

# Chang Liu

UNDERGRADUATE IN ASTRONOMY

100871, Peking University, Haidian District, Beijing, China

✉ ptg.cliu@pku.edu.cn | 🌐 <https://slowdiveptg.github.io> | 📱 slowdivePTG

*“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, 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 -

- Undergraduate Research & Training Program - National Innovation Training Program
- Worked on the chemical impacts of an AGN, especially the impact on the synthesis of prebiotic organic molecules, to indicate the potential correlation between the activity of a 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, in different galactic distance from the black hole.
- Completed the codes for photo-ionization processes of various atoms and molecules based on the widely used package in astrochemistry - KROME.
- Calculated 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

- 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  $\sim 90,000$  *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 -

•

## 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

## Honors & Awards

---

2019	<b>Weiming Physics Outstanding Student</b> , School of Physics, Peking University	<i>Beijing China</i>
2018	<b>Merit Student</b> , Annual honor of 2017-2018, School of Physics, Peking University	<i>Beijing China</i>
2018	<b>Weilin Scholarship</b> , Annual scholarship of 2017-2018, School of Physics, Peking University	<i>Beijing, China</i>
2017	<b>Merit Student Pacesetter (the Highest Annual Accolade)</b> , Annual honor of 2016-2017, School of Life Sciences, Peking University	<i>Beijing, China</i>
2017	<b>Arawana Scholarship</b> , Annual scholarship of 2016-2017, School of Life Sciences, Peking University	<i>Beijing, China</i>
2017	<b>Third Prize</b> , The Alumni Cup for Summer Social Practice, School of Life Sciences, Peking University	<i>Beijing, China</i>
2017	<b>Excellent Student Union Member</b> , Annual honor of 2016-2017, Student Union of School of Life Sciences of Peking University	<i>Beijing, China</i>

## Presentation

---

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

*Pasadena, US*

A SYSTEMATIC SEARCH FOR PERIODIC WHITE DWARFS

*Aug. 2019*

- Introduced a cross-match study between *Gaia* and Zwicky Transient Facility (ZTF) in search of periodic white dwarfs