MEREDITH STONE

meredithstone@arizona.edu

EDUCATION

University of Arizona *2022 - present*
Ph.D. candidate

University of Massachusetts Amherst *2018 - 2022*
B.S. Astronomy and Physics
Summa cum laude; Commonwealth Honors College Scholar with greatest distinction

RESEARCH EXPERIENCE

University of Arizona Tucson, AZ
Department of Astronomy/Steward Observatory *2022 - present*
Advisors: Professor George Rieke, Professor Stacey Alberts

- Probing the host galaxies of high-redshift quasars with JWST/NIRCam photometry, using sophisticated image deconvolution techniques to investigate the coevolution of galaxies and their supermassive black holes over cosmic time (Paper 1, Paper 2)
- Comparing predictions from galaxy formation models and existing infrared data to new, unprecedentedly deep number counts of galaxies in JWST/MIRI photometric surveys (Paper 1)
- Constraining the presence of obscured AGN in local infrared-luminous galaxies by searching for faint, high-excitation emission lines in JWST/MIRI medium-resolution spectroscopy
- Exploring the evolution of interstellar medium conditions out to cosmic noon with JWST/MIRI low-resolution spectroscopy of mid-infrared dust features

University of Massachusetts Amherst Amherst, MA
Five College Astronomy Department *2019 - 2022*
Advisor: Professor Alexandra Pope

- Performed a novel stacking analysis on Spitzer/IRS mid-infrared spectra of (ultra)luminous infrared galaxies
- Developed a correction to a key spectral tracer of black hole accretion for contamination from star formation, allowing for more robust black hole accretion measurements (Paper 1)

Yale University New Haven, CT
Department of Astronomy *2021*
Advisor: Professor C. Megan Urry

- Awarded Dorrit Hoffleit Undergraduate Research Scholarship to pursue a summer of research at Yale
- Created a simulated sample of galaxy and active galactic nucleus (AGN) photometry for use in training a deep learning model to separate normal galaxies from AGN
- Reproduced the optical and infrared colors of quiescent and star-forming galaxies and Type I and Type II AGN

PUBLICATIONS

Stone, M., Alberts, S., Rieke, G., Bunker, A., Lyu, J., Pérez-González, P., and Zhu, Y. "5-25 μm Galaxy Number Counts from Deep JWST Data." *The Astrophysical Journal* 972.62, August 2024. Available here.

Stone, M., Lyu, J., Rieke, G., Alberts, S., and Hainline, K. "Undermassive Host Galaxies of Five $z \sim 6$ Luminous Quasars Detected with JWST." *The Astrophysical Journal* 964.90, March 2024. Available here.

Stone, M., Lyu, J., Rieke, G., and Alberts, S. "Detection of the Low-Stellar Mass Host Galaxy of a $z \sim 6.25$ Quasar with JWST." *The Astrophysical Journal* 953.180, July 2023. Available here.

Stone, M., Pope, A., McKinney, J., Armus, L., Díaz-Santos, T., Inami, H., Kirkpatrick, A., and Stierwalt, S. "Measuring Star Formation and Black Hole Accretion Rates in Tandem using Mid-Infrared Spectra of Local Infrared-Luminous Galaxies." *The Astophysical Journal* 934.27, July 2022. Available here.

PRESENTATIONS AND OTHER WRITING

Stone, M. "Constraining the Stellar Masses of High L_{AGN} $z \sim 5-7$ Quasars." Oral presentation delivered at the 2023 meeting of the EREBUS collaboration, October 2023.

Stone, M. "The Black Hole Mass-Stellar Mass Relation in $z \sim 6$ Quasars with NIRCam." Poster presentation delivered at the First Year of JWST Science Conference, September 2023.

Stone, M. "Spotting the Difference: Supermassive Black Holes in Cosmological Simulations Don't Match Observations." Astrobites.org, May 2023.

Stone, M., Pope, A., McKinney, J., Armus, L., Díaz-Santos, T., Inami, H., Kirkpatrick, A., and Stierwalt, S. "Measuring Star Formation Rates and Black Hole Accretion Rates in Tandem using Mid-Infrared Spectra of Local Infrared-Luminous Galaxies." Poster presentation delivered at the 240th meeting of the American Astronomical Society, June 2022. Available to view here.

Stone, M. "The Coevolution of Star Formation and AGN Accretion in Local Infrared-Luminous Galaxies." Oral presentation delivered at New England Regional QUasar and AGN Meeting (NERQUAM), May 2022.

