

# Tin Long Sunny Wong

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## Education

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<b>PhD</b>	<b>University of California, Santa Barbara</b> , Physics	September 2019 - present
	• GPA: 3.94/4.0, Advisor: Prof. Lars Bildsten	
<b>MA</b>	<b>University of California, Santa Barbara</b> , Physics	Awarded August 2022
<b>BS</b>	<b>University of California, Santa Cruz</b> , Physics (Astrophysics)	Sept 2015 – June 2019
	• <i>Summa Cum Laude</i> , GPA: 4.0/4.0, Advisor: Prof. Enrico Ramirez-Ruiz	

## First-Author Refereed Publications

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1. **T.L.S. Wong**, C. White, L. Bildsten. *Shocking and Mass Loss of Compact Donor Stars in Type Ia Supernovae* [↗](#). ApJ, 973:65(14pp), September 2024
2. **T.L.S. Wong**, L. Bildsten. *The Asteroseismological Richness of RCB and dLHdC Stars* [↗](#). ApJ, 962:20(8pp), February 2024
3. **T.L.S. Wong**, L. Bildsten. *Dynamical He Flashes in Double White Dwarf Binaries* [↗](#). ApJ, 951:28(10pp), July 2023
4. **T.L.S. Wong**, L. Bildsten. *Mass Transfer and Stellar Evolution of the White Dwarfs in AM CVn Binaries* [↗](#). ApJ, 923:125(10pp), December 2021
5. **T.L.S. Wong**, J. Schwab, Y. Götberg. *Pre-explosion Properties of Helium Star Donors to Thermonuclear Supernovae* [↗](#). ApJ, 922:241(13pp), December 2021
6. **T.L.S. Wong**, J. Schwab. *Evolution of Helium Star-White Dwarf Binaries Leading up to Thermonuclear Supernovae* [↗](#). ApJ, 878:100(27pp), December 2021

## Other Refereed Publications

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1. K. Burdge, K. El-Badry, S. Rappaport, **T.L.S. Wong**, et al. *Orbital Decay in an Accreting and Eclipsing 13.7 Minute Orbital Period Binary with a Luminous Donor* [↗](#). ApJL, 953:1(11pp), August 2023
2. A. Jermyn et al. incl. **T.L.S. Wong**. *Modules for Experiments in Stellar Astrophysics (MESA): Time-Dependent Convection, Energy Conservation, Automatic Differentiation, and Infrastructure* [↗](#). ApJS, 265:15(38pp), March 2023
3. J. van Roestel, T. Kupfer, M. Green, **T.L.S. Wong**, et al. *Discovery and characterization of five new eclipsing AM CVn systems* [↗](#). MNRAS, 512:5440(21pp), June 2022
4. G. M. Brandt, T. Dupuy, Y. Li, M. Chan, T. Brandt, **T.L.S. Wong**, et al. *Improved Dynamical Masses for Six Brown Dwarf Companions Using Hipparcos and Gaia EDR3* [↗](#). ApJ, 162:301(28pp), December 2021

## Other Scientific Works

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1. **T.L.S. Wong**, J. van Roestel, T. Kupfer, L. Bildsten. *An Outburst by AM CVn Binary SDSS J113732.32+405458.3* [↗](#). RNAAS, 5:3(3pp), January 2021

## Invited Talks

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1. **Zwicky Transient Facility Theory Network Meeting**, Oak Creek Ranch, Santa Maria, CA, USA, “Type Ia Supernovae interacting with degenerate companions”, September 2024
2. **ITC luncheon**, Harvard-Smithsonian Center for Astrophysics, Boston, MA, USA, “Ia supernova ejecta interacting with companion stars”, September 2024

3. **White Dwarfs and Transients Science Retreat**, Cambria, CA, USA, “*Double White Dwarf Binaries, their explosions and their survivors*”, June 2024
4. **TAPIR seminar**, California Institute of Technology, Pasadena, CA, USA, “*Double White Dwarf Binaries, their explosions and their survivors*”, May 2024
5. **UCSB Astro Lunch**, University of California, Santa Barbara, Santa Barbara, CA, USA, “*Supernova ejecta interacting with companion stars*”, May 2024
6. **Zwicky Transient Facility Theory Network Meeting**, Oak Creek Ranch, Santa Maria, CA, USA, “*Shocking Helium White Dwarf Donor With Supernova Ejecta*”, September 2023
7. **White Dwarfs as Probes of the Evolution of Planets, Stars, the Milky Way and the Expanding Universe program**, Kavli Institute of Theoretical Physics, Santa Barbara, CA, USA, “*Mass Transfer in AM CVn binaries: A Tale of Two Cooling WDs*”, December 2022
8. **Zwicky Transient Facility Theory Network Meeting**, Oak Creek Ranch, Santa Maria, CA, USA, “*He Flash Due to Mass Transfer from High-entropy He WDs*”, September 2022

