

Chang Liu

TIME-DOMAIN ASTRONOMER

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“Explore the universe, benefit the society.”

Education

GRADUATE STUDENT Department of Physics and Astronomy, Northwestern University

Sep 2021 –

- Advisor: Adam A. Miller

MASTER OF SCIENCE Department of Physics and Astronomy, Northwestern University

Sep 2021 – Jun 2023

BACHELOR OF SCIENCE (HON) Department of Astronomy, School of Physics, Peking University

Sep 2016 – Jun 2020

- Thesis: *The Hydrodynamics of Binary Mass Transfer in Compact Binaries*
- Advisors: Enrico Ramirez-Ruiz & Xian Chen

Research Interests

- Exploring the transient sky with time-domain surveys (ZTF, and the incoming LS4 & LSST) and statistical/computational methods
- **Type Ia supernovae:** constraining the ignition mechanism and progenitor systems using both individual events of peculiarity and an unprecedented sample of the population
- **Tidal disruption events:** modeling bizarre repeaters near massive black holes using hydrodynamical simulations
- **Microlensing:** searching for wandering stellar-mass black holes in the Galactic plane

Research Positions

Research Assistant Peking University

Sep 2020 – Jul 2021

Undergraduate Research Intern University of California, Santa Cruz

Oct 2019 – Jan 2020

Summer Undergraduate Research Fellowship (SURF) California Institute of Technology

Jun 2019 – Aug 2019

Undergraduate Research Fellow Peking University

Jul 2018 – Jun 2020

Publications

- **C. Liu**, A. A. Miller, S. J. Boos, et al., SN 2022JOJ: A PECULIAR TYPE IA SUPERNOVA POSSIBLY DRIVEN BY AN ASYMMETRIC HELIUM-SHELL DOUBLE DETONATION, 2023, *accepted by ApJ*.
- **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 NOTE-WORTHY 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.
- P. Chen, A. Gal-Yam, J. Sollerman, et al. (including **C. Liu**), A 12.4 DAY PERIODICITY IN A CLOSE BINARY SYSTEM AFTER A SUPERNOVA, 2023, *accepted by Nature*.
- Z. Wu, S. Dong, T. Yi, et al. (including **C. Liu**), GAIA22DKVLB: A MICROLENSING PLANET POTENTIALLY ACCESSIBLE TO RADIAL-VELOCITY CHARACTERIZATION, 2023, *submitted to ApJ*.
- 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.

Telescope Proposals

PI SEDMv2, Kitt Peak 2.1 m Telescope, Northwestern || 80 hours

2023B

co-I Keck 10 m Telescopes, Northwestern (PI: Alexa Gordon) || 2.5 nights

2023B

co-I MMT 6.5 m Telescope, Northwestern (PI: Adam Miller) || 4 nights

2023B

Talks & Posters

Talk	ZTF 5th Science Meeting	Oct 2023
Poster	Keck Science Meeting	Sep 2023
Seminar	Tsung-Dao Lee Institute	Jun 2023
Talk	SPOKEN-WERRD 2022 Symposium	Nov 2022
Talk	ZTF 3rd Science Meeting	Oct 2022
Talk	PKU-DoA Undergraduate Astronomy Symposium	Sep 2020

Honors & Awards

Oct 2020	First prize & Lin-bridge Prize for Excellent Undergraduate Research (林桥奖学金) , 2020 PKU-DoA Undergraduate Astronomy Symposium (endowed by Prof. Douglas Lin)
May 2020	Outstanding graduate (北京市普通高校优秀毕业生) , College Graduate Excellence Award of Beijing
May 2020	Outstanding graduate (北京大学优秀毕业生) , 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	Wei Lin 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

Languages	Chinese, English
Programming	Proficient: Python Experienced: Shell, Fortran, C/C++, SQL, HTML <ul style="list-style-type: none">sn_line_velocities (developer): fitting supernovae spectroscopic features with correlated Gaussian profilesSwift_ToO (developer): triggering and analyzing Swift UVOT follow-ups for interesting transients
Softwares	<ul style="list-style-type: none">Pyepit: optical/NIR spectrum reductionPhotoshop & Lightroom: as a shutterbug

Advising and Teaching

CIERA Scientist Mentor	REACH Further (Independent Research Experience for REACH Students)	Aug 2023
	• Mentee: Isabella Chen	
Teaching Assistant	PHYSICS 333-2 (Advanced Electricity & Magnetism)	Sep 2022 – Dec 2022
Teaching Assistant	PHYSICS 130-2 (College Physics)	Jan 2023 – Mar 2023
Teaching Assistant	ASTRON 103-0-1 (Solar System)	Mar 2023 – Jun 2023

Professional Service

Referee	Astrophysical Journal Letters
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Outreach

Presenter	Evanston, US
RESEARCH EXPERIENCE IN ASTRONOMY AT CIERA FOR HIGH SCHOOL STUDENTS (REACH)	Jul 2023
Invited Speaker (supernovae: from the past to the future)	Beijing, China
PEKING UNIVERSITY YOUTH ASTRONOMY SOCIETY (PKU-YAS)	Apr 2021
Volunteer	Beijing, China
SUMMER CAMP OF ASTRONOMY FOR HIGH SCHOOL STUDENTS, PEKING UNIVERSITY	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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