

Katelyn J. Wagner

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EDUCATION

Rochester Institute of Technology

Ph.D. Astrophysical Sciences and Technology

Anticipated 2025

Cumulative GPA: 3.79/4.00

Rochester Institute of Technology

M.S. Astrophysical Sciences and Technology

Summer 2022

Cumulative GPA: 3.79/4.00

Thesis Title: “*Template Lattices for a Cross-Correlation Search for Gravitational Waves from Scorpius X-1*”

Roberts Wesleyan University

B.S. Physics

Magna Cum Laude, Global Honors

May 2020

Cumulative GPA: 3.81/4.00

RESEARCH EXPERIENCE

Parameter Inference for Eccentric Black Hole Binaries

Advisor: Dr. Richard O’Shaughnessy

Rochester Institute of Technology

August 2022 — Present

Improved Lattice Template Placement for a Search for Continuous Gravitational Waves from Scorpius X-1

Advisor: John Whelan

Rochester Institute of Technology

May 2019 — July 2022

PUBLICATIONS

Katelyn J. Wagner and R. O’Shaughnessy (2024). “Parameter Estimation for Low-Mass Eccentric Black Hole Binaries”.
In: arXiv: 2402.08039 [gr-qc].

Katelyn J Wagner (July 2022). “Template Lattices for a Cross- Correlation Search for Continuous Gravitational Waves
from Scorpius X-1”. MA thesis. Rochester Institute of Technology.

Katelyn J Wagner, J. T. Whelan, J. K. Wofford, and K. Wette (Aug. 2022). “Template Lattices for a Cross-Correlation
Search for Gravitational Waves from Scorpius X-1.” In: *Classical and Quantum Gravity*. DOI: 10.1088/1361-6382/ac5012.

Whelan, J. T., R. Tenorio, J. K. Wofford, J. A. Clark, E. J. Daw, D. Keitel, A. M. Sintes, **Katelyn J. Wagner**, G. Woan, T. L.
Killestein, and D. Steeghs (2023). “Search for Gravitational Waves from Scorpius X-1 in LIGO O3 Data With Corrected
Orbital Ephemeris”. In: DOI: 10.48550/ARXIV.2302.10338.

(The LIGO-Virgo-KAGRA Collaboration), R. e. a. (June 2022). “Model-based cross-correlation search for gravitational waves
from the low-mass X-ray binary Scorpius X-1 in LIGO O3 data”. In: *Astrophysical Journal Letters*. DOI: 10.48550/ARXIV.
2209.02863.

Quillen, A. C., **Katelyn J Wagner**, and P. Sánchez (Feb. 2019). “Simulations of wobble damping in viscoelastic rotators”.
In: *Monthly Notices of the Royal Astronomical Society* 485.1, pp. 725–738. DOI: 10.1093/mnras/stz422.

OUTREACH

Mentoring: Haylli Yunga (Current High School Senior)

Fall 2022 — Present

Ossining Science Research Program

Developing a long term research project plan and guiding the student toward a research goal in biweekly meetings. Giving
mini lectures to teach complex concepts at a high school level and writing code modules to demonstrate important points.

Visionary Engineering Award 2024 Regeneron WESEF

Eccentricity & Spin Precession in BBH Mergers

1st Place Somer’s Science Fair 2023 (Physics)

Eccentricity & Spin Precession in Binary Black Hole Mergers

Teaching: Introduction to Astrophysics

Fall 2022 — Present

Rochester Institute of Technology

Constructing code modules and writing lecture materials to teach high school students about types of astronomy research.

November 2023: Invited and hosted 20 students from the Syracuse City School District in collaboration with LeMoyne
College Upward Bound for an introductory astrophysics workshop and RIT campus tour.

Public: ImagineRIT

“Making Waves - Gravitational Waves!”

Virtual Exhibit 2021

Rochester Institute of Technology

Lecture: Big Data in Astronomy

Cicero-North Syracuse High School AP Computer Science Class, Girls Who Code Club

January 2021

Syracuse, NY

LEADERSHIP & SERVICE

Graduate Student Peer Mentor

Astrophysical Sciences & Technology Program

Provide advice, inside knowledge, encouragement, and moral support to fellow graduate students in the AST program to help them navigate their first year. I meet bimonthly with my mentees in an informal setting for the entirety of their first academic year. I have mentored two students per year.

Rochester Institute of Technology

Fall 2021 — Present

TALKS

Parameter Estimation for Low-Mass Eccentric Black Hole Binaries

AST Graduate Research Jamboree

Awarded Best Senior Talk

Rochester Institute of Technology

October 2024

Parameter Estimation for Low-Mass Eccentric Black Hole Binaries

Poster Session

LVK Spring Meeting @ LSU

March 2024

Parameter Estimation for Low-Mass Eccentric Black Hole Binaries

AST Graduate Research Jamboree

Rochester Institute of Technology

October 2023

Template Lattices for a Cross-Correlation Search for Gravitational Waves from Scorpius X-1

Master's Thesis Defense

Rochester, NY

July 2022

Template Lattices for a Cross-Correlation Search for Gravitational Waves from Scorpius X-1

AST Graduate Research Jamboree

Rochester, NY

October 2021

Template Lattices for a Cross-Correlation Search for Gravitational Waves from Scorpius X-1

14th Edoardo Amaldi Conference on Gravitational Waves

Virtual

July 2021

Template Lattices for a Cross-Correlation Search for Sco X-1

LIGO-Virgo-KAGRA Collaboration Meeting

Virtual

March 2021

Improved Lattice and Coordinate Choices for a Search for Continuous GWs from Sco X-1

AST Graduate Research Jamboree

Virtual

October 2020

Improved Lattice and Coordinate Choices for Cross-Correlation Search for Sco X-1

LIGO-Virgo-KAGRA Collaboration Meeting

Virtual

September 2020

Full O3 Scorpius X-1 CrossCorr Update

LIGO Continuous Wave Group Telecon

Virtual

September 2020

Template Placement for a Search for Continuous Gravitational Waves

RIT Undergraduate Research Symposium

Rochester, NY

August 2019

PROFESSIONAL DEVELOPMENT

Data Carpentry: Pilot Workshop for Astronomers

Python-based astronomy workshop to learn database skills with ADQL using Gaia and PanSTARRS data.

The Carpentries (Virtual)

November 2020

Summer School in Statistics for Astronomers XVI

Lectures and tutorials interspersed with analysis of astronomical data, with discussion of methodological issues.

Penn State

June 2021

Code/Astro

Software development workshop to learn fundamental software engineering skills and best practices.

Caltech (Virtual)

June 2021

AWARDS

Best Senior Student Talk - RIT AST Jamboree

RIT Outstanding Graduate Woman Achievement Award

Benjamin Titus Roberts Full-tuition Grant

Ensemble Scholarship, Violin

Nominee

Roberts Wesleyan University

Roberts Wesleyan University