

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>)
<ul style="list-style-type: none">• 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)	

RESEARCH INTERESTS

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

PUBLICATIONS

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) USTC	2025
2 nd 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
1 st 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

How Can We Discover IMBHs? 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
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LEADERSHIP & SERVICE (SELECTED)

Founder & Developer USTC-astrXiv Steward Observatory	2025
<ul style="list-style-type: none">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
<ul style="list-style-type: none">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
<ul style="list-style-type: none">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