

Chang Liu

UNDERGRADUATE STUDENT IN ASTRONOMY

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"Explore the universe, benefit the society."

Education

Peking University

Beijing, China

UNDERGRAD IN ASTRONOMY

Sept. 2017 -

- GPA 3.83/4, Rank 1/30
- TOEFL iBT: 111. Reading: 30, Listening: 30, Speaking: 25, Writing: 26
- GRE General: Verbal 151/170, Quantitative 170/170, Analytical Writing 3.5
- GRE Physics: 970/990, Percentile 93%

Peking University

Beijing, China

UNDERGRAD IN LIFE SCIENCES (SWITCHED TO ASTRONOMY)

Sept. 2016 - June. 2017

- GPA 3.87/4, Rank 1/120

Skills

Programming Python, Shell/Zsh, C++, Fortran, LaTeX

Languages Chinese, English

Softwares Photoshop, Lightroom, Illustrator

Experience

Department of Astronomy, Peking University

Beijing, China

IMPACT OF AN ACTIVE SGR A* ON THE BIOGENIC AND ORGANIC MOLECULES THROUGHOUT THE MILKY WAY

Jul 2018 -

Mentor: Xian Chen

- Undergraduate Research & Training Program - National Innovation Training Program
- Investigated the impacts of an AGN on the synthesis of prebiotic/organic molecules to indicate the potential correlation between an active supermassive black hole and both the origin and the evolution of life.
- Calculated the ionization rates of electromagnetic radiation caused by accretion the supermassive black hole in the Milky Way.
- Completed the codes for photo-ionization processes of various atoms and molecules based on the widely used package in astro-chemistry - KROME.
- Simulated the chemical evolution of crucial precursors for interstellar prebiotic molecules.

Astronomy Department, Caltech

Pasadena, US

A SYSTEMATIC SEARCH FOR PERIODIC WHITE DWARFS USING ZTF DATA

Jun 2019 - Aug 2019

Mentor: Shrinivas Kulkarni

- Summer Undergraduate Research Fellowship (SURF)
- Explored the potential of the state-of-the-art time-domain facility - Zwicky Transient Facility (ZTF) by conducting a systematic search for periodic white dwarfs with periods lying within 1-3 hr.
- A cross match between *Gaia* and ZTF was performed, selecting ~ 90,000 *Gaia* sources with enough ZTF data.
- A number of 81 sources stood out as periodic under the Lomb-Scargle Periodogram.
- A analysis in the shapes of light curves derived from ZTF as well as color analysis with *Gaia* and PanSTARRS data led to discovery of eclipsing systems, reflection systems, cataclysmic variables and other sources of interest.

Department of Astronomy and Astrophysics, UC Santa Cruz

Santa Cruz, US

THE HYDRODYNAMICS OF BINARY MASS TRANSFER IN COMPACT BINARIES

Oct 2019 -

Mentor: Enrico Ramirez-Ruiz

- Study the stability of mass transfer in a white dwarf binary with hydrodynamical simulation.

Honors & Awards

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

May 2019 **National Innovation Training Program**, Undergraduate Research & Training Program

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 Highest Annual Accolade)**, 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

Sept 2017 **Third Prize**, The Alumni Cup for Summer Social Practice, School of Life Sciences, Peking University

Sept 2017 **Excellent Student Union Member**, Annual honor of 2016-2017, Student Union of School of Life Sciences of Peking University

Presentation

The Project Presentation for the SURF Program, Caltech

Pasadena, US

A SYSTEMATIC SEARCH FOR PERIODIC WHITE DWARFS

Aug. 2019

Extracurricular Activity

Summer Camp of Astronomy for Outstanding Senior Students (Peking University)

Beijing, China

VOLUNTEER

Jul. 2018

- Helped prepare for the welcome day, offered guidance and service to campers

Investigation Group on Bike-sharing in Xiamen (School of Life Science)

Xiamen, China

CORE MEMBER

Jul. 2017

- Investigated the present condition and analysed the future development of several brands of shared bikes in Xiamen, one of the largest cities in South-east China
- In charge of organizing the draft of both our investigation proposal and the report,

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

Beijing, China

MEMBER

Sept. 2016 - Jun. 2017

- Organized various activities to improve the life quality including organizing social mixers and designing games for the New Year Party
- Helped design a questionnaire and conducted a census on the current living and studying conditions of students in School of Life Sciences, reflected the problems to the dean and negotiated possible solutions
- In charge of *Calendar of Species* program of the WeChat public account of the Student Union, conducted popular science promotion about various planets in literary essays