

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 the power of modern time-domain surveys and statistical/computational methods
- Type Ia supernovae (SNe Ia): constraining the ignition mechanism and progenitor systems using both individual events of peculiarity and an unprecedented sample of the population
- 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 Helium-Shell Detonation in a Star-Forming Galaxy*, 2023, ApJ, 946, 83.
- **C. Liu**, B. Mockler, E. Ramirez-Ruiz, et al., *Tidal Disruption Events from Eccentric Orbits and Lessons Learned from the Noteworthy ASASSN-14ko*, 2023, ApJ, 944, 184.
- **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.
- G. Dimitriadis, K. Maguire, V. R. Karambelkar, et al. (including **C. Liu**), *SN 2021zny: an early flux excess combined with late-time oxygen emission suggests a double white dwarf merger event*, 2023, MNRAS, 521, 1162.

Presentations

SPOKEN-WERRD 2022 Symposium

SN 2020JGB: A PECULIAR TYPE IA SUPERNOVA TRIGGERED BY A HELIUM-SHELL DETONATION

Virtual

Nov 2022

Student Lightning Talk, ZTF 3rd Science Meeting

SN 2020JGB: A PECULIAR TYPE IA SUPERNOVA TRIGGERED BY A HELIUM-SHELL DETONATION

Evanston, IL, US

Oct 2022

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

- 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

Programming Proficient: Python Experienced: Fortran, C/C++, HTML
Softwares Pyeet (optical/NIR spectrum reduction), Photoshop (as a shutterbug)
Languages Chinese, English

Outreach

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

References

Prof. Adam A. Miller

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Evanston, US
Department of Physics and Astronomy, Northwestern University

Prof. Enrico Ramirez-Ruiz

✉ ENRICO@UCOLICK.ORG

Santa Cruz, US
Department of Astronomy and Astrophysics, UC Santa Cruz

Prof. Xian Chen

✉ XIAN.CHEN@PKU.EDU.CN

Beijing, China
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