

# WENKAI LI

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## EDUCATION

### University of Science and Technology of China (USTC)

Bachelor of Science in Astronomy

2021 - 2026 (medical leave, 2022)

Jul. 2026 (expected)

- 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 Ans sky 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 Ans sky 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

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

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

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

## AWARDS/Achievements

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Wang Shouguan Talent Program in Astronomy   USTC	2024 - 2026
<b>Wu Weiren Deep Space Exploration Scholarship (1 of ~40 in Astro)   USTC</b>	2025
2 <sup>nd</sup> Prize   Linbridge Prize & Excellent Undergraduate Research Projects in A&A   Peking University	2025
Tier II   Wang Shouguan Talent Program Scholarship   USTC	2024 & 2025
<b>1<sup>st</sup> Prize   Symposium of the Honors Program in Fundamental Sciences   USTC</b>	2025
Bronze Award   Outstanding Student Scholarship   USTC	2023 & 2024
<b>1<sup>st</sup> Place   China Undergraduate Physics Tournament (university)   USTC</b>	2022
<b>Golden Award (Top 3%)   Excellent Student Scholarship   USTC</b>	2021
1 <sup>st</sup> 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

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<b>How Can We Discover IMBHs?   FLASH (Seminar)   NOIRLab</b>	2025
<b>What Can We Learn from IMBH-TDE EP240222a?   BigBoom (Seminar)   Steward Observatory</b>	2025
<b>IMBH-TDEs and dPSBs   Steward Science Symposium   Lunar and Planetary Laboratory</b>	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

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<b>Teaching Assistant   Introduction to Astronomy (Prof. Yongquan Xue)   USTC</b>	2024 Fall
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## LEADERSHIP & SERVICE (SELECTED)

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<b>Founder &amp; Developer   USTC-astrXiv   Steward Observatory</b>	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 <b>80</b> subscribers, becoming a key departmental information source.	

<b>President &amp; Vice President   Association of Amateur Astronomers   USTC</b>	2023 - 2025
• Spearheaded over <b>40</b> academic and outreach activities as President.	
• Led the association to achieve its <b>first-ever 5-star ranking (the highest honor)</b> since its founding in 2004.	
• Recognized with the university-wide "Outstanding Student Club Core Member Award".	

<b>Invited Lecturer   International Astronomy Olympiad Chinese National Training Team   USTC</b>	2024
<b>Invited Coach   China National Astronomy Olympiad Anhui Team Training   Hefei No. 1 HS</b>	2024
• Led a student to win Anhui Province's <b>first-ever National Astronomy Olympiad Gold Medal</b> .	

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