MINGHAO YUE

MIT Kavli Institute for Astrophysics and Space Research
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EDUCATION & WORK EXPERIENCE

MIT Kavli Institute for Astrophysics and Space Research 2022 – Present
Postdoctoral Associate
Main collaborators: Prof. Anna-Christina Eilers and Prof. Robert Simcoe

Steward Observatory, the University of Arizona 2016 – 2022
Ph. D. in Astronomy and Astrophysics (Advisor: Prof. Xiaohui Fan)
Thesis title: A Survey for High-Redshift Gravitationally Lensed Quasars

School of Physics, Peking University 2012 – 2016
Bachelor of Science, Major: Astronomy

RESEARCH INTERESTS

- Supermassive black holes (SMBHs) and their host galaxies
- Strong gravitational lensing and cosmology
- High-redshift universe and reionization
- Big data and machine learning in astronomy

SKILLS AND EXPERIENCE

Observational Experiences

- Ground-based Telescopes (>50 nights): Magellan/Clay, Magellan/Baade, MMT, LBT, VATT, Bok, Gemini-N, JCMT, Shane
- Space Telescopes: *HST* (ACS, WFC3), *JWST* (NIRCam)
- Sub-mm interferometer: ALMA

Data Analysis and Modeling

- Imaging, long-slit spectra, IFU, interferometric analyses
- Lens modeling for imaging and interferometer data
- Analysis of large data datasets, data mining, machine learning

SELECTED APPROVED PROPOSALS AS PI

JWST-GO-3017: *High-resolution imaging of a compact lensed quasar at z=5.07 and a compound lensing system*

HST-GO-16460: *Confirming a Gravitationally Lensed Quasar Candidate at z=5.07*

HST-GO-16507: *Identifying a Gravitationally Lensed Quasar or A Close Quasar Pair at z=5.66*

ALMA-2022.1.00673.S & ALMA-2022.1.00673.S: *Characterizing the Merging Host Galaxies of a Close Quasar Pair at z=5.66*

SELECTED TALKS

ESO Thirty Minutes Talk	03/28/2019
Steward Early Career Scientist Talk	04/05/2021
SAZERAC2 Conference	06/17/2021
LSST AGN Science Collaboration Meeting	07/14/2021
Yale Galaxy Lunch Talk	12/08/2021
NOIRLab FLASH Talk	12/10/2021
TAPIR Seminar at Caltech	02/04/2022
UCSC FLASH Talk	02/11/2022
MKI Journal Club	04/21/2023
First Light Conference at MIT	06/12/2023
Roman Science Inspired by Emerging JWST Results	06/21/2023
New Era of AGN Science with LSST	07/25/2023

EXPERIENCE OF REFEREE / PROPOSAL VIEWER / CONFERENCE ORGANIZER

Referee of MNRAS	2020-Present
Referee of ApJ	2021-Present
Referee of RAA	2022-Present
Proposal Reviewer for Gemini	2019-Present
Proposal Reviewer for ALMA	2021-Present
Proposal Reviewer for ESO	2022-Present
Local Organization Committee, First Light Conference at MIT	06/2023
Science Organization Committee, New Era of AGN Science with LSST	07/2023

TEACHING

Teaching Assistant, ASTR201 (Cosmology)	Fall 2018
Teaching Assistant, ASTR170B1 (The Physical Universe)	Spring 2021

SERVICE / COMMUNITY CONNECTION / Conference O

Host of Steward Observatory Science Coffee	2019-2022
Host of MKI Morning Afternoon Talk	2023-Present
Member, LSST AGN Science Collaboration	2021-Present
Member, LSST Strong Lensing Science Collaboration	2021-Present
Member, the EREBUS Collaboration	2022-Present
Member, the EIGER Collaboration	2022-Present

SELECTED HONORS & AWARDS

Award for Excellence in Scholarship, College of Science, Univ. of Arizona	04/2022
NRAO Student Observing Support Award	09/2018
Outstanding Graduates of Beijing	07/2016
National Scholarship	12/2014

Gold Medal in Chinese National Astronomy Olympiad 05/2012
Silver Medal in Asian-Pacific Astronomy Olympiad 11/2011
Silver Medal in Chinese Physics Olympiad 05/2011

PUBLICATIONS

Publications as the First Author (8 in total)

8. Detecting and Characterizing Young Quasars. III. The Impact of Gravitational Lensing Magnification
Yue, M., Eilers, A.-C., Simcoe, R. et al. 2023, ApJ, 950, 105. doi:10.3847/1538-4357/accf20

7. A Survey for High-redshift Gravitationally Lensed Quasars and Close Quasars Pairs. I. the Discoveries of an Intermediately-lensed Quasar and a Kpc-scale Quasar Pair at z~5
Yue, M., Fan, X., Yang, J. et al. 2022, submitted to AJ

