Zihao Li (黎子豪)

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Education

University of Copenhagen **Aug. 2024 –**
Ph.D. in Astronomy. *Copenhagen, Denmark*
Advisor: Lise Christensen and Koki Kakiichi

Tsinghua University **Sep. 2021 – Jun. 2024**
M.Sc. in Astronomy. GPA: 3.85/4.00 *Beijing, China*
Advisor: Zheng Cai

Sichuan University **Sep. 2017 – Jun. 2021**
B.Eng. in Aerospace Engineering. GPA: 3.80/4.00 rank: 2/28 *Chengdu, China*
Honors Degree in Top-notch Program.

Research Interests & Experience

- (Spatially resolved) metal enrichment of high-z galaxies.
- Environmental dependence of galaxy formation and evolution.
- Probe large scale structure through IGM tomography.
- Data reduction for JWST NIRCam/NIRISS WFSS.

Honors & Awards

- Outstanding Presentation Award for Graduate Research | Nanjing University. 2023
- 1^{st} Scholarship for Comprehensive Performance (10k CNY) | Tsinghua University. 2022
- Award for Excellent Thesis | Chinese National Level in Aeronautics & Astronautics. 2021
- MITACS Research Fellow in Astronomy ($6k, cancelled due to COVID) | University of Victoria. 2020
- 1^{st} Scholarship for Academic Performance | Sichuan University. 2020
- Summer Abroad Subsidy (10k CNY) | Sichuan University. 2019
- 1^{st} Scholarship of China Space Foundation (8k CNY)| Sichuan University. 2018
- 1^{st} Scholarship for Comprehensive Performance | Sichuan University. 2018

Publications

1st/2nd Author Papers:

- **Li, Z.**, Cai, Z., et al. Cosmic evolution of galaxies' chemical abundance gradients: mode transitions of galaxy formation. Submitted
- **Li, Z.**, Cai, Z., et al. A SPectroscopic survey of biased halos In the Reionization Era (ASPIRE): First Look at the Metal Enrichment and its Environmental Effect at $z \approx 5-7$ in QSO fields with JWST. In Prep
- **Li, Z.**, Cai, Z., et al. MAGNIF: A Tentative Lensed Rotating Disk at z = 8.34 detected by JWST NIRCam WFSS with Dynamical Forward Modeling. 2023, submitted to ApJ, arXiv:2310.09327
- **Li, Z.**, Wang, X., Cai, Z., et al. First Census of Gas-phase Metallicity Gradients of Star-forming Galaxies in Overdense Environments at Cosmic Noon. 2022, ApJL, 929, L8
- Wang, X., **Li, Z.**, Cai, Z., et al. The Mass–Metallicity Relation at Cosmic Noon in Overdense Environments: First Results from the MAMMOTH–Grism HST Slitless Spectroscopic Survey. 2022, ApJ, 926, 70
- **Li, Z.**, Horowitz, B. and Cai, Z. Improved Lyα Tomography Using Optimized Reconstruction with Constraints on Absorption (ORCA). 2021, ApJ, 916, 20

Full list in ADS.

Talks

- Jan. 2025. *JWST NIRCam WFSS data reduction workshop, lecturer at NAOC.* (Remote)
- Aug. 2024. *"Insights into cosmic evolution of gas-phase metallicity gradients with JWST"*, contributed talk at Santa Cruz Galaxy Workshop. (Santa Cruz, US)
- Nov. 2023. *"JWST insights on mass-metallicity relation and metallicity gradients of early galaxies"*, contributed talk at Nanjing University. (Nanjing, China)
- May. 2023. *"The metal-enrichment of low mass galaxies from cosmic dawn to noon in the JWST era"*, contributed talk at Chinese Astronomical Society Guoshoujing Symposium on Galaxies and Cosmology. (Huangshan, China)
- Mar. 2023. *"Research progress with HST/JWST slitless spectrograph and science preparation for CSST"*, contributed talk at China Space Station Telescope Conference 2023. (Huairou, China)

Observing Proposals

Co-Investigator:

- JWST-GO-2883, PI Fengwu Sun: MAGNIF: Medium-band Astrophysics with the Grism of NIRCam in Frontier Fields.
- JWST-GO-3325, PI Feige Wang: Mapping the Most Extreme Protoclusters in the Epoch of Reionization.
- HST-GO-17159, PI Xin Wang: Escaping Lyman Continuum from the Overdensities of Extreme Emission Line Galaxies at $z \sim 2.2$.
- ALMA-2023.1.01213.S, PI Yunjing Wu: Revealing the dominant process that regulates gas-phase metallicity during the ongoing mergers at $z > 6$.

Teaching Experience

- Teaching Assistant of *Advanced Observational Astrophysics* at Tsinghua University. Spring 2023

Professional Service

- Reviewer for ApJ, Nat. Commun.

Outreach Activities

- Founder of Astronomical Research Scholarship of Sichuan University (30,000 CNY). 2025–
- Department Director of Sichuan University Astronomy Society. 2018–2019
- Co-Captain/Pilot/Technician of Sichuan University Students Aeromodel Team. 2018–2019

References

Prof. Zheng Cai Department of Astronomy, Tsinghua University
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Prof. Xin Wang National Astronomical Observatories, Chinese Academy of Sciences
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Dr. Benjamin Horowitz Kavli Institute for the Mathematics and Physics of the