


# Kyle Akira Rocha

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**Citizenship:** United States

**Research Interests** Stellar and binary evolution, high-energy astrophysical transients, compact objects, and gravitational wave sources. In my research I employ multiple theoretical techniques including detailed stellar evolution modeling, population statistics, and machine learning.

**Current Position** **Postdoctoral Fellow in Gravitational Waves and Compact Objects**  
University of California San Diego, La Jolla, CA 92093 2025–  
Department of Astronomy & Astrophysics

**Education** **Northwestern University** Evanston, IL  
*Ph.D.* in Astrophysics 2018 – 2025  
Advisor: Prof. Vicky Kalogera

**University of California Santa Cruz** Santa Cruz, CA  
*B.S.* in Astrophysics 2014 – 2018  
Advisors: Prof. Enrico Ramírez-Ruiz & Dr. Josiah Schwab

**Honors and scholarships** [Illinois Space Grant Consortium Fellowship](#) 2024-2025  
[Riedel Family Fellowship](#) 2022-2023  
[LSST Data Science Fellowship Program](#) 2021-2023  
Honorable Mention NSF GRFP 2020

**Selected Talks** Invited talks: ★, Oral presentations in **bold**

- ★ **The 11th Microquasar Workshop** 09/2025  
Cefalù, Sicily, *invited oral presentation*  
Formation, Evolution, and Merging: the MQ point of view.
- American Physics Society April Meeting 243** 03/2024  
Sacramento, CA, *oral presentation*  
Self consistent modeling of mass transfer and stellar evolution in eccentric binaries.
- Stable Mass Transfer in Binaries: from onset to remnants** 03/2024  
Flatiron Institute, New York City, NY, *oral presentation*  
To Be or not to Be: the role of rotational in modeling Galactic Be XRBs.
- ★ **IAU Working Group on Active B Stars** 01/2024  
Virtual, *invited oral presentation*  
To Be or not to Be: the role of rotational in modeling Galactic Be XRBs.

**MODEST-23: Star Clusters in the Post-Pandemic Era** 08/2023  
 Evanston, IL, *oral presentation*  
 Modeling Galactic Be X-ray Binaries with POSYDON.

**American Astronomical Society Meeting 243** 04/2023  
 New Orleans, LA, *oral presentation*  
 To Be or not to Be: the role of rotational in modeling Galactic Be XRBs.

**American Physics Society April Meeting 2023** 04/2023  
 Minneapolis MN, *oral presentation*  
 Modeling Galactic Be X-ray binaries with POSYDON.

**American Astronomical Society Meeting 237** 01/2021  
 Virtual, *oral presentation*  
 A new active-learning algorithm for more efficient parameter space studies, paving the way toward next-generation binary population synthesis.

**Enabling Multi-messenger Astrophysics in the Big Data Era** 04/2019  
 Space Telescope Science Institute, *oral presentation*  
 Using machine learning to predict outcomes of binary stellar evolution.

## Mentoring

**Bryce Oh** Summer 2025  
 Program: CIERA REACH Further  
 I supervised Bryce to explore a series of binary black hole gravitational wave mergers from POSYDON and identify candidate systems which would be impacted by detailed modeling through a phase of eccentric mass transfer.

**Mia Resendiz** Summer 2023  
 Program: CIERA REACH Further  
 I supervised Mia to explore a binary population and identify potential Supergiant X-ray binaries (SGXB) with the population synthesis code POSYDON, and compared to an orbital period distribution of observed Galactic SGXBs.

**Milena Healy** Summer 2019  
 Program: CIERA REACH Further  
 I advised Milena in generating synthetic data sets to test various classification and regression algorithms .

## Teaching Experience

TA, POSYDON School 2025  
 Assisted during workshops, guiding students through lesson plans with various data science and machine learning concepts.

TA, Astro Statistics Summer School 2022  
 Assisted during workshops, guiding students through lesson plans with various data science and machine learning concepts.