Yihan Li

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Education

University of California, Santa Cruz, Santa Cruz, US — *Sep 2026 – Present*
PhD, Astronomy — *Expected June 2032*

Peking University, Beijing, China — *Sep 2022 – July 2026*
B.S., Astronomy

Summer Schools

CASSUM-VICO-CICO Summer Student Program, Charlottesville, US — *2025*

Protoplanetary Disks and Planet Formation Summer School, Beijing, China — *2024*

Research Experience

A Search for Wide-orbit Planets Around M-dwarfs using Deep MIRI 15-μm Images, supervised by Prof. Yifan Zhou — *Feb 2025 – June 2026*

- Used archival JWST/MIRI time-series observations of ten M-dwarfs to search for wide-orbit gas giants through direct imaging, providing the first sensitivity assessment of this observing mode for planet detection.
- Constructed reference libraries based on observation subarrays and developed pipeline to optimize PSF subtraction parameters for each target star.
- Calculated survey sensitivity limits, and combined contrast curves with planet evolutionary models to obtain the detectable mass limit.
- Demonstrated that such observations are sensitive to planets with Jupiter-like radius and 1-bar temperature ($\sim$170 K) at separations of 35 AU in systems at 12.5 pc.

Searching for Substructures in Two of the Youngest, Largest, and Brightest Protostellar Disks, supervised by Prof. Ruobing Dong and Prof. Feng Long — *Oct 2025 – Present*

- Reducing and analyzing ALMA imaging data of protostellar disks to characterize substructures and investigate their formation mechanisms.

Stellar Properties of a T Tauri Star, supervised by Prof. Gregory Herczeg — *Sep 2024 – Dec 2024*

- Estimated stellar properties (effective temperature, $v \sin i$, radial velocity, mass, and age) of the T Tauri star PR Ori A.
- Developed Python pipeline from scratch to match its spectrum with processed template spectra and calculated its luminosity based on Gaia colors.

Metallicity of Outbursting Circumstellar Disks, supervised by Prof. Gregory Herczeg — *May 2024 – Dec 2024*

- Refined existing models to measure metallicity in the inner disk of a FU Ori object, contributing to the understanding of accretion processes in young stellar objects.

Publications

- **Li, Y.**, Zhou, Y., et al. (2026)
  A Search for Wide-orbit Planets Around M-dwarfs using Deep MIRI 15-μm Images.
- Contreras Peña, C., Nagy, Z., Herczeg, G. J., . . . , **Li, Y.**, et al. (2026)
  The FU Ori outburst of PR Ori B.

Teaching Experience

Teaching Assistant, *Observational Experiments of Astrophysics*, PKU — *Fall 2025*

- Assisted with night-time observing sessions and guided students through calibration, reduction, and analysis of observational data.

Honors and Awards

- Wu Si Scholarship (top 1% in the School of Physics) *2025*
- Merit Student (top 1% in the School of Physics) *2025*
- Li Qibin Scholarship (awarded to the top 3 students in the Department of Astronomy) *2024*
- Shu Qi Scholarship (top 5% in the School of Physics) *2024*
- Annual Scholarship of National Astronomical Observatories, Chinese Academy of Sciences (awarded to only one student in the Department of Astronomy) *2023 and 2024*

Presentations

- Spirit of Lyot 6 — Poster *2026*
- CASSUM-VICO-CICO Summer Student Symposium (15 min) *2025*
- Peking University Undergraduate Astronomy Symposium (15 min) *2025*

Observational & Technical Experience

- Developed Python pipelines for imaging reduction (60cm telescope) and slitless spectroscopy; constructed H-R diagrams via aperture photometry.
- Acquired slitless spectra and multi-band optical images using school's 40cm Schmidt telescope.
- Investigated dark matter halo density profiles under various initial conditions using N-body simulations.

Extracurricular Activities

- Member of the School of Physics women's volleyball team - won the gold medal in the Group B division of the Peking University Cup.
- Member of School of Physics Student Service Team - assisted in organizing "Professor Tea Sessions" to engage retired faculty members with students from low-income families.
- Conducted physics demonstrations and interactive experiments for high school students to promote interest in science.
- Volunteered for the 20th Peking University International Culture Festival and the 2025 Peking University Physics Cultural Festival.