Emma Schwartzman

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Education

- **Bachelor of Science in Astronomy**
  University of Maryland, College Park, MD — *Aug 2015 - May 2019*
  Graduated with High Honors
- **Bachelor of Science in Physics**
  University of Maryland, College Park, MD — *Aug 2015 - May 2019*
- **Master of Science in Applied Physics**
  George Mason University, Fairfax, VA — *Aug 2020 - May 2023*
  Astrophysics Concentration
- **Ph.D. in Applied Physics**
  George Mason University, Fairfax, VA — *Aug 2020 - May 2025 (expected)*
  Thesis Advisor: Dr. Tracy Clarke, Naval Research Laboratory
  Committee Members: Dr. Shobita Satyapal, Dr. Kristina Nyland, Dr. Nathan Secrest, Dr. Simona Giacintucci, Dr. Henrique Schmitt, Dr. Joseph Weingartner

Positions Held

- **Student Research Scientist**: U.S. Naval Research Laboratory, Washington, D.C.; **November 2020 - Present**
- **Graduate Research Assistant**: George Mason University, Fairfax, VA; **August 2022 - Present**
- **U.S. Naval Research Laboratory Contractor**: Computational Physics, Inc., Fairfax, VA; **May 2019 - November 2020**
- **Graduate Teaching Assistant**: George Mason University, Fairfax, VA; **August 2020 - August 2022**
- **Undergraduate Researcher**: Laboratory for Millimeter-wave Astronomy, College Park, MD; **August 2018 - May 2019**
- **Undergraduate Researcher**: NASA Goddard Space Flight Center, Greenbelt, MD; **April 2016 - May 2017**
- **Undergraduate Teaching Assistant**: University of Maryland, College Park MD; **August 2016 - May 2019**

Publications

- **Schwartzman, E.**, et al., *VaDAR II: Varstrometry for Dual AGN using Radio interferometry with the VLBA*, in prep.
- **Schwartzman, E.**, et al., *Disentangling the Complex Emission in the Dissociative Galaxy Cluster Merger CIZA J0107.7+5408*, in prep.
- Latouf, N, **Schwartzman, E.**, et al., *Effective & Ethical Mentorship in Physics and Astronomy through Grassroots Organizations*, Bulletin of the AAS, 2024, 56(1)
- **Schwartzman, E.**, et al., *VaDAR: Varstrometry for Dual AGN using Radio interferometry*, ApJ 961 233.
- Matzko, W., Satyapal, S., **Schwartzman, E.**, et al., *Probing the Distribution and Properties of Coronal Line Emission with VLT/MUSE: Follow-up Observations of the CLASS Sample*, ApJ submitted
- Reefe, M., Satyapal, S., Sexton, R. O., Secrest, N. J., Matzko, W., **Schwartzman, E.**, et al., *Nuclear Activity in the Low-metallicity Dwarf Galaxy SDSS J0944-0038 : A Glimpse into the Primordial Universe*, 2023, ApJL, 946, 2.

Research Experience

- **U.S. Naval Research Laboratory** — Washington, DC
  Student Research Scientist — *May 2019 - Present*
  - **Disentangling the Complex Emission in the Dissociative Cluster Merger CIZA J0107.7+5408**: Doctoral Thesis
  - **VaDAR: Varstrometry for Dual AGN using Radio interferometry**: Doctoral Thesis
- **Galaxy-Black Hole Connection Research Group** — Fairfax, VA
  Graduate Research Assistant — *August 2020 - Present*
  - **Disentangling the Complex Emission in the Dissociative Cluster Merger CIZA J0107.7+5408**: Doctoral Thesis
  - **VaDAR: Varstrometry for Dual AGN using Radio interferometry**: Doctoral Thesis
- **Laboratory for Millimeter-wave Astronomy** — College Park, MD
  Undergraduate Researcher — *August 2018 - May 2019*
  - **Exploring Star Formation in Five Isolated Cores**: Undergraduate Honors Thesis
- **NASA Goddard Space Flight Center** — Greenbelt, MD
  Undergraduate Researcher — *August 2016 - May 2017*
  - **The Environment of Short Duration Gamma-Ray Bursts**: Honors College Capstone

Seminars and Colloquia

- **NRAO Socorro**: VaDAR: Varstrometry for Dual AGN using Radio interferometry, **Invited colloquium**, Virtual, April 2024
- **NRAO Charlottesville**: VaDAR: Varstrometry for Dual AGN using Radio interferometry, **Invited colloquium**, Charlottesville, VA, March 2024
- **American University**: Seeing Double: Active Galactic Nuclei and Galaxy Cluster Mergers, **Invited colloquium**, Washington, D.C., November 2023
- **University of Maryland, College Park**: VaDAR: Varstrometry for Dual AGN using Radio interferometry, **Invited colloquium**, College Park, MD, November 2023
- **George Washington University**: Seeing Double: Active Galactic Nuclei and Galaxy Cluster Mergers, **Invited colloquium**, Washington, D.C., October 2023
- **NASA Goddard Space Flight Center**: A Multiwavelength Study of Astrometrically Variable Quasars: A new population of dual AGN?, **Invited colloquium**, Greenbelt, MD, November 2022
- **George Mason University**: Astrophysics with the Sunyaev-Z'eldovich Effect, Seminar, Fairfax, VA, April 2020
- **George Mason University**: Diffuse Radio Emission from Galaxy clusters, Seminar, Fairfax, VA, January 2020
- **Naval Research Laboratory**: Exploring Star Formation in Five Isolated Cores, Washington, D.C., June 2019
- **Bonn-Cologne Graduate School**: Exploring Star Formation in Five Isolated Cores, **Invited colloquium**, Bonn, DE, March 2019

Workshops and Conferences

- **20th NRAO Synthesis Imaging Workshop**: Workshop, Socorro, NM, May 2024
- **BASS 2024 Meeting**: VaDAR: Varstrometry for Dual AGN using Radio interferometry, Contributed talk, Greenbelt, MD, April 2024
- **American Astronomical Society Annual Winter Meeting**: VaDAR: Varstrometry for Dual AGN using Radio interferometry, Contributed talk, New Orleans, LA, January 2024
- **MARLAM Conference**: VaDAR: Varstrometry for Dual AGN using Radio interferometry, Contributed talk, Fairfax, VA, October 2023
- **The restless nature of AGN**: VaDAR: Varstrometry for Dual AGN using Radio interferometry, Poster, Naples, IT, June 2023
- **19th NRAO Synthesis Imaging Workshop**: Workshop, Online, June 2023
- **American Astronomical Society Annual Winter Meeting**: VaDAR: Varstrometry for Dual AGN using Radio interferometry, Contributed talk, Seattle, WA, January 2023
- **MARLAM Conference**: A Multiwavelength Study of Astrometrically Variable Quasars: A new population of dual AGN?, Contributed talk, Online, October 2022
- **VLASS Conference**: A Multiwavelength Study of Astrometrically Variable Quasars: A new population of dual AGN?, Contributed talk, Socorro, NM, September 2022
- **18th NRAO Synthesis Imaging Workshop**: Workshop, Online, June 2022
- **American Astronomical Society Annual Winter Meeting**: Multi-frequency Radio Study of the Dissociative Merger Cluster CIZA J0107.7+5408, Contributed talk, Online, January 2021
- **17th NRAO Synthesis Imaging Workshop**: Workshop, Online, June 2021
- **American Astronomical Society Annual Winter Meeting**: Exploring Star Formation in Five Isolated Cores, Contributed talk, Seattle, WA, January 2019

Awarded Observing Time

- **VLA, 24B**: **Schwartzman, E.**, et al., *Confirming the First Triple Radio AGN*, 2.5 hours awarded
- **VLA, 24B**: Vazquez.C, et al., *VLA Observations of Candidate Sub-kpc Dual AGN in Late-Stage Mergers*, 8.56 hours awarded
- **VLBA, 24B**: Fudolig, P., et al., *VLBA Characterization of Astrometrically-Variable Quasars*, 24 hours awarded
- **Gemini FT**: Pfeifle, R., et al., *Investigating the Dual AGN Candidate Reported in J1254+2740*, 2.51 hours awarded
- **VLA, 22A**: **Schwartzman, E.**, et al., *The VLA View of Astrometrically-Variable Quasars*, 9 hours awarded
- **VLBA, 23A**: **Schwartzman, E.**, et al., *Characterization of Astrometrically-Variable Quasars with the VLBA*, 56 hours awarded
- **XMM-Newton, AO-22**: Cann, J., et al., *Dwarf GIMLI-X: Exploring X-ray activity in low metallicity dwarf mergers*, 243k seconds awarded
- **VLA, 20B**: Giacintucci, S., et al., *Low Frequency Study of the Dissociative Merger Cluster CIZA J0107.7+5408*, 5 hours awarded

Grants

- **Doctoral Research Scholars Award**: **Schwartzman, E.**, George Mason University, Office of the Provost, **$15.8k grant awarded**
- **Summer Physics and Astronomy Graduate Research Fellowship**: **Schwartzman, E.**, George Mason University, Department of Physics and Astronomy, **$8.5k grant awarded**
- **Galaxy Cluster & Radio Relics II 2024**: **Schwartzman, E.**, et al., *Multi-frequency Radio Study of the Dissociative Merger Cluster CIZA J0107.7+5408*, **$500 travel funding awarded**
- **VLBA SOS, 23A**: **Schwartzman, E.**, et al., *Characterization of Astrometrically-Variable Quasars with the VLBA*, **$27.1k grant awarded**
- **AAS Education & Professional Development Grant, 2023**: Latouf N., et al., *Revamping Education on Belonging, Equity, and Leadership (REBEL) Webinars*, **$3,500 grant awarded**
- **VLASS Conference 2022**: **Schwartzman, E.**, et al., *A Multiwavelength Study of Astrometrically Variable Quasars: A new population of dual AGN?*, **$1k travel funding awarded**
- **VLA SOS, 22A**: **Schwartzman, E.**, et al., *The VLA View of Astrometrically-Variable Quasars*, **$35k grant awarded**
- **AAS Education & Professional Development Grant, 2022**: Latouf, N., et al., *SPECTRUM: Training the next generation of mentors in faculty, staff, and students*, **$5,000 grant awarded**
- **HST Archive, Cycle 30, 2022**: Schmitt, H., et al., *Understanding the nature of large radio-optical offsets in ICRF3 sources and exploring the ability to detect dual and dislodged AGNs*, **$95k grant awarded**

Proposals

Princpal Investigator

- **HST, Cycle 32**: **Schwartzman, E.**, et al., *Host Galaxies of Candidate Dual AGN Selected with Varstrometry*, pending
- **HST, Cycle 32**: **Schwartzman, E.**, Satyapal, S., et al., *Local Analogs of JWST's high-z AGN: A High Resolution View into the Earliest Black Holes with HST and JWST*, pending
- **VLA, 24B**: **Schwartzman, E.**, et al., *VLA Investigation of Spatially-Resolved Mid-IR Dual AGN*, not awarded
- **VLA, 24B**: **Schwartzman, E.**, et al., *Radio Spectra of Varstrometry-Selected Quasars*, not awarded
- **VLA, 24B**: **Schwartzman, E.**, et al., *Confirming the First Triple Radio AGN*, **2.5 hours awarded**
- **ALMA, Cycle 10**: **Schwartzman, E.,** et al., *Characterizing Continuum Emission from Low-Metallicity Dwarf Galaxies with Candidate IMBHs*, not awarded
- **HST, Cycle 31**: **Schwartzman, E.**, et al., *Host Galaxies of Candidate Dual AGN Selected with Varstrometry*, not awarded
- **VLBA, 23A**: **Schwartzman, E.**, et al., *Characterization of Astrometrically-Variable Quasars with the VLBA*, **56 hours awarded**
- **VLA, 22A**: **Schwartzman, E.**, et al., *The VLA View of Astrometrically-Variable Quasars*, **9 hours awarded**
- **ALMA Archive, 2022**: **Schwartzman, E.**, et al., *A Detailed Sunyaev-Z'eldovich View of Cool-Core Clusters*, not awarded
- **ALMA Archive, 2021**: **Schwartzman, E.**, et al., *A Detailed Sunyaev-Z'eldovich View of Cool-Core Clusters*, not awarded

Co-Investigator

- **ALMA, Cycle 11**: Vazquez, C., et al., *An Exploration of Spatially-resolved CO Emission in sub-kpc Dual AGN*, pending
- **HST, Cycle 32**: Rothberg, B., et al., *The Dwarf Galaxies Interacting and Merging with Low Intrinsic metallicity Survey (The Dwarf GIMLI Survey)*, pending
- **Chandra, Cycle 26**: Pfeifle, R., et al., *An X-ray Investigation of Spatially-Resolved Mid-IR Dual AGNs*, pending
- **Gemini FT**: Pfeifle, R., et al., *Investigating the Dual AGN Candidate Reported in J1254+2740*, **2.51 hours awarded**
- **VLA, 24B**: Vazquez.C, et al., *VLA Observations of Candidate Sub-kpc Dual AGN in Late-Stage Mergers*, **8.56 hours awarded**
- **VLBA, 24B**: Fudolig, P., et al., *VLBA Characterization of Astrometrically-Variable Quasars*, **24 hours awarded**
- **Gemini DDT**: Pfeifle, R., et al., *Exploring Merger Activity in a Minor Merger*, not awarded
- **XMM-Newton, AO-23**: Cann, J., et al., *Dwarf GIMLI-X: Exploring X-ray activity in low metallicity dwarf mergers*, not awarded
- **XMM-Newton, AO-23**: Pfeifle, R., et al., *An X-ray Investigation of Spatially-Resolved Mid-IR Dual AGNs*, not awarded
- **ALMA, Cycle 10**: Vazquez, C., et al., *An Exploration of Spatially-resolved CO Emission in sub-kpc Dual AGN*, not awarded
- **JWST, Cycle 2, 2023**: Nyland, K., et al., *NIRCam Imaging of Quasars with Newborn Jets Discovered in the Radio Time Domain*, not awarded
- **Chandra, Cycle 25**: Pfeifle, R., et al., *An X-ray Investigation of Spatially-Resolved Mid-IR Dual AGNs*, not awarded
- **XMM-Newton, AO-22**: Cann, J., et al., *Dwarf GIMLI-X: Exploring X-ray activity in low metallicity dwarf mergers*, **243k seconds awarded**
- **HST Archive, Cycle 30, 2022**: Schmitt, H., et al., *Understanding the nature of large radio-optical offsets in ICRF3 sources and exploring the ability to detect dual and dislodged AGNs*, **fully awarded**
- **VLA, 20B**: Giacintucci, S., et al., *Low Frequency Study of the Dissociative Merger Cluster CIZA J0107.7+5408*, **5 hours awarded**

Scientific and Technical Expertise

- **Observatory Experience**: JVLA, VLBA, HST, ALMA, *Chandra*, XMM-Newton
- **Astronomical Languages/Software**: CASA, AIPS, DS9, PyBDSF, WSClean, IDL, Topcat, PyProffit
- **Programming Languages/Software**: Python, Unix/Bash, LaTeX, Git, MATLAB, Linux

Professional and Outreach Experience

- **Spectrum** August 2021 - Present
  George Mason University
  - **Vice President**: Leadership position in a diversity, equity, inclusion, and acceptance (DEIA) group at George Mason University known as Spectrum. Leadership position requires brainstorming club workshop plans and funding ideas, assisting in the submission of funding proposals, and mentoring undergraduate students in traditionally underrepresented groups.
  - **Peer Mentor**: Program designed to support traditionally underrepresented students in the astronomy and physics department by assigning them peer mentors.
- **Graduate Student Mentor** May 2023 - Present
  George Mason University
  - **Mentor:**: Supervised an incoming graduate student in the astrophysics program at George Mason University. Work focused on calibration and imaging of VLBA observations of active galaxies, and will result in a publication.
- **Tenure-track Faculty Selection** Spring 2022
  George Mason University
  - **Graduate Student Representative:**: Participated in the search for and selection of a new tenure-track faculty member with a focus in astrophysics. Represented the graduate student body of the Physics and Astronomy Department as the Graduate Student Representative.
- **Department of Physics and Astronomy** August 2017 - May 2019
  University of Maryland
  - **Peer Mentor**: Program designed to support traditionally underrepresented students in astronomy and physics. Assisted freshman students with the transition process, as well as supporting them in their first year of undergraduate work.
- **Lecture Demonstration Facility** August 2017 - May 2019
  University of Maryland
  - **Demonstration Employee**: Working for the university's demonstration and outreach department. Responsibilities include design, building, and set-up of various demonstrations for the physics department. Outreach responsibilities include designing outreach presentations, training volunteers, and helping lead programs.
- **Department of Physics and Astronomy** August 2016 - May 2019
  University of Maryland
  - **Head Tutor**: Tutor for ASTR120/121, the major requirement introductory astrophysics courses. Became head tutor in spring 2018; responsibilities include scheduling, organizing other tutors, and maintaining quality of tutoring.
- **Scholar's Program** August 2016 - May 2017
  University of Maryland
  - **Peer Mentor**: Assisted incoming college freshman with the transition between high school and college; organized events spanning the year intended to support the Scholars community.

References

- **Dr. Tracy Clarke - U.S. Naval Research Laboratory**: Thesis Advisor, Doctoral Committee Chair
- **Dr. Shobita Satyapal - George Mason University**: Research Advisor, Professor, Doctoral Committee Co-Chair
- **Dr. Nathan Secrest - U.S. Naval Observatory**: Research Advisor, Doctoral Committee Member
- **Dr. Kristina Nyland - U.S. Naval Research Laboratory**: Research Advisor, Doctoral Committee Member
- **Dr. Simona Giacintucci - U.S. Naval Research Laboratory**: Research Advisor, Doctoral Committee Member