

# Katelyn J. Wagner

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kjw4822@rit.edu : +1 3159356234 : kjtwagner.github.io

## EDUCATION

**Rochester Institute of Technology** **Anticipated 2025**

**Ph.D.** Astrophysical Sciences and Technology

- GPA: 3.79/4.00

**Rochester Institute of Technology**

**Summer 2022**

**M.S.** Astrophysical Sciences and Technology

- “*Template Lattices for a Cross-Correlation Search for Gravitational Waves from Scorpius X-1*”
- GPA: 3.79/4.00

**Roberts Wesleyan College**

**May 2020**

**B.S.** Physics

- GPA: 3.81/4.00
- Magna Cum Laude, Global Honors

## RESEARCH EXPERIENCE

**Parameter Inference for Eccentric Black Hole Binaries**

Rochester Institute of Technology

August 2022 - Current

*Advisor: Dr. Richard O’Shaughnessy*

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

Rochester Institute of Technology

May 2019 - July 2022

*Advisor: Dr. John Whelan*

**Simulations of Precession Damping for Viscoelastic Rotators**

University of Rochester

May 2018 - January 2019

*Advisor: Dr. Alice Quillen*

## PUBLICATIONS

**Katelyn J Wagner.** Template Lattices for a Cross- Correlation Search for Continuous Gravitational Waves from Scorpius X-1. Master’s thesis, Rochester Institute of Technology, 2022

**Katelyn J Wagner,** John T Whelan, Jared K Wofford, and Karl Wette. Template Lattices for a Cross-Correlation Search for Gravitational Waves from Scorpius X-1. *Classical and Quantum Gravity*, 2022

R. Abbott *et al.* (The LIGO-Virgo-KAGRA Collaboration). Model-based cross-correlation search for gravitational waves from the low-mass X-ray binary Scorpius X-1 in LIGO O3 data. *Astrophysical Journal Letters*, 09 2022

Alice C Quillen, **Katelyn J Wagner**, and Paul Sánchez. Simulations of wobble damping in viscoelastic rotators. *Monthly Notices of the Royal Astronomical Society*, 485(1):725–738, 02 2019

TALKS	RIT Master's Thesis Defense - July 2022 <i>Template Lattices for a Cross-Correlation Search for Gravitational Waves from Scorpius X-1</i>
	RIT AST Graduate Research Jamboree - October 2021 <i>Template Lattices for a Cross-Correlation Search for Gravitational Waves from Scorpius X-1</i>
	14th Edoardo Amaldi Conference on Gravitational Waves - July 2021 <i>Template Lattices for a Cross-Correlation Search for Gravitational Waves from Scorpius X-1</i>
	LIGO-Virgo-KAGRA Collaboration Meeting - March 2021 <i>Template Lattices for a Cross-Correlation Search for Sco X-1</i>
	RIT AST Graduate Research Jamboree - October 2020 <i>Improved Lattice and Coordinate Choices for a Search for Continuous Gravitational Waves from Sco X-1</i>
	LIGO-Virgo-KAGRA Collaboration Meeting - September 2020 <i>Improved Lattice and Coordinate Choices for Cross-Correlation Search for Sco X-1</i>
	LIGO Continuous Wave Group Telecon - September 2020 <i>Full O3 Scorpius X-1 CrossCorr Update</i>
	RIT Undergraduate Research Symposium - August 2019 <i>Template Placement for a Search for Continuous Gravitational Waves</i>
OUTREACH	UR Summer Research Symposium - August 2018 <i>Simulations of Precession Damping for a Homogeneous Viscoelastic Rotator</i>
	<b>Mentoring:</b> Research project with sophomore Haylli Yunga - Ongoing <i>Ossining Science Research Program</i>
	<b>Teaching:</b> Curriculum development with Marko Ristić for high school astronomy program in summer 2023 <i>Rochester Institute of Technology</i>
	<b>Public:</b> ImagineRIT ("Making Waves - Gravitational Waves!") Virtual Exhibit <i>Rochester Institute of Technology</i>
	<b>Lecture:</b> Big Data in Astronomy - January 2021 <i>Cicero-North Syracuse High School AP Computer Science Class, Girls Who Code</i>
PROFESSIONAL DEVELOPMENT	<b>Mentoring:</b> Work-shopping code with students - Ongoing <i>Cicero-North Syracuse High School AP Computer Science Class</i>
	Data Carpentry: Pilot Workshop for Astronomers - November 2020
	Penn State Summer School in Statistics for Astronomers XVI - June 2021 Code/Astro - A Software Engineering Workshop for Astronomy - June 2021
HONORS AND AWARDS	Sigma Pi Sigma Honor Society (SPS) Chi Alpha Sigma Honor Society Benjamin Titus Roberts Full-tuition Grant - <i>Roberts Wesleyan College</i> Ensemble Scholarship, Violin - <i>Roberts Wesleyan College</i> Dean's List, High Honors - <i>Roberts Wesleyan College</i>

## LEADERSHIP & SERVICE

### **Graduate Student Peer Mentor**

RIT AST Program

**Fall 2021 - Current**

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 students in an informal setting for the entirety of their first academic year. I have mentored two students per year, 3/4 being other women in the program.

### **C.E.K. Mees Observatory**, Naples, NY

Student Tour Guide

**Summer 2018**

Present history of the observatory and general introductory astronomy information, as well operate 24-inch computerized Cassegrain telescope to show a variety of astronomical objects to the public tour.

### **Roberts Wesleyan College**

President, *Society of Physics Students*

**2018 Academic Year**

Organizing preview day for prospective students, fundraising, planning activities

### **Women's Varsity Soccer Team**

Roberts Wesleyan College

**Fall 2016 - Spring 2020**

NCAA Division II, starting defensive midfielder

## PROFESSIONAL AFFILIATIONS

LIGO Scientific Collaboration

Sigma Pi Sigma

## TEACHING EXPERIENCE

### **Roberts Wesleyan College** Teaching Assistant

- AST 201: Descriptive Astronomy
- PHY 101 LAB: Mechanics
- PHY 102 LAB: Electricity
- PHY 115: Physics of Music

Tutoring (Certified CRLA Level 1)

- Introductory Physics sequence (I, II, and III), Calculus sequence (I, II, and III), Descriptive Astronomy, Statistics, Linear Algebra

## COMPUTER SKILLS

Computer Programming and Data Analysis:

- Python, Maple
- UNIX shell scripting (Bash)

Document Editing and Development Tools:

- $\text{\LaTeX}$  ( $\text{\LaTeX}$ ,  $\text{\BibTeX}$ )
- Git (GitHub, GitLab)
- Microsoft Office, Mac iWork Suite, Google Suite
- Data Analysis: Matplotlib, Pandas

Operating Systems:

- Linux-Debian (primary), Mac OS, Windows

Technical Skills:

- Trained to operate the 24-inch computerized Cassegrain telescope at the University of Rochester's C.E.K. Mees Observatory