

WENKAI LI

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EDUCATION

University of Science and Technology of China (USTC)	2021 - 2026 (<i>medical leave, 2022</i>)
Bachelor of Science in Astronomy	Jul. 2026 (<i>expected</i>)

- Overall Weighted Average Score: 88.1/100
- **Major (Astro) Weighted Average Score: 92.8/100**
- **Graduate Courses (7, Astro) Weighted Average Score: 93.8/100**
- **Wu Weiren Deep Space Exploration Scholarship (1 of ~40 in Astro, for academic excellence)**

RESEARCH INTERESTS

Tidal Disruption Events; Active Galactic Nuclei; Time Domain Astronomy; Extragalactic Astronomy

PUBLICATIONS

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2. **Li, W.**, Jiang, N., et al., *Revealing Inefficient Circularization, Delayed Stream-Disk Interaction and Reprocessing: A Five-Stage Model for the Intermediate-Mass Black Hole Tidal Disruption Event EP240222a*, to be submitted to **ApJL**.
 1. Zhu J., Jiang, N., ... , **Li, W.**, et al., *Ultraviolet Spectral Evidence for Ansky as a Slowly Evolving Featureless Tidal Disruption Event with Quasi-periodic Eruptions*, accepted by **ApJL**.

RESEARCH EXPERIENCE

Revealing Inefficient Circularization, Delayed Stream-Disk Interaction and Reprocessing: A Five-Stage Model for the Intermediate-Mass Black Hole (IMBH) Tidal Disruption Event (TDE) EP240222a

- **First author** | to be submitted to **ApJL** | Supervisor: Prof. Ning Jiang, USTC | Jun. 2024 - Oct. 2025
- Modeled, independently, the anomalous multi-wavelength light curves of the first confirmed IMBH-TDE.
- Revealed inefficient circularization, delayed stream-disk interaction and reprocessing.
- Constrained physical parameters by performing a Markov chain Monte Carlo (MCMC) fitting.
- Identified distinctive observational signatures to guide future IMBH-TDE searches.
- Contributed to a successful MMT proposal to confirm optically-selected IMBH-TDE candidates.

The Nature of Dwarf Post-Starburst Galaxies (dPSBs)

- **First author** | in prep | Supervisor: Prof. Ann Zabludoff, Steward Observatory | Mar. 2025 - Present
- Co-led the construction of the PSBs sample from Sloan Digital Sky Survey data.
- Identified known TDE hosts, providing direct proof for an enhanced TDE rate in dPSBs.
- Analyzed the GALFIT results and co-performed the morphology analysis using Statmorph.
- Revealed prevalent merger signatures and central point sources.

Ultraviolet (UV) Luminosity Function (LF) and Detection Rates of Tidal Disruption Events and Fast Blue Optical Transients (FBOTs) for Future Surveys

- **First author** | in prep | Supervisor: Prof. Ning Jiang, USTC | Nov. 2024 - Present
- Confirmed significant overestimation in Einstein Probe TDE detection rate predictions.
- Identified and corrected, independently, critical issues in the commonly used TDE optical LF.
- Extrapolated the new TDE optical LF to derive the first-ever TDE UV LF.
- Forecasted TDE & FBOT detection rates for future surveys via Monte Carlo simulations.

Ultraviolet Spectral Evidence for Ansky as a Slowly Evolving Featureless Tidal Disruption Event with Quasi-periodic Eruptions

- Co-author | accepted by **ApJL** | Supervisor: Prof. Ning Jiang, USTC | Apr. 2025 - Sep. 2025
- Contributed to a successful Hubble Space Telescope proposal.
- Performed a feasibility analysis for the instrument's target acquisition to ensure precise slit placement.
- Participated in scientific discussions regarding the IMBH-TDE hypothesis.

TECHNICAL PROFICIENCIES

Programming: Python, C/C++, Mathematica, etc.

Astronomy Software: Statmorph, GALFIT, Maxim DL, CLASS, MESA, PySME, etc.

Numerical Methods: MCMC methods, High-Performance Computing cluster usage, etc.

AWARDS/ACHIEVEMENTS

Wang Shouguan Talent Program in Astronomy | USTC 2024 - 2026

Wu Weiren Deep Space Exploration Scholarship (1 of ~40 in Astro, for academic excellence) | USTC 2025

2nd Prize | Linbridge Prize & Excellent Undergraduate Research Projects in A&A | Peking University 2025

Tier II | Wang Shouguan Talent Program Scholarship | USTC 2024 & 2025

1st Prize | Symposium of the Honors Program in Fundamental Sciences | USTC 2025

Bronze Award | Outstanding Student Scholarship | USTC 2023 & 2024

1st Place | China Undergraduate Physics Tournament (university) | USTC 2022

Golden Award (Top 3%) | Excellent Student Scholarship | USTC 2021

1st Prize (provincial) | Chinese Physics Olympiad | Chinese Physical Society 2020

Silver Medal | Chinese National Astronomy Olympiad | Chinese Astronomical Society 2019

Shortlist | Astronomy Photographer of the Year (Young Competition) | Royal Observatory, Greenwich 2017

ACADEMIC PRESENTATIONS

[**Modeling the Unexpected Light Curves of IMBH-TDE EP240222a | FLASH \(Seminar\) | NOIRLab**](#) 2025

What Can We Learn from IMBH-TDE EP240222a? | BigBoom (Seminar) | Steward Observatory 2025

IMBH-TDEs and dPSBs | Steward Science Symposium | Lunar and Planetary Laboratory 2025

IMBH-TDEs | Excellent Undergraduate Research Projects in A&A | Peking University 2025

IMBH-TDEs | Symposium of the Honors Program in Fundamental Sciences | USTC 2025

Recent Scientific Progress | WFST Summer School | Qianshan 2024

TEACHING EXPERIENCE

Teaching Assistant | Introduction to Astronomy (Prof. Yongquan Xue) | USTC 2024 Fall

LEADERSHIP & SERVICE (SELECTED)

Founder & Developer | USTC-astrXiv | Steward Observatory 2025

- Developed and deployed a fully automated Python pipeline for weekly scanning of USTC-affiliated preprints.
- Engineered an automated email service for subscription management and weekly digest distribution.
- Grew the service from zero to over **80** subscribers, becoming a key departmental information source.

President & Vice President | Association of Amateur Astronomers | USTC 2023 - 2025

- Spearheaded over **40** academic and outreach activities as President.
- Led the association to achieve its **first-ever 5-star ranking (the highest honor)** since its founding in 2004.
- Recognized with the university-wide "Outstanding Student Club Core Member Award".

Invited Lecturer | International Astronomy Olympiad Chinese National Training Team | USTC 2024

Invited Coach | China National Astronomy Olympiad Anhui Team Training | Hefei No. 1 HS 2024

- Led a student to win Anhui Province's **first-ever National Astronomy Olympiad Gold Medal**.

Admissions Volunteer | USTC Undergraduate Admissions | Shenzhen 2022 & 2024

Invited Speaker | Shenzhen Middle School Mathematics and Science High School Study Tour | USTC 2023

Invited Lecturer | Astronomy Summer Course | Shenzhen Middle School Astronomy Association 2021