

JULIA STEWART

jurstewa@ucsc.edu

LinkedIn: [/in/julia-r-stewart/](#)

EDUCATION

University of California, Santa Cruz (UCSC)

2024

Physics (Astrophysics) B.S.

RESEARCH EXPERIENCE

Lamat Fellowship

2023 - 2024

University of California, Santa Cruz

Conducted a literature review of populations of binaries in the Universe with high mass ratios; plotted the parameter space in which co-accretion occurs for black holes with stellar companions; used that parameter space to inform mass ratios for hydrodynamical simulations of black holes with stellar companions; studied how a shared accretion envelope might be a mechanism to boost accretion in low-mass companions.

Mentors: Alejandra Rosselli-Calderon, Prof. Enrico Ramirez-Ruiz

Collaborator: Andrea Antoni

Research Experience for Undergraduates (REU)

2022

Richard Gilder Graduate School at the American Museum of Natural History (AMNH)

Wrote and adapted code to process simulated intensity data from interstellar neutral hydrogen gas and calculate the angles of filamentary structures in the gas relative to the galactic plane; compared results with a collaborator's paper, which previously analyzed observational data from neutral hydrogen in the Milky Way Galaxy's interstellar medium.

Mentor: Prof. Mordecai-Mark Mac Low

Collaborators: Jiancheng Feng, Dr. Rowan J. Smith, Dr. Juan D. Soler

AWARDS AND SCHOLARSHIPS

Lamat Fellowship

2023

University of California, Santa Cruz

Dean's Honors List

2020-2021

University of California, Santa Cruz

PRESENTATIONS

The Impact of Black Hole Companions on Low-Metallicity Stars

1/20/2024

Stanford University

1.5-hour [poster](#) session at the 2024 Conference for Undergraduate Women in Physics (CUWiP)

The Impact of Black Hole Companions on Low-Metallicity Stars

11/28/2023

University of California, Santa Cruz

30-minute [No-Jargon Talk](#), hosted by the Santa Cruz Organization for Outreach in Physics (recording starts at 34:11)

The Impact of Black Hole Companions on Low-Metallicity Stars

8/18/2023

University of California, Santa Cruz

5-minute [presentation](#) of preliminary research results at the Lamat Institute's summer symposium

Orientation of Hydrogen Filaments in the Interstellar Medium

4/12/2023

University of California, Santa Cruz

30-minute No-Jargon Talk, hosted by the Santa Cruz Organization for Outreach in Physics

Orientation of Hydrogen Filaments in the Milky Way Galaxy

1/21/2023

University of California, Santa Cruz

45-minute [poster](#) session at the 2023 Conference for Undergraduate Women in Physics (CUWiP)

Orientation of Hydrogen Filaments in the Milky Way Galaxy

8/3/2022

American Museum of Natural History

10-minute presentation of preliminary research results at the AMNH REU final symposium

OUTREACH AND LEADERSHIP

UCSC Physics Department Diversity and Climate Committee

Committee Member

2023 - 2024

Represented undergraduate students in committee meetings with Physics Department faculty; helped plan and presented at the 2024 Physics Department Town Hall

Society of Physics Students (SPS) at UCSC

Vice President

2023 - 2024

Planned, led, and attended weekly general meetings in order to facilitate community, offer academic support around exams, and provide information about academic opportunities such as undergraduate research and graduate school; led and attended weekly officer meetings; led workshops on REU applications and creating CVs/resumes; planned large events such as the Physics Research Opportunity Showcase; represented SPS to other campus organizations and offices

Officer-at-large

2022 - 2023

Planned, led and attended weekly general meetings; attended weekly officer meetings; led two workshops on REU applications; raised \$6,000 in club funds

Kresge Presents Pride

Planning Committee Member

2022 - 2024

Met weekly with the committee to plan and lead Kresge College's 15th, 16th, and 17th Pride celebrations at UCSC; mapped and led the Pride march; oversaw the aromantic/asexual space; organized the budget

Conference for Undergraduate Women in Physics (CUWiP)

University of California, Santa Cruz Local Organizing Committee (LOC) Member

2021-2023

Met biweekly with the LOC to prepare UCSC to host CUWiP in January 2022; helped the LOC reschedule to January 2023 when the 2022 conference was moved online; volunteered during the 2023 conference by packing swag bags and coordinating shuttles to the airport for attendees

California State Summer School for Mathematics and Science at UCSC

Alumni Mentor

2021

Worked with a co-mentor to offer students advice and guidance about making and keeping up friendships, completing and presenting final projects, working in groups, talking to professors, tackling anxiety, and applying to college and other summer programs

SKILLS

Coding Languages

Python (proficient)

Astronomy Tools

Jupyter Notebook (proficient)

SAO ds9 (basic)

Lick Observatory remote observation software (basic)

Languages

English (native)

French (elementary proficiency)

Hebrew (elementary proficiency)