6. A Mock Catalog of Gravitationally Lensed Quasars for the LSST Survey.
Yue, M., Fan, X., Yang, J. et al. 2022, AJ, 163, 139. doi: 10.3847/1538-3881/ac4cb0

5. Revisiting the Lensed Fraction of High-Redshift Quasars.
Yue, M., Fan, X., Yang, J., et al. 2022, ApJ, 925, 169. doi:10.3847/1538-4357/ac409b

4. A Candidate Kiloparsec-scale Quasar Pair at z=5.66.
Yue, M., Fan, X., Yang, J. et al. 2021, ApJL, 921, L27. doi:10.3847/2041-8213/ac31a9

3. ALMA Observations of the Sub-kpc Structure of the Host Galaxy of a z=6.5 Lensed Quasar: A Rotationally-Supported Hyper-Starburst System at the Epoch of Reionization.
Yue, M., Yang, J., Fan, X. et al. 2021, ApJ, 917, 99. doi:10.3847/1538-4357/ac0af4

2. Quasars Have Fewer Close Companions than Normal Galaxies.
Yue, M., Fan, X., Schindler, J.-T. et al. 2019, ApJ, 883, 141. doi:10.3847/1538-4357/ab3db2

1. The Sloan Digital Sky Survey Reverberation Mapping Project: Quasar Host Galaxies at z < 0.8 from Image Decomposition.
Yue, M., Jiang, L., Shen, Y., et al. 2018, ApJ, 863, 21. doi:10.3847/1538-4357/aacf04

Refereed Publications as a Co-Author (21 in total)

28. EIGER IV: The cool 10^{4}K circumgalactic environment of high-z galaxies reveals remarkably efficient IGM enrichment
Bordoloi, R., Simcoe, R.~A., Matthee, J., et al.\ 2023, arXiv:2307.01273. doi:10.48550/arXiv.2307.01273

27. Streamlined Lensed Quasar Identification in Multiband Images via Ensemble Networks
Taufik Andika, I., Suyu, S.~H., Ca{\~n}ameras, R., et al.\ 2023, arXiv:2307.01090. doi:10.48550/arXiv.2307.01090

26. Little Red Dots: an abundant population of faint AGN at $z\sim5$ revealed by the EIGER and FRESCO JWST surveys
Matthee, J., Naidu, R. P., Brammer, G., et al. 2023, arXiv:2306.05448. doi:10.48550/arXiv.2306.05448

25. The Sloan Digital Sky Survey Reverberation Mapping Project: Key Results

Shen, Y., Grier, C.~J., Horne, K., et al.\ 2023, arXiv:2305.01014. doi:10.48550/arXiv.2305.01014

24. A SPectroscopic Survey of Biased Halos in the Reionization Era (ASPIRE): A First Look at the Rest-frame Optical Spectra of z > 6.5 Quasars Using JWST
Yang, J., Wang, F., Fan, X., et al. 2023, ApJL, 951, L5. doi:10.3847/2041-8213/acc9c8

23. A SPectroscopic Survey of Biased Halos in the Reionization Era (ASPIRE): JWST Reveals a Filamentary Structure around a z = 6.61 Quasar
Wang, F., Yang, J., Hennawi, J.~F., et al. 2023, ApJL, 951, L4. doi:10.3847/2041-8213/accd6f

22. EIGER III. JWST/NIRCam observations of the ultra-luminous high-redshift quasar J0100+2802
Eilers, A.-C., Simcoe, R. A., **Yue, M.**, et al. 2023, ApJ, 950, 68. doi:10.3847/1538-4357/acd776 doi:10.48550/arXiv.2211.16261

21. Deep XMM-Newton Observations of an X-ray Weak, Broad Absorption Line Quasar at z=6.5
Yang, J., Fan, X., Wang, F., et al. 2022, ApJL, 924, L25. doi:10.3847/2041-8213/ac45f2

20. Probing Early Super-massive Black Hole Growth and Quasar Evolution with Near-infrared Spectroscopy of 37 Reionization-era Quasars at 6.3 < z <= 7.64
Yang, J., Wang, F., Fan, X., et al. 2021, accepted by ApJ. arXiv:2109.13942

19. A Luminous Quasar at Redshift 7.642.
Wang, F., Yang, J., Fan, X., et al. 2021, ApJL, 907, L1. doi:10.3847/2041-8213/abd8c6

18. A Closer Look at Two of the Most Luminous Quasars in the Universe.
Schindler, J.-T., Fan, X., Novak, M., et al. 2021, ApJ, 906, 12. doi:10.3847/1538-4357/abc554

17. Measurements of the $z \sim 6$ Intergalactic Medium Optical Depth and Transmission Spikes Using a New z > 6.3 Quasar Sample.
Yang, J., Wang, F., Fan, X., et al. 2020, ApJ, 904, 26. doi:10.3847/1538-4357/abbc1b

16. Pōniuā'ena: A Luminous z = 7.5 Quasar Hosting a 1.5 Billion Solar Mass Black Hole.
Yang, J., Wang, F., Fan, X., et al. 2020, ApJL, 897, L14. doi:10.3847/2041-8213/ab9c26

15. A Significantly Neutral Intergalactic Medium Around the Luminous z = 7 Quasar J0252-0503.
Wang, F., Davies, F. B., Yang, J., et al. 2020, ApJ, 896, 23. doi:10.3847/1538-4357/ab8c45

14. Exploring Reionization-era Quasars. III. Discovery of 16 Quasars at $6.4 \lesssim z \lesssim 6.9$ with DESI Legacy Imaging Surveys and the UKIRT Hemisphere Survey and Quasar Luminosity Function at $z \sim 6.7$.
Wang, F., Yang, J., Fan, X., et al. 2019, ApJ, 884, 30. doi:10.3847/1538-4357/ab2be5

13. Far-infrared Properties of the Bright, Gravitationally Lensed Quasar J0439+1634 at z = 6.5.
Yang, J., Venemans, B., Wang, F., et al. 2019, ApJ, 880, 153. doi:10.3847/1538-4357/ab2a02

12. The Extremely Luminous Quasar Survey in the Pan-STARRS 1 Footprint (PS-ELQS).
Schindler, J.-T., Fan, X., Huang, Y.-H., et al. 2019, ApJS, 243, 5. doi:10.3847/1538-4365/ab20d0

11. Spatially Resolved Interstellar Medium and Highly Excited Dense Molecular Gas in the Most Luminous Quasar at z = 6.327.
Wang, F., Wang, R., Fan, X., et al. 2019, ApJ, 880, 2. doi:10.3847/1538-4357/ab2717

10. Exploring Reionization-era Quasars. IV. Discovery of Six New $z \gtrsim 6.5$ Quasars with DES, VHS, and unWISE Photometry.

Yang, J., Wang, F., Fan, X., et al. 2019, AJ, 157, 236. doi:10.3847/1538-3881/ab1be1

9. The Extremely Luminous Quasar Survey in the Sloan Digital Sky Survey Footprint. III. The South Galactic Cap Sample and the Quasar Luminosity Function at Cosmic Noon.
Schindler, J.-T., Fan, X., McGreer, I. D., et al. 2019, ApJ, 871, 258. doi:10.3847/1538-4357/aaf86c

8. Filling in the Quasar Redshift Gap at $z \sim 5.5$. II. A Complete Survey of Luminous Quasars in the Post-reionization Universe.
Yang, J., Wang, F., Fan, X., et al. 2019, ApJ, 871, 199. doi:10.3847/1538-4357/aaf858

7. The Third Data Release of the Beijing-Arizona Sky Survey.
Zou, H., Zhou, X., Fan, X., et al. 2019, ApJS, 245, 4. doi:10.3847/1538-4365/ab48e8

6. The Discovery of a Gravitationally Lensed Quasar at z = 6.51.
Fan, X., Wang, F., Yang, J., et al. 2019, ApJL, 870, L11. doi:10.3847/2041-8213/aaeffe

5. The Discovery of a Luminous Broad Absorption Line Quasar at a Redshift of 7.02.
Wang, F., Yang, J., Fan, X., et al. 2018, ApJL, 869, L9. doi:10.3847/2041-8213/aaf1d2

4. The First Data Release of the Beijing-Arizona Sky Survey.
Zou, H., Zhang, T., Zhou, Z., et al. 2017, AJ, 153, 276. doi:10.3847/1538-3881/aa72d9

3. Discovery of 16 New $z \sim 5.5$ Quasars: Filling in the Redshift Gap of Quasar Color Selection.
Yang, J., Fan, X., Wu, X.-B., et al. 2017, AJ, 153, 184. doi:10.3847/1538-3881/aa6577

2. A Survey of Luminous High-redshift Quasars with SDSS and WISE. II. the Bright End of the Quasar Luminosity Function at $z \approx 5$.
Yang, J., Wang, F., Wu, X.-B., et al. 2016, ApJ, 829, 33. doi:10.3847/0004-637X/829/1/33

1. A Survey of Luminous High-redshift Quasars with SDSS and WISE. I. Target Selection and Optical Spectroscopy.
Wang, F., Wu, X.-B., Fan, X., et al. 2016, ApJ, 819, 24. doi:10.3847/0004-637X/819/1/24