## Contributed Talks

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1. **23rd European Workshop on White Dwarfs**, Barcelona, Spain, “*la supernova ejecta interacting with companion stars*”, July 2024
2. **5th International Workshop on AM CVn Binaries**, Armagh Observatory and Planetarium, Northern Ireland, UK, “*Mass Transfer and WD Cooling in AM CVn Systems*”, September 2023
3. **4.5th International Workshop on AM CVn Binaries**, online, “*Mass Transfer in AM CVn binaries: A Tale of Two Cooling WDs*”, August 2022
4. **22nd European Workshop on White Dwarfs**, Tuebingen, Germany, “*He Flash Due to Mass Transfer from High-entropy He WDs*”, August 2022

## Contributed Poster Presentations

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1. **22nd European Workshop on White Dwarfs**, Tuebingen, Germany, “*Mass Transfer in AM CVn Binaries*”, August 2022
2. **American Astronomical Society 233rd Meeting**, Seattle, WA, USA, “*Evolution of Helium Star - White Dwarf Binaries Leading up to Thermonuclear Supernovae*”, January 2019
3. **21st European Workshop on White Dwarfs**, Austin, TX, USA, “*Evolution of Helium Star - White Dwarf Binaries with Different Angular Momentum Prescriptions*”, July 2018

## Awards & Scholarships

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• Chair’s Special Recognition Award, for service to the department (UCSB)	2024
• Paxton Summer Fellowship in Theoretical Astrophysics (UCSB)	2020
• Steck Family Award for Finest Senior Thesis (UCSC)	2019
• Priscilla Parkin Memorial Scholarship Award (UCSC)	2019
• Koret Undergraduate Research Scholarship (UCSC)	2018-2019
• Ron Ruby Memorial Scholarship (UCSC)	2018
• Dean’s Honor List (UCSC)	2015-2019
• Undergraduate Dean’s Scholarship (UCSC)	2015-2019

## Teaching experience

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### University of California, Santa Barbara

• Phys 132 <i>Stellar Structure and Evolution</i> , <b>Associate Instructor</b> – lectures, course material and homework development, office hours, grading	Winter 2024
• Phys 232 <i>Stellar Structure and Evolution</i> (Graduate course), <b>Guest Lecturer</b> – lecture on radiative heat transport	Fall 2023
• Phys 232 <i>Stellar Structure and Evolution</i> (Graduate course), <b>Guest Lecturer</b> – lecture on ionization balance	Spring 2022
	Winter 2021

- Phys 132 *Stellar Structure and Evolution*, **Teaching Assistant**  
– office hours, grading
- Astro 1 *Basic Astronomy*, **Teaching Assistant**  
– office hours, grading
- Phys 3L *Physics Laboratory*, **Teaching Assistant**  
– office hours, grading, lab demonstration

Fall 2019, Spring  
2020, Winter 2021  
Fall 2019

### Modules for Experiments in Stellar Astrophysics (MESA) Summer School

- **Lecturer** – design and oversight of hands-on lab sessions, lecture on binary white dwarfs 2024
- **Teaching assistant** – design and testing of hands-on lab sessions 2017, 2018, 2021, 2022, 2023

## Outreach & Service

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- Journal referee; MNRAS; 2024
- **Astronomy on Tap** talk; “*The Fastest Stars in the Galaxy*”, Santa Barbara, CA, USA, April 2024
- **UCSB Astronomy Society** talk, “*Double White Dwarf Binaries*”, UCSB, Santa Barbara, CA, USA, Feb 2023
- **UCSB Astronomy Society Astronomy Night** graduate student volunteer, 2019 - present

## Software

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**Programming:** Python, Fortran, C++, Mathematica, Latex, bash

**Scientific Software:** Modules for Experiments in Stellar Astrophysics (MESA), Athena++ (3D hydrodynamics), GYRE pulsations code

**High-performance computing:** Experience with supercomputing clusters at UCSB, UCSC, and the Flatiron Institute