Stone, M. "UR: Understanding the Balance of Star Formation and Black Holes in Nearby Luminous Infrared Galaxies." Astrobites.org, March 2021.

Stone, M., Pope, A., and McKinney, J. "Uncovering the Relationship between Stars and Black Holes in Nearby Luminous Infrared Galaxies: Probing Lines Below the Noise with Stacked *Spitzer*/IRS Spectra." Virtual poster presentation 342.05 delivered at the 237th meeting of the American Astronomical Society, January 2021. Available to view here.

GRANTS AND AWARDS

NSF Graduate Research Fellowship *2024*
National Science Foundation

NSF Graduate Research Fellowship - Honorable Mention *2022*
National Science Foundation

Mary Dailey Irvine Thesis Prize *2022*
Five College Astronomy Department

Department of Astronomy Outstanding Senior Award *2022*
UMass Amherst Department of Astronomy

Philip Hasbrouck Scholarship for Academic Excellence *2022*
UMass Amherst Department of Physics

Goldwater Scholarship *2021*
Barry Goldwater Excellence in Education Foundation

Dorrit Hoffleit Undergraduate Research Scholarship *2021*
Yale University Department of Astronomy

Chambliss Astronomy Achievement Student Award - Honorable Mention *2021*
American Astronomical Society

Commonwealth Honors College Research Assistant Fellowship *2020, 2021*
UMass Amherst Commonwealth Honors College

Massachusetts Space Grant Consortium In-State Fellowship *2019, 2020, 2021*
Massachusetts Space Grant Consortium

David J. Van Blerkom Research Scholarship *2019*
Five College Astronomy Department

TEACHING, OUTREACH, AND PROFESSIONAL EXPERIENCE

Graduate Coordinator, TIMESTEP Research Apprenticeship *2023 - present*

- Mentored second-year undergraduate students undertaking their first research projects through the TIMESTEP program, meeting biweekly with students to answer questions and offer support
- Facilitated weekly workshops to teach research skills, including reading scientific papers, using NASA ADS, Python coding and data visualization, and LaTeX
- Interfaced with TIMESTEP program leaders, other graduate coordinators, and faculty research advisors to assist students with their research projects and facilitate a positive research experience
- Created a "research map" of University of Arizona Astronomy/Physics/Planetary Science faculty, with accessible research descriptions to help undergraduate students explore research opportunities

Steward Observatory Graduate Council *2023 - present*

- Served as a representative of Astronomy graduate students in interfacing with department leadership
- Aided incoming first-year graduate students over the summer in the process of moving to Tucson: facilitated apartment tours, trips to pick up furniture, and welcome events
- With council members, facilitated merchandise sales, ran the department coffee machine, and managed the revenue to host graduate student events

Graduate Coordinator, TIMESTEP Summer Tech Internship *2024*

- Mentored five undergraduate STEM students pursuing technical summer internships in the Tucson area
- Supported students through the process of creating an appropriate resume and cover letter; opened communication between students and company matches
- Met weekly with students to check in and offer professional guidance
- Worked with other coordinators to offer professional development opportunities to the interns

Staff Member, Arizona Astronomy Camp *2024*

- Worked with teenagers and adults as a counselor in the awarded Arizona Astronomy Camp program
- Led activities exploring the behavior of light and astronomical data reduction techniques (images and spectra), and assisted the campers in completing independent research projects
- Operated the 24", 32", and 61" telescopes on Mount Lemmon and Mount Bigelow for eyepiece observing and to collect data for camper projects
- Completed University of Arizona training to interact with non-enrolled minors and to drive a University of Arizona vehicle up and down Mount Lemmon and Mount Graham
- Maintained the 2024 Advanced Teen Camp blog to keep parents updated on activities during camp, while campers without cell service are on the mountain

Teaching Assistant, UMass Amherst Physics Department *2019 - 2022*

- Worked with small groups of students (non-physics majors, introductory physics sequence) in a team-based learning environment to facilitate discussion and answer questions
- Assisted students in a wide variety of physics classes in the Physics Help Room
- Hosted virtual office hours and review sessions during remote semesters

Five College Astronomy Club *2018 - 2022*

- Secretary, 2019 - 2020; President, 2020 - 2022

- Circulated a weekly astronomy newsletter to over 100 students during remote semesters, and received highly positive feedback from students and faculty
- Coordinated speakers, panels, and special topics lectures to appeal to both astronomy students and the general Five College population

Founding Member, UMass Amherst Women+ in Physics *2021 - 2022*

Mentor, UMass Amherst Physics Peer Mentoring Program *2021 - 2022*