

# KAYLEE ELIZABETH GRACE

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## EDUCATION

*2022 – Present* University of Delaware, Newark, DE.  
Ph.D. in Physics, expected in 2029.

**Advisor:** Dr. Judith Provencal

*2018 – 2022* University of Connecticut (UConn), Storrs, CT.  
B.S. in **Physics (Honors)** and B.A. in **Women's Gender and Sexuality Studies** with Astrophysics minor.

**Thesis:** [Electromagnetic Detectability of Binary Supermassive Black Holes](#)

**Advisors:** Dr. Jonathan Trump and Megan Davis

## WORK AND RESEARCH EXPERIENCE

*2022 - Pres.* **Graduate Research Assistant**  
University of Delaware with Dr. J. Provencal

- Utilizes observational data and modeling to investigate the asteroseismology of pulsating DB white dwarfs

*2019 – 2022* **Undergraduate Research Assistant**  
University of Connecticut with Dr. J. Trump

- Created simulations of the electromagnetic variability of supermassive black hole binaries, developed using python

*June – Aug. 2021* **IceCube Research Experience for Undergrads (REU)**  
University of Wisconsin at River Falls with Dr. S. Seunarine

- Ran simulations using GEANT4 to determine the maximum number of detectable photons lost due to air bubbles in the optical gel

## TEACHING AND OUTREACH EXPERIENCE

*2022 - Pres.* **Graduate Teaching Assistant**  
University of Delaware

- PHYS 221 (3 semesters): Co-req lab for algebra-based mechanics
- PHYS 133 (2 semesters): Co-req lab for Introduction to Astronomy

*2022 - Pres.*

**Educational Associate**

Mount Cuba Astronomical Observatory

- Lead Public and Children's Programs for audiences of 25
- Observe using SARA Consortium telescopes 40 nights a year

**PUBLICATIONS**

- [1] Davis, Megan C., **Grace, Kaylee E.** et al. "Reliable Identification of Binary Supermassive Black Holes from Rubin Observatory Time-Domain Monitoring". In: *arXiv preprint arXiv:2311.10851, submitted to ApJ* (2023).

**MENTORING EXPERIENCE**

*2020 - 2022*

**Physics Department Peer Mentor**

- Acted as a mentor for early undergraduate Physics students
- Answered questions about departmental procedure, clubs, and college

**CONFERENCES ATTENDED AND PRESENTATIONS**

*January 2024*

American Astronomical Society, *What's Happening in There? Using Photometry to Investigate Asteroseismology of a DBV White Dwarf*, Poster Presentation.

*November 2023*

American Physical Society Mid-Atlantic Meeting, *What's Happening in There? Using Photometry to Investigate Asteroseismology of a DBV White Dwarf*, Poster Presentation.

*April 2022*

UConn Frontiers Undergraduate Research Poster Exhibition, *False Positive Binary Supermassive Black Hole Detection Rate for Vera Rubin Observatory*.

**COMMITTEES**

*2020 - 2022*

UConn Physics Diversity and Multiculturalism Committee

- Identify positive measures for developing and sustaining an inclusive and productive environment for all in the Physics Department
- Formulate proposals to recommend to the Department Head for implementation