium and MSU Observatory Outreach Assistant

2017 – Present **Undergraduate Student Mentor**

2020 – Present	Kaylee Grace (UDel PhD Student, UConn BSc '22) Nina Bolard (UConn BSc '24) Abena Adzenyah (UConn BEng '25)
2017 – 2020	Jessie Miller (Caltech PhD Student, MSU BSc '21) Trevor Fush (Princeton PhD Student, MSU BSc '22) Elizabeth Kowalczyk (MSU BSc '22)

Publications

Bolded work denotes first-authored or significant contribution

[1] Almeida et al. "The Eighteenth Data Release of the Sloan Digital Sky Surveys: Targeting and First Spectra from SDSS-V". In: *ApJL* 267.2 (2023), p. 44.

[2] Bachetti et al. "StingraySoftware/stingray: v1. 1". In: *Zenodo* (2022).

[3] Bachetti et al. "StingraySoftware/stingray: Version 1.0". In: *Zenodo* (2020).

[4] **Bottom** et al. "Starshade formation flying I: optical sensing". In: *JATIS* 6.1 (2020), pp. 015003–015003.

[5] **Davis, Megan C** and Abbie L Stevens. "Spectral Variability of a Soft-intermediate State QPO from MAXI J1820+ 070". In: *RNAAS* 4.6 (2020), p. 95.

[6] **Davis, Megan C** et al. "Reliable Identification of Binary Supermassive Black Holes from Rubin Observatory Time-Domain Monitoring". In: *arXiv preprint arXiv:2311.10851, submitted to ApJ* (2023).

[7] Flinois et al. "S5: Starshade technology to TRL5 Milestone 4 Final Report: Lateral formation sensing and control". In: *Jet Propulsion Laboratory Publications* (2018).

[8] **Fries** et al. "The SDSS-V Black Hole Mapper Reverberation Mapping Project: Unusual Broad-line Variability in a Luminous Quasar". In: *ApJ* 948.1 (2023), p. 5.

[9] Sharp et al. "The Sloan Digital Sky Survey Reverberation Mapping Project: Investigation of Continuum Lag Dependence on Broad-Line Contamination and Quasar Properties". In: *arXiv preprint arXiv:2309.02499, submitted to ApJ* (2023).

[10] Shen et al. "The Sloan Digital Sky Survey Reverberation Mapping Project: Key Results". In: *arXiv preprint arXiv:2305.01014, submitted to ApJ* (2023).

[11] Zeltyn et al. "A Transient "Changing-look" Active Galactic Nucleus Resolved on Month Timescales from First-year Sloan Digital Sky Survey V Data". In: *ApJL* 939.1 (2022), p. L16.

[12] Zeltyn et al. "A TransientChanging-Look'AGN Resolved on Month Timescales From First-Year SDSS-V Data". In: *arXiv preprint arXiv:2210.07258, submitted to ApJ* (2022).

Awards and Scholarships

2020	The Isaac S. and Lois W. Blonder Graduate Research Fellowship (UConn)
2020	NSF Graduate Research Fellowship
2019	Outstanding Teaching Assistant Award from the Department of Physics and Astronomy
2016 – 2017	"Most Compassionate Campus Resident Assistant"
2015 – 2019	The John F. and Edith L. Wilsterman Scholarship
2015 – 2019	Flint Kiwanis Educational Foundation Scholarship

Conferences Attended and Presentations

November 2023	Yale Gravitational Wave Symposium- invited talk and panelist
July 2023	Establishing Multi-messenger astronomy Inclusive Training (EMIT) Summer School, Nashville, TN- talk given
November 2022	SDSS Science Festival, Toronto, ON, Canada
October 2022	Astro Hack Week, Heidelberg, Germany
October 2022	SDSS Software Coding Week, Apache Point Observatory, Sunspot, New Mexico
May 2022	New England Regional Quasar and AGN Meeting (NERQUAM), Storrs, CT- talk given

July 2021	SDSS 2021 Collaboration meeting , virtual- talk given
April 2021	Physics Graduate Student Association annual poster session- Poster presented
January 2020	235th meeting of the American Astronomical Society (AAS) in Honolulu, Hawaii- poster presented
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

2023 - Present UConn Physics Space Committee

- Handles office assignments and room allocations for the department

May 2022 Co-Lead of the Local Organizing Committee for NERQUAM 2022

- Organized the 30th annual, one-day New England Regional Quasar and AGN Meeting (NERQUAM) held in Storrs, CT in May 2022.

2019 – 2020 MSU Astronomy Department Reporting Task Force

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

2019 – 2020 Co-Lead of the Stellar Mentorship Program at MSU

- Oversaw 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
- Regularly uses version control software, like GitHub, for academic and research work
- Proficient in using AstroImageJ, MaximDL, and XSPEC

Personal Development:

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