

# WEI-BO (WEBBER) KAO

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## EDUCATION

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- DPhil in Astrophysics candidate**, University of Oxford, UK Oct 2025 - Expected 2029
- Project: Little Red Dots: Overmassive Black Holes or Ultradense Starbursts?
- MSc in Physics**, ETH Zürich, Switzerland Sep 2023 - Apr 2025
- Weighted grade: 5.98/6
  - Thesis: A novel sub-grid model for super-Eddington accretion of spinning black holes in galaxy-scale simulations.
- BSc in astronomy**, Peking University, China Sep 2019 - Jul 2023
- GPA: 3.75/4.0 (3.9/4.0)
  - Thesis: Efficient Identification of Broad Absorption Line Quasars using Dimensionality Reduction and Machine Learning.

## RESEARCH INTEREST

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- Evolution and formation of galaxies and active galactic nuclei (AGN).
- Supermassive black holes (SMBHs), accretion physics, and super-Eddington accretion.
- Numerical methods and computational simulations.
- Integrating data science with observations.

## PUBLICATIONS

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See [ADS](#), [Google Scholar](#), and [ORCID](#) for the updated list.

1. **Wei-Bo Kao**, Yanxia Zhang, and Xue-Bing Wu, “Efficient identification of broad absorption line quasars using dimensionality reduction and machine learning”, [2024, PASJ, 76, 653](#),
2. **Wei-Bo Kao**, Pedro R. Capelo, Elia Cenci, Lucio Mayer, Alessandro Lupi, and Luca Sala, “Evolving black hole spins in the super-critical accretion regime”, submitted to MNRAS
3. Si-Yue Yu, Dewang Xu, Luis C. Ho, Jing Wang, and **Wei-Bo Kao**, “Strong spiral arms drive secular growth of pseudo bulges in disk galaxies”, [2022, A&A, 661, A98](#),
4. Sen Pang, Hoiio Kong, Zijun Li, **Wei-Bo Kao**, and Yanxia Zhang, “Deep Learning-Based Identification of Broad Absorption Line Quasar”, [2025, Appl. Sci., 15\(3\), 1024](#)

## REFERENCES

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- Prof. Lucio Mayer** University of Zurich  
[lmayer@physik.uzh.ch](mailto:lmayer@physik.uzh.ch)
- Prof. Omer Blaes** University of California, Santa Barbara  
[blaes@physics.ucsb.edu](mailto:blaes@physics.ucsb.edu)
- Dr. Yanxia Zhang** National Astronomical Observatories, Chinese Academy of Sciences  
[zyx@bao.ac.cn](mailto:zyx@bao.ac.cn)

## SKILLS

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| <b>Programming Languages</b> | C, Python, L <sup>A</sup> T <sub>E</sub> X, SQL, Git                |
| <b>Software and Packages</b> | Linux, GIZMO, Athena++, sklearn, Astropy, IRAF, Photutils, AutoProf |
| <b>Languages</b>             | Mandarin (Native), English (Fluent), German (Beginner)              |