Zhuofu (Chester) Li

zhuofu@uw.edu

EDUCATION

UNIVERSITY OF WASHINGTON
Seattle, WA
Ph.D. *Astronomy, Astrobiology, and Data Science* Sep 2022 - Present
- **GPA:** 4.00/4.00

THE UNIVERSITY OF CALIFORNIA, LOS ANGELES (UCLA)
Los Angeles, CA
B.S. *Astrophysics and* **B.S.** *Geophysics* Sep 2018 - June 2022
- **GPA:** 3.88/4.00

AWARDS & HONORS

- UW Astronomy Jacobsen Fund 2022
- UCLA Department of Earth, Planetary, and Space Sciences Salutatorian 2022
- UCLA Highest Honors in Astrophysics 2022
- UCLA Highest Honors in Geophysics 2022
- UCLA Chancellor's Service Award 2022
- UCLA Latin Honors - Cum Laude 2022
- UCLA Dean's Honor List 2018 - 2022
- Caltech Astronomy Summer Undergraduate Research Fellowship 2021
- UCLA Astronomy Research Experience for Undergraduates Fellowship 2020

PUBLICATIONS

Z. Li, J. van Roestel, S. R. Kulkarni, et al., *A Systematic Search for Short Orbital Period Cataclysmic Variables Using the Zwicky Transient Facility*, in preparation.

P. M. Ogle, et al. (including **Z. Li**), *Jet Feedback on the Inner Disk of Virgo Spiral Galaxy Messier 58*. Astrophysical Journal, accepted.

J. Roman, et al. (including **Z. Li**), *A Giant Cold Stellar Stream in the Coma Galaxy Cluster*. Astronomy & Astrophysics, accepted.

J. L. Margot, et al. (including **Z. Li**), *A Search for Technosignatures Around 11,680 Stars with the Green Bank Telescope at 1.15-1.73 GHz*. Astrophysical Journal, accepted.

RESEARCH EXPERIENCE

Studying Jupiter Trojans Using the Zwicky Transient Facility
UW Sep 2022 - Present
Mentored by Prof. Zeljko Ivezic
- Develop a Python code to analyze the lightcurves of 2813 Jupiter Trojans and find their rotation periods.
- Investigate and compare the Trojans located in the two Lagrange points, L4 and L5.
- Determine the shapes of the Trojans using the ZTF lightcurves.

A Systematic Search for Short Orbital Period Cataclysmic Variables Using the Zwicky Transient Facility

Caltech   March 2021 – Sep 2022

Mentored by Prof. Shrinivas R. Kulkarni and Dr. Jan van Roestel

- Developed a Python code (capable of recovering periods from data with extreme variability) to analyze 200,000 white dwarf light curves from ZTF.
- Discovered 177 new periodic white dwarfs, including 50 candidate CVs.
- Conducted follow-up to obtain spectra and confirmed the orbital periods of newly discovered cataclysmic variables.
- Set up a database, gave an oral presentation, and wrote a refereed article.

A Multiwavelength Investigation of Galaxies with XUV Disks

UCLA   June 2020 – Sep 2022

Mentored by Dr. R. Michael Rich

- Used SAOImage DS9 and PixInsight to inspect the faintest emissions of galaxies at different wavelengths.
- Produced 40 first-ever multicolor images that combined data of deep optical, FUV, and WISE 4.
- Ongoing spectral analysis of the spatial distribution of star formation detected in the mid-IR and FUV.

The Halos and Environments of Nearby Galaxies (HERON) Project

UCLA   May 2019 – Sep 2022

Mentored by Dr. R. Michael Rich

- Used PyRAF to calibrate raw images and removed the uneven sky gradients of galaxy images.
- Highlighted galactic halos of galaxies using SAOImage DS9 and Photoshop.
- The final images that I produced are stored on the HERON website at IRSA.
- Classified the collected data for use in journal papers.

UCLA Search for Extraterrestrial Intelligence (SETI)

UCLA   Apr 2020 – June 2020

Mentored by Prof. Jean-Luc Margot and Dr. Paul Pinchuk

- Proposed an extrasolar planetary system to observe using the 100m Green Bank Telescope.
- Performed spectral analysis of time-series data with the Fast Fourier Transform.
- Used Python-based graphical tools to present the results of data analysis.

TELESCOPE/OBSERVING EXPERIENCE

The Halos and Environments of Nearby Galaxies (HERON) Project   June 2020 – Sep 2022

Frazier Park, CA

- More than 1 year as the primary observer.
- Automated the image acquisition for a 0.7m telescope using SGPro.
- Conducted functional checks before an observation.
- Controlled, monitored, and troubleshot the telescope during an observation.
- Mentored a UCLA freshman on telescope scheduling and observing.
- Collected data for various projects, such as
    - Extended H-alpha Emission in Nearby Galaxies (PI P. Ogle, STScI)
    - Period Measurements for Cataclysmic Variable Stars Candidates From the ZTF Survey (PI J. van Roestel, Caltech)
    - The HERON Project: A Survey of Low Surface Brightness Structures in Nearby Galaxies (PI R. M. Rich, UCLA)

Lick Observatory

Mt Hamilton, CA   2021

- 5 nights as the primary observer.
- Certified observer of the 3m C. Donald Shane telescope.
- Had training on the adaptive optics system on the 3m C. Donald Shane telescope.

- Used the Kast Double Spectrograph for follow-up of potentially new cataclysmic variable stars, rotating/pulsating white dwarfs, and supernovae from ZTF.

SKILLS

- Programming Languages: Python, HTML, C++, Java, and R
- Operating Systems: IOS, Windows, and Linux
- Remote Telescope Scheduling and Observing
- Data Reduction and Image Post-Processing
- Photometric Measurement
- Orbital Period Finding Using the Lomb-Scargle Algorithm

LEADERSHIP

The Astronomical Society at UCLA

Los Angeles, CA

President, Chief Telescope Operator, and Astrophotographer   Sept 2018 – Sep 2022
- Teach people (not majoring in astronomy) about operating and calibrating telescopes.
- Research and select the celestial objects to be viewed during a weekly public telescope show.
- Give a public astronomy talk every week.
- Image deep-sky objects using a 0.36m Schmidt–Cassegrain Telescope.

The Society of Sigma Gamma Epsilon, UCLA (The National Honor Society for the Earth Sciences)

Los Angeles, CA

President   Sept 2020 – Sep 2022
- Provide overall leadership and direction to the club organization.
- Plan and organize field trips, outreach, minerals displays, etc.
- Give talks to elementary school students, middle school students, and high school students.

TEACHING EXPERIENCE

UNIVERSITY OF WASHINGTON
- ASTR 102 - Introduction to Astronomy   2022 Fall
- ASTR 150 - The Planets   2023 Winter, Spring

NORTHWESTERN UNIVERSITY
- Code/Astro - Astronomy Software Development Workshop   2023 Summer

OUTREACH

Planetarium at UW
Speaker
- The Physics and Astronomy Building at UW, *Weekly Planetarium Show.*   Sept 2022 – Present

Astronomical Society at UCLA
Organizer, Speaker
- The Mathematical Sciences Building at UCLA, *Weekly Public Telescope Show.*   Sept 2018 – Sep 2022

The Society of Sigma Gamma Epsilon, UCLA (The National Honor Society for the Earth Sciences)
Outreach Committee Member, Speaker
- Hillcrest Elementary School, *Asteroids and Comets.*   2021
- Eldorado Elementary School, *Cretaceous–Paleogene Extinction Event.*   2021

TALKS

Jacobsen Observatory Talk
Seattle, WA
University of Washington   Apr 2024

Orphans of the Cosmos: Rogue Planets
Seattle, WA
University of Washington
Astronomy on Tap   Nov 2023

The Search for Extraterrestrial Intelligence in the New Era of Survey Science
Los Angeles, CA
UCLA
Graduate Student Talk   May 2023

Let's Hunt Some Little Green Men
Seattle, WA
University of Washington
Astronomy on Tap   Dec 2022

A Systematic Search for Short Orbital Period Cataclysmic Variables Using the Zwicky Transient Facility
Santa Barbara, CA
Kavli Institute for Theoretical Physics
White Dwarfs from Physics to Astrophysics Conference   Nov 2022

A Systematic Search for Short Orbital Period Cataclysmic Variables Using the Zwicky Transient Facility
Pasadena, CA
Caltech
Student-Faculty Programs Summer Seminar Day   Aug 2021

A Multiwavelength Investigation of Galaxies with XUV Disks
Los Angeles, CA
UCLA   Aug 2020
Summer Research Symposium

EXTRACURRICULAR ACTIVITIES

BruinLife
Los Angeles, CA
Photojournalist   Sept 2019 – Sep 2022
- Attend editorial meetings and suggest story/photo ideas.
- Take pictures and videos for news outlets.
- Use Photoshop to edit and enhance images.

The Westwood Enabler
Los Angeles, CA
Graphic Designer   Sept 2020 – Sep 2022
- Pitch "news in pictures" headlines during weekly meetings.
- Use Photoshop to create graphics for satirical articles.