

# Samantha C. Wu

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## 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, UC Santa Cruz and Niels Bohr Institute at University of Copenhagen

## Publications

Extreme Mass Loss in Low-mass Type Ib/c Supernova Progenitors, 2022 *ApJL* 940 L27  
**Wu, S.C.** and Fuller, J.

Dynamical Unification of Tidal Disruption Events, 2022 *ApJL* 937 L28  
Thomsen *et al. incl.* **Wu, S.C.**

Wave-driven Outbursts and Variability of Low-mass Supernova Progenitors, 2022 *ApJ* 930 119  
**Wu, S.C.** and Fuller, J.

Wave-driven Mass Loss of Stripped Envelope Massive Stars: Progenitor-dependence, Mass ejection, and Supernovae, 2021 *ApJ* 923 41  
Leung, **Wu, S.C.**, and Fuller, J.

Successful Common Envelope Ejection and Binary Neutron Star Formation in 3D Hydrodynamics, 2020 *ApJ* (submitted)  
Law-Smith *et al. incl.* **Wu, S.C.**

A Diversity of Wave-driven Pre-supernova Outbursts, 2021 *ApJ* 906 3  
**Wu, S.C.** and Fuller, J.

The Art of Modeling Stellar Mergers and the Case of the B[e] Supergiant R4 in the Small Magellanic Cloud, 2020 *ApJ* 901 44  
**Wu, S.C.**, Everson, R.W., Schneider, F.R.N., Podsiadlowski, P., and Ramirez Ruiz, E.

Super-Eddington Accretion in Tidal Disruption Events: the Impact of Realistic Fallback Rates on Accretion Rates, 2018 *MNRAS* 478 3016-3024  
**Wu, S.C.**, Coughlin, E.R., and Nixon, C.

Recovery schemes for primitive variables in general-relativistic magnetohydrodynamics, 2018 *ApJ* 859 71  
Siegel *et al. incl.* **Wu, S.C.**

## Research Presentations

"Mass loss mechanisms in interacting supernova progenitors"

GRAPPA Seminar at University of Amsterdam, 02/2023

Invited Review on Wave-driven Pre-Supernova Outbursts

MIAPbP "Interacting Supernovae" Workshop, 02/2023

"Interpreting unusual evolution of interacting supernova progenitors"

UC Berkeley TAC Seminar, 10/2022

"Wave-driven outbursts and variability of low-mass supernova progenitors"

240th meeting of the American Astronomical Society, 6/2022

"Unusual evolution of massive stars"

UCSC GAFD 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"

Sequoia National Park Dark Sky Festival Lecture Speaker, 09/2022

"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

2022-2023: GWIPMA Co-President

Caltech Astronomy Outreach Stargazing Lecture Panelist (07/2023, 09/2022, 06/2020, and 11/2019)

## Teaching/Mentorship

2022-2023: Caltech Connection mentor for Tuojin Yin, Pasadena City College (now at University of Southern California bachelor's program in physics)

2021-Present: UC Santa Cruz LAMAT REU mentor for Rewa Clark Bush, Cabrillo College (now at Wesleyan University master's program in astronomy)

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 (Math 1b) and Discrete Mathematics (Math 55) 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.