

# Chang Liu

GRADUATE STUDENT, ASTRONOMY

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“Explore the universe, benefit the society.”

## Education

### Northwestern University

Graduate Student, ASTRONOMY

- Advisor: Adam A. Miller

Evanston, US

Sep 2021 –

### Peking University

BACHELOR OF SCIENCE (HON), ASTRONOMY

- Grades: GPA 3.83/4, Rank 1/28
- Thesis: *The Hydrodynamics of Binary Mass Transfer in Compact Binaries*
- Advisors: Enrico Ramirez-Ruiz & Xian Chen

Beijing, China

Sep 2016 – Jun 2020

## Research Interests

- Exploring the transient sky with modern time-domain surveys and statistical/computational methods
- Type Ia supernovae (SNe Ia): constraining the ignition mechanism and progenitor systems using observations of individual events and the SN Ia population with optical surveys
- Tidal disruption events (TDEs): modeling bizarre repeaters near massive black holes using hydrodynamical simulations

## Research Experience

### Peking University RESEARCH ASSISTANT

- Advisor: Subo Dong
- Searching for microlensing signals from free-floating stellar mass black holes in the Galactic disk

Sep 2020 – Jul 2021

### University of California, Santa Cruz UNDERGRADUATE RESEARCH INTERN

- Advisor: Enrico Ramirez-Ruiz
- Using hydrodynamic simulations to model the mass transfer in ultra-compact white dwarf binaries (*thesis*)
- Modeling the periodic nuclear transient ASASSN-14ko with a repeating tidal disruption scenario†

Oct 2019 – Jan 2020

### California Institute of Technology SUMMER UNDERGRADUATE RESEARCH FELLOWSHIP (SURF)

- Advisor: Shrinivas R. Kulkarni
- Systematically searching for white dwarf binaries using light curves from Zwicky transient facility

Jun 2019 – Aug 2019

### Peking University UNDERGRADUATE RESEARCH FELLOW

- Advisor: Xian Chen
- Modeling the chemical impact of an accreting Sgr A\* throughout the Milky Way†

Jul 2018 – Jun 2020

(† = project has resulted in publication)

## Publications

- **C. Liu**, A. A. Miller, A. Polin, et al., *SN 2020jgb: A Peculiar Type Ia Supernova Triggered by a Massive Helium-Shell Detonation in a Star-Forming Galaxy*, 2022, arxiv:2209.04463 (under peer review)
- **C. Liu**, B. Mockler, E. Ramirez-Ruiz, et al., *Tidal disruption events from eccentric orbits and lessons learned from the noteworthy ASASSN-14ko*, 2022, arXiv:2206.13494 (under peer review)
- **C. Liu**, X. Chen & F. Du, *Impact of an Active Sgr A\* on the Synthesis of Water and Organic Molecules Throughout the Milky Way*, 2020, ApJ, 899, 2.

## Presentations

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### PKU-DoA Undergraduate Astronomy Symposium

THE CHEMICAL IMPACT OF AN ACTIVE SGR A\* THROUGHOUT THE MILKY WAY

Beijing, China

Sep 2020

### The Project Presentation for the SURF Program, Caltech

A SYSTEMATIC SEARCH FOR PERIODIC WHITE DWARFS

Pasadena, US

Aug 2019

## Honors & Awards

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- Oct 2020 **First prize & Lin-bridge Prize for Excellent Undergraduate Research**, 2020 PKU-DoA Undergraduate Astronomy Symposium (founded and sponsored by Prof. Douglas Lin)
- May 2020 **Outstanding graduate**, College Graduate Excellence Award of Beijing
- May 2020 **Outstanding graduate**, College Graduate Excellence Award of Peking University
- Oct 2019 **Merit Student**, Annual honor of 2018-2019, School of Physics, Peking University
- Oct 2019 **PKU Scholarship**, Annual scholarship of 2018-2019, School of Physics, Peking University
- Jun 2019 **PKU Scholarship in Physics**, School of Physics, Peking University
- Oct 2018 **Merit Student**, Annual honor of 2017-2018, School of Physics, Peking University
- Oct 2018 **Weilin Scholarship**, Annual scholarship of 2017-2018, School of Physics, Peking University
- Oct 2017 **Merit Student Pacesetter (the Utmost Annual Accolade at PKU)**, Annual honor of 2016-2017, School of Life Sciences, Peking University
- Oct 2017 **Arawana Scholarship**, Annual scholarship of 2016-2017, School of Life Sciences, Peking University

## Skills

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**Programming** Proficient: Python, Shell/Zsh, Git Experienced: Fortran, C/C++, HTML  
**Softwares** Pyperit (optical spectrum reduction)  
**Languages** Chinese, English

## Outreach

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### Peking University Youth Astronomy Society (PKU-YAS)

INVITED SPEAKER (*Supernovae: from the past to the future*)

Beijing, China

Apr 2021

### Summer Camp of Astronomy for High School Students, Peking University

VOLUNTEER

Beijing, China

Jul 2018

### Department of Daily Life, Student Union, School of Life Science

CORE MEMBER

Beijing, China

Sep 2016 – Jun 2017

## References

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### Prof. Adam A. Miller

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Evanston, US

Department of Physics and Astronomy, Northwestern University

### Prof. Enrico Ramirez-Ruiz

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Santa Cruz, US

Department of Astronomy and Astrophysics, UC Santa Cruz

### Prof. Xian Chen

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Beijing, China

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