

# Samantha Wu

scwu@caltech.edu    ORCID: 0000-0003-2872-5153

## Education

California Institute of Technology - Pasadena, CA

Ph.D. in Astrophysics – Expected 2024

California Institute of Technology - Pasadena, CA

M.S. in Astrophysics - 2019-2021, GPA 4.1/4.0

University of California, Berkeley - Berkeley, CA

A.B. Applied Mathematics – 2014-2018, A.B. Astrophysics – 2014-2018, GPA 3.98/4.0

## Research Appointments

2019-Present: Graduate Student, California Institute of Technology

2018-2019: Junior Specialist, UCSC and Niels Bohr Institute, University of Copenhagen

## Publications

Wave-driven Outbursts and Variability of Low-mass Supernova Progenitors, 2022 *ApJ* 930 119

Samantha **Wu** and Jim Fuller

Wave-driven mass loss of stripped envelope massive stars: progenitor-dependence, mass ejection, and supernovae, 2021 *ApJ* 923 41

Shing Chi Leung, Samantha **Wu**, Jim Fuller

Successful Common Envelope Ejection and Binary Neutron Star Formation in 3D Hydrodynamics, 2020 *ApJ* (submitted)

Jamie Law-Smith et al. incl. Samantha **Wu**

A Diversity of Wave-driven Pre-supernova Outbursts, 2021 *ApJ* 906 3

Samantha **Wu** and Jim Fuller

The Art of Modeling Stellar Mergers and the Case of the B[e] Supergiant R4 in the Small Magellanic Cloud, 2020 *ApJ* 901 44

Samantha **Wu**, Rosa W. Everson, Fabian R. N. Schneider, Philipp Podsiadlowski, Enrico Ramirez Ruiz

Super-Eddington Accretion in Tidal Disruption Events: the Impact of Realistic Fallback Rates on Accretion Rates, 2018 *MNRAS* 478 3016-3024

Samantha **Wu**, Eric R. Coughlin, Chris Nixon

Recovery schemes for primitive variables in general-relativistic magnetohydrodynamics, 2018 *ApJ* 859 71

Daniel M. Siegel et al. incl. Samantha **Wu**

## Research Presentations

“Unusual evolution of massive stars”

UCSC GAJD Seminar, 10/2021

"The Fate and Long Term Evolution of Massive Stellar Mergers"  
233rd Meeting of the American Astronomical Society, 1/2019

"Super-Eddington Accretion in Tidal Disruption Events: the Impact of Realistic Fallback Rates"  
UC Berkeley Summer Research Symposium, 8/2017

## STEM Outreach and Professional Service

"How to Rip Apart a Star"

Caltech Astronomy Outreach Stargazing Lecture Speaker, 01/2022

2021-2022 Caltech Astronomy Admissions Committee Member

Caltech FUTURE Ignited 2021 Science Talk

Caltech FUTURE of Physics 2021 Science Talk

10/2021 Caltech Graduate Fellowships in STEM Panelist

10/2021 Caltech Teaching Conference Session Facilitator

10/2021 Caltech PMA New Student Orientation Teaching Panelist

2020-Present: Caltech Gender Minorities and Women in Physics, Mathematics, and Astronomy (GWIPMA) Committee Member

Caltech Astronomy Outreach Stargazing Lecture Panelist, 06/2020 and 11/2019

## Teaching

Spring 2021: Ay1 Introduction to Astronomy TA

Winter 2021: Ay 21 Galaxies and Cosmology TA

Fall 2020: Ay 101 Physics of Stars TA

2015-2018: Mathematics/Statistics Tutor, UC Berkeley Student Learning Center

2016: Calculus and Discrete Mathematics Study Group Leader, UC Berkeley Student Learning Center

## Awards

2021 NSF Graduate Research Fellowship

2019 Virginia Gilloon Graduate Fellowship - California Institute of Technology

2018: Highest Distinction in General Scholarship - UC Berkeley College of Letters and Science  
Honors for overall achievement at UC Berkeley, roughly equivalent to summa cum laude.

2018: Department Citation - UC Berkeley Department of Astronomy

For outstanding scholarship by a graduating senior with major in Astrophysics or joint major in Physics and Astrophysics.

2017, 2016, 2014: The Leadership Award - Cal Alumni Association

A one-year, merit-based scholarship that recognizes undergraduate students at UC Berkeley who demonstrate innovative, initiative-driven leadership impacting their academic, work, or community environments. Three-time recipient.