

# Jaelyn S. Roth

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## EDUCATION

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- Vanderbilt University**, Nashville, TN Aug 2023 — Present  
Ph.D., Astrophysics
- Denison University**, Granville, OH Aug 2019 — May 2023  
B.S., Physics, *Summa Cum Laude*  
Thesis: Investigating Methods for Improving Image Deconvolution of Extragalactic Radio Jets  
Advisor: Daniel C. Homan, Ph.D.

## PROFESSIONAL AFFILIATIONS

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- Establishing Multi-messenger astronomy Interdisciplinary Training (EMIT) Program**  
Graduate Student Scholar Apr 2024 — Present
- Laser Interferometer Space Antenna (LISA) Consortium**, Astrophysics WG  
Core Member May 2025 — Present  
Associate Member Mar 2024 — May 2025

## PUBLICATIONS

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- [1] Kelly Holley-Bockelmann, Fazeel Mahmood Khan, Isaiah Williams, **Jaelyn Roth**, Michael Rizzo Smith, Kaitlin Porter, Jillian Bellovary, Andrea Derdzinski, and Andrea V. Macciò. “Handy Relation between Binary Black Hole Merger Times and Host Galaxy Properties”. In: 995.1, L32 (Dec. 2025), p. L32. DOI: 10.3847/2041-8213/ae1ccd. arXiv: 2508.14253 [astro-ph.GA].
- [2] D. C. Homan, **J. S. Roth**, and A. B. Pushkarev. “Residual Entropy as a Diagnostic and Stopping Metric for CLEAN”. In: *The Astronomical Journal* 167.1 (Dec. 2023), p. 11. DOI: 10.3847/1538-3881/ad0beb. URL: <https://dx.doi.org/10.3847/1538-3881/ad0beb>.

## PRESENTATIONS

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- The effect of galaxy-informed massive black hole merger timescales for LISA**  
(Contributed talk) Dec 2025  
Roth, J., Holley-Bockelmann, K., Tremmel, M., and Bellovary, J.  
LISA Astrophysics WG Meeting 2025
- Handy Merger Time Delay for Massive Black Hole Binaries in Cosmological Simulations**  
(Contributed talk) Aug 2025  
Roth, J., Holley-Bockelmann, K., Tremmel, M., and Bellovary, J.  
N-Body Shop Excellence Conference 2025
- Incorporating satellite orbit into MBHB merger time delays in Romulus25**  
(Contributed talk) July 2024  
Roth, J., Holley-Bockelmann, K., Tremmel, M., and Bellovary, J.  
15th International LISA Symposium 2024
- Entropy as a Stopping Metric for Deconvolving VLBI Images of AGN Jets** (iPoster) Jan 2023  
Roth, J. and Homan, D. C.  
AAS241 Chambliss Astronomy Achievement Student Award Winner
- Entropy as a Stopping Metric for Deconvolving Extragalactic Radio Images** (Poster) Sept 2022  
Roth, J. and Homan, D. C.  
Denison University Research Symposium
- Investigating the CLEAN Algorithm to Improve Imaging of Extragalactic Radio Jets** (Poster) Sept 2021  
Roth, J. and Homan, D. C.  
Denison University Research Symposium

## TEACHING

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### Vanderbilt University, Dept. of Physics & Astronomy

Teaching Assistant; ASTR 1010-L

Fa2023 — Sp2025

### EXPLO School, Pre-College Program

Instructor; Soft Robotics

Su2023

Residential Advisor

Teaching Assistant; Mechanical Engineering, Forensic Biology

### Denison University, Dept. of Physics & Astronomy

Course Assistant; PHYS 126

Sp2023

Course Assistant; PHYS 125

Fa2022

Department Tutor

Fa2021

### Denison University, Academic Resource Center

Tutor; PHYS 121, 122, 125, 126

Sp2021 — Sp2022

Tutor; MATH 130, 135, 145

Sp2021 — Sp2022

## OUTREACH

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### Constellations, Mythology, and Black Holes (Invited talk)

Haynes Middle School Lunch & Learn Series, Nashville

Nov 2025

### NASA Advocacy Congressional Visit

Vanderbilt Office of Federal Relations, Washington D.C.

July 2025

### A Career in Astronomy/Astrophysics (Invited talk)

Valor College Prep Career Day, Nashville

May 2025

### Is JWST “Breaking” Science? (Invited talk)

Astronomy on Tap, Nashville

Dec 2024

### Society of Physics Students, Denison University

Volunteer; Go-Baby-Go Mobility Program

Sp2023

Volunteer; Granville Elementary School Demonstrations

Fa2020 — Sp2023

Co-President

Fa2021

Secretary

Fa2020 — Sp2021

### Delta Gamma Fraternity, Denison University

Director of Social Awareness

Sp2022 — Fa2022

Director of Dialogues

Sp2021 — Fa2021

Sexual Respect Chair

Sp2021 — Fa2021

## AWARDS & FELLOWSHIPS

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- Akunuri V. Ramayya Award, Outstanding Graduate Teaching Assistant Apr 2025
- McMinn Research Award May 2024
- **Vanderbilt Provost’s Graduate Fellow, Russell G. Hamilton Scholar (\$50,000)** Aug 2023
- Phi Beta Kappa Honor Society May 2023
- **Denison University President’s Medalist** May 2023
- Mike Mickelson Research Award May 2023
- Ron Winters Graduate School Award in Physics May 2023
- **Chambliss Astronomy Achievement Student Award** Mar 2023
- Sigma Xi Research Honor Society Mar 2023
- Society of Physics Students Leadership Scholarship May 2022
- Denison University Physics & Astronomy Senior Fellow Apr 2022
- **Anderson Scholarship for Excellence in Science (\$48,500)** Apr 2021
- Denison University Physics & Astronomy Junior Fellow Apr 2021
- Sigma Pi Sigma Physics Honor Society Apr 2021
- Introductory Physics Book Award Apr 2020
- Phi Society Oct 2020