

Julia Falcone

Department of Physics and Astronomy, Georgia State University

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EDUCATION

Georgia State University, Atlanta, GA

Expected Ph.D., Astronomy

Fall 2020 - Present

M.S., Physics with Astronomy Concentration

Summer 2022

Case Western Reserve University, Cleveland, OH

Bachelor of Science, Astronomy

Fall 2016 - Spring 2020

Secondary Major, Physics

Fall 2016 - Spring 2020

RESEARCH EXPERIENCE

Georgia State University

Atlanta, GA

Graduate Research Assistant

Fall 2020 - Present

Advisor: Dr. D. Michael Crenshaw

Research expertise: AGN outflow kinematics, narrow-line region emission, long-slit spectroscopy reduction and calibration, Gaussian fitting routines and modeling, radiative driving models.

American Museum of Natural History

New York City, NY

Volunteer Researcher and Mentor in the Y/Dim Collaboration

Summer 2020 - Present

Advisor: Dr. Charles Liu

Research expertise: galactic spectral analysis, galaxy morphology classification, the Sloan Digital Sky Survey's MaNGA survey, poststarburst galaxies.

Case Western Reserve University

Cleveland, OH

Undergraduate Researcher

Spring 2019 - Spring 2020

Advisor: Dr. Stacy McGaugh

Research expertise: galaxy-scale tidal forces, dwarf spheroidal galaxies, the Baryonic Tully-Fisher relation, galactic stellar mass-dark matter halo mass relationships.

REFEREED PUBLICATIONS

- ★ **Falcone, J.**, Crenshaw, D. M., Fischer, T.C., Meena, B., Revalski, M., Shea, M., Davis, M., and Riffel, R. “*An Analysis of AGN-Driven Outflows in the Seyfert 1 Galaxy NGC 3227*”, 2024, [ApJ, 971, 17](#).
- Meena, B., Crenshaw, D. M., Schmitt, H. R., Revalski, M., [...] **Falcone, J.**, et al. “*Investigating the Narrow Line Region Dynamics in Nearby Active Galaxies*”, 2023, [ApJ, 943, 98](#).
- Revalski, M., Crenshaw, D. M., Rafelski, M., Kraemer, S., [...] **Falcone, J.**, et al. “*Quantifying Feedback from Narrow Line Region Outflows in Nearby Active Galaxies. IV. The Effects of Different Density Estimates on the Ionized Gas Masses and Outflow Rates*”, 2022, [ApJ, 930, 14](#).
- Bentz, M. C., Duffee, M., Erfani, D., **Falcone, J.**, et al. “*Broad-band Photometric Monitoring of 1226 Golia and 6349 Acapulco*”, 2022, [The Minor Planet Bulletin, 49, 4](#).

OTHER PUBLICATIONS

- Ludwig, E., **Falcone, J.**, et al. “*The Relation between Gas-phase Metallicity and Stellar Mass Surface Density in Post-starburst E+A and E+A+ Galaxies within the Coma Cluster Observed by the SDSS-IV MaNGA Survey*”, 2022, [RNAAS](#), 6, 12, 259.
- Quayum, R., **Falcone, J.**, Greenfield, S., and Liu, C. “*E+A Galaxy Candidates in and around the Leo Cluster*”, 2021, [RNAAS](#), 5, 3, 53.
- **Falcone, J.**, Wurmser, S., Kerrison, N., et al. “*E+A Galaxies in and Around Nearby Rich Clusters of Galaxies*”, 2021, [RNAAS](#), 5, 3, 67.

