

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

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, Shell/Zsh, Git Experienced: Fortran, C/C++, HTML
Softwares Pyeip (optical spectrum reduction)
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

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

CORE MEMBER

Beijing, China

Sep 2016 – Jun 2017

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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