RESEARCH TALKS

- **Falcone, J.** “*Multiwavelength Analysis of the Outflows and Feedback Processes in the Seyfert 1 Galaxy NGC 3227*”. Talk presented at Galaxies at Crossroads: Outflows and IMF in the VLT/ELT/ALMA/JWST Era, Brno, Czech Republic, September 2024.
- **Falcone, J.**, Crenshaw, D.M., Fischer, T.C., et al. “*Multiwavelength Analysis of the Outflows and Rotation in the Seyfert 1 Galaxy NGC 3227*”. Talk presented at the 243rd Meeting of the American Astronomical Society, New Orleans, LA, January 2024.
- **Falcone, J.**, Crenshaw, D.M., Revalski, M., [...]. “*Disentangling Outflows and Rotation in the Star-Forming Seyfert 1 Galaxy NGC 3227*”. Talk presented at AGN Winds on the Chesapeake, Easton, MD, June 2023.
- Revalski, M., Crenshaw, D. M., [...], **Falcone, J.**, et al. “*The Effects of Different Density Profiles on Spatially Resolved Outflow Energetics*”. Talk presented at AGN Winds on the Chesapeake, Easton, MD, June 2023.
- Meena, B., Crenshaw, D. M., Schmitt, H., Revalski, M., Fischer, [...] **Falcone, J.**, et al. “*The Origins and Driving Mechanisms of Narrow-Line Regions Outflows*”. Talk presented at AGN Winds on the Chesapeake, Easton, MD, June 2023.
- Fischer, T. J., Johnson, M., Secret, N., [...] **Falcone, J.**, et al. “*Let’s Talk About Jets: Analyzing Extranuclear Radio Sources in NGC 1068 and Friends*”. Talk presented at AGN Winds on the Chesapeake, Easton, MD, June 2023.
- Ferree, N., Crenshaw, D.M., **Falcone, J.**, et al. “*Gas Outflow Kinematics in NGC 3516*”. Talk presented at AGN Winds on the Chesapeake, Easton, MD, June 2023.
- Ludwig, E., **Falcone, J.**, Marinelli, M., et al. “*The Effects of Star Formation Rates on the Mass-Metallicity Relation in E+A Galaxies within the Coma Cluster Observed with the SDSS-IV MaNGA Survey*”. Talk presented at the 241st Meeting of the American Astronomical Society, Seattle, WA, January 2023.

CONFERENCE POSTERS

- Davis, M., Crenshaw, D.M., Shea, M., **Falcone, J.**, et al. “*Disentangling the Kinematics of NGC 4258*.” 243rd Meeting of the American Astronomical Society, New Orleans, LA, January 2024. ([Click here to view poster](#))
- **Falcone, J.**, Crenshaw, D. M., Fischer, T., Meena, B., Revalski, M., Shea, M., Chapman, Z., Polack, G. “*Disentangling Outflows and Rotation in the Star-Forming Seyfert 1 Galaxy NGC 3227*”. 241st Meeting of the American Astronomical Society, Seattle, WA, January 2023. ([Click to view poster](#))

- Ferree, N., Crenshaw, D. M., **Falcone, J.**, et al. “*Gas Outflow Kinematics in NGC 3516*”. 241st Meeting of the American Astronomical Society, Seattle, WA, January 2023. ([Click to view poster](#))
- Shea, M., Crenshaw, D., **Falcone, J.**, et al. “*Ionized Gas Flows in the Compact Galaxy Group Stephan's Quintet and its Active Galaxy NGC 7319*”. 241st Meeting of the American Astronomical Society, Seattle, WA, January 2023. ([Click to view poster](#))
- Chapman, Z., Crenshaw, D., **Falcone, J.**, et al. “*NGC 4395: The Little AGN That Could*”. 241st Meeting of the American Astronomical Society, Seattle, WA, January 2023. ([Click to view poster](#))
- Greene, O., **Falcone, J.**, Marinelli, M., et al. “*Investigating Quenching in a Spatially Resolved Catalog of E+A Galaxies from SDSS-IV MaNGA*”. 241st Meeting of the American Astronomical Society, Seattle, WA, January 2023. ([Click to view poster](#))
- **Falcone, J.**, Crenshaw, D. M., Fischer, T., Meena, B., Revalski, M., Polack, G., Shea, M., Chapman, Z. “*An Analysis of AGN-Driven Outflows in the Seyfert 1 Galaxy NGC 3227*”. 240th Meeting of the American Astronomical Society, Pasadena, CA, June 2022. ([Click to view poster](#))
- **Falcone, J.**, Greenfield, S., Joyce, M., et al. “*E+A Galaxies In and Around Nearby Rich Clusters of Galaxies*”, 237th Meeting of the American Astronomical Society, January 2021. ([Click to view poster](#))
- Joyce, M. L., Greenfield, S., **Falcone, J.**, et al. “*E+A Galaxies With Companions In The Field And In Nearby Rich Clusters Of Galaxies*”, 237th Meeting of the American Astronomical Society, January 2021. ([Click to view poster](#))
- Williams, R. H., **Falcone, J.**, Greenfield, S., et al. “*E+A Galaxies And Candidates In And Around The Hercules Supercluster*”, 237th Meeting of the American Astronomical Society, January 2021. ([Click to view poster](#))
- Liu, A. G., Kerrison, N., Wurmser, S., **Falcone, J.**, et al. “*Virtual Reality Mapping of E+A Galaxies and Candidates in the Coma Cluster and Other Nearby Rich Clusters of Galaxies*”, 237th Meeting of the American Astronomical Society, January 2021. ([Click to view poster](#))
- Marinelli, M., Kerrison, N., Wurmser, S., **Falcone, J.**, et al. “*SDSS-MaNGA: Spatially Resolved Spectroscopy of E+A Galaxy Candidates in the Coma Cluster*”, 237th Meeting of the American Astronomical Society, January 2021. ([Click to view poster](#))
- Quayum, R., Greenfield, S., Wurmser, S., **Falcone, J.**, et al. “*E+A Galaxies And Candidates In And Around The Leo Cluster (Abell 1367)*”, 237th Meeting of the American Astronomical Society, January 2021. ([Click to view poster](#))
- Wurmser, S., **Falcone, J.**, Greenfield, S., et al. “*E+A Galaxies And Candidates In And Around The Virgo Cluster*”, 237th Meeting of the American Astronomical Society, January 2021. ([Click to view poster](#))
- Ostling, W. B., Kerrison, N., Wurmser, S., **Falcone, J.**, et al. “*Eight E+A Galaxies Located Inside A Large-Scale Filament In The Coma Cluster*”, 237th Meeting of the American Astronomical Society, January 2021. ([Click to view poster](#))
- **Falcone, J.**, Corbitt, T., and Cripe, J. “*Improving Thermal Noise Measurements in Crystalline AlGaAs Mirrors*”. 23rd Annual Summer Undergraduate Research Forum, Baton Rouge, Louisiana, July 2017.
- Wally, M., Weaver, O., Anderson, M., Liu, A., **Falcone, J.**, Wallack, N., James, O., and Liu, C. “*A Study of E+A Galaxies Through SDSS-MaNGA Integral Field Spectroscopy*”. 229th Meeting of the American Astronomical Society, Grapevine, Texas, January 2017.

- Weaver, O., Anderson, M., Wally, M., James, O., **Falcone, J.**, Liu, A., Wallack, N., and Liu, C. “Spectral Analysis, Synthesis, & Energy Distributions of Nearby E+A Galaxies Using SDSS-IV MaNGA”. 229th Meeting of the American Astronomical Society, Grapevine, Texas, January 2017.

MENTORING

- Kesha Patel - REU Student, Georgia State University Summer 2024 - Present
- Jacob Tutterow - Masters Student, Georgia State University Spring 2024 - Present
- Madeline Davis - REU Student, Georgia State University Summer 2023
- Nicolas Ferree - REU Student, Georgia State University Summer 2022
- Eric Ludwig - Undergraduate Student, CUNY College of Staten Island Summer 2021- 2023

AWARDS AND SCHOLARSHIPS

- Career Development Fellowship** Spring 2024
Out to Innovate (formerly known as NOGLSTP) \$3,450
Support for travel to an international conference.
- Travel Support Award** Summer 2023
AGN Winds on the Chesapeake Conference \$1,200
- Rod Nave Educator Award for Outstanding Teaching Assistantship** Spring 2023
Dept. of Physics and Astronomy, Georgia State University
- Georgia Space Grant Consortium Fellowship** Fall 2022 - Summer 2023
Georgia Space Grant Consortium
- Chambliss Astronomy Achievement Student Award, Honorable Mention** Summer 2022
American Astronomical Society
- Jason J. Nassau Prize** Spring 2020
Dept. of Astronomy, Case Western Reserve University
- Richard L. Garwin Award** Spring 2020
Dept. of Physics, Case Western Reserve University

OBSERVING EXPERIENCE

- Astrophysical Research Consortium (ARC) 3.5-meter Telescope** Summer 2021 - Present
Apache Point Observatory, Sunspot, NM Total: 230 hours (180 remote, 50 in-person)
 - Lead observing sessions by assisting in planning, and facilitating calibration and science measurements on the KOSMOS spectrograph.
- Hard Labor Creek Observatory** Spring 2021
Georgia State University-owned telescope located in Rutledge, GA Total: 30 hours
 - Observed the photometric movements of two asteroids
 - Calibrated and analyzed the raw data using IRAF

TECHNICAL SKILLS

Below lists my familiarity with various tools and software based on how often I use them.

COMFORTABLE USING EVERY DAY	FAMILIAR USING SEMI-MONTHLY	COULD LEARN AGAIN IT'S BEEN A COUPLE YEARS
Python (including standard packages like NumPy, Astropy, etc.) LaTeX IDL	Bash SAO DS9 IRAF GSU's high-performance computing (HPC) facilities	FORTRAN MATLAB SQL TOPCAT

TEACHING EXPERIENCE

Teaching Assistant, ASTR1010 (Lab) "Astronomy of the Solar System"	Georgia State University 3 classes, spread between 2020 - 2021
Teaching Assistant, ASTR1020 (Lab) "Stellar and Extragalactic Astronomy"	Georgia State University 10 classes, spread between 2020 - 2024
Teaching Assistant, PHYS 2211 (Lab) "Principles of Physics I"	Georgia State University 1 class, 2023
Teaching Assistant, PHYS 1122K (Lab) "Introductory Physics II"	Georgia State University 1 class, 2023

SERVICE AND OUTREACH

..... *Committees and Extended Commitments*

Astronomy Peer Advising Leaders (AstroPAL) Fall 2022 - present
Mentor and member Atlanta, GA

- (Fall 2022 - present) As a **member**, I help organize and lead focus groups and workshops for junior Astronomy grad students. I also attend the monthly department faculty meetings and represent the graduate students by voicing any concerns or issues to the faculty.
- (Fall 2022 - Spring 2024) As a **mentor**, I am a peer advisor for a first or second year grad student in the Astronomy program. We have monthly one-on-one meetings to discuss navigating research, classes, and life in grad school.

GSU Graduate Council for the College of Arts and Sciences Fall 2022 - present
Graduate Representative Atlanta, GA

- Provide a graduate student perspective on issues related to topics such as graduate stipends and graduate student benefits.
- Advocate for better conditions for graduate students by dialoguing with the graduate directors and deans about the hardships that many graduate students face at GSU.

Georgia Outreach Team for Space (GOT Space) Summer 2021 - present
Graduate Outreach Lead Atlanta, GA

- Coordinate and participate in astronomy-based outreach events with educators in the Atlanta area.
- Collaborate with graduate students and educators at Georgia Institute of Technology to develop presentations and activities for outreach events.

GSU Physics and Astronomy Dept. Publicity & Outreach Committee Fall 2021 - Spring 2024
Co-representative Atlanta, GA

- Coordinate outreach requests received through faculty or the university.
- Contribute updates on outreach initiatives to the yearly department newsletter.

CWRU Women in Physics and Astronomy Club Fall 2018 - Spring 2020
Cofounder and President Cleveland, OH

- Organize events such as workshops and lectures by female professors centering around women interested in careers in physics and astronomy.
- Encourage participation in physics and astronomy among undergraduate students by attending off-campus lectures and events by women in physics and astronomy.
- Foster an environment of support for women studying physics and astronomy to help overcome the challenges of working in a male-dominated field.

Cleveland Museum of Natural History Fall 2016 - Spring 2019
Volunteer at the Educator Resource Center Cleveland, OH

- Organized and stored the various educational kits being sent to and from Cleveland's schools.
- Collaborated with the museum's astronomers to improve outdated astronomy kits by designing supplemental activities.

..... *Individual Service/Outreach Events*

- Executive secretary for a NASA Astrophysics Data Analysis Program (ADAP) review panel. Took notes of the discussion and helped facilitate voting processes. August 2024.
- "*Starts With a Bang #109 - Launching a galactic cone*". Guest appearance on the Starts With a Bang podcast, September 2024. ([Click to listen](#))
- "*AGN Feedback and Outflows*". Talk presented at "From Galaxies to Gluons" lunch talk series, Atlanta, Georgia, June 2024.
- "*Supermassive Black Holes and Their Feedback Processes: Understanding the Universe's Rowdiest Partiers*". Public outreach talk given for the Three Taverns Lecture Series, Atlanta, Georgia, May 2024.
- "*Georgia Outreach Team for Space*". Talk presented at the Georgia Space Grant Affiliates meeting, Atlanta, Georgia, April 2024.
- "*Star of Our World*". Talk presented to elementary school students at Usher-Collier Elementary School, Atlanta, Georgia, September 2023.
- "*AGN Feedback in NGC 3227*". Talk presented at "From Galaxies to Gluons" lunch talk series, Atlanta, Georgia, August 2023.
- "*From Cosmic Rays to Food: How Does Nuclear Physics Affect My Life?*" Volunteer at the nuclear physics booth at the Atlanta Science Festival, Atlanta, Georgia, April 2023.
- "*What Aliens Might Exist in Our Solar System?*" Talk presented to elementary school students at M. Agnes Jones Elementary School, Atlanta, Georgia, September 2022.
- "*From Cosmic Rays to Food: How Does Nuclear Physics Affect My Life?*" Volunteer at the nuclear physics booth at the Atlanta Science Festival, Atlanta, Georgia, April 2022.
- "*How Do Galaxies Change Over Time?*" Virtual talk presented to elementary school students at the International School of Brooklyn, December 2021.
- "*Fly to Planets and Build a Solar System with GOT Space!*" Volunteer and coordinator of GOT Space's booth for Space Day Atlanta, Atlanta, Georgia, September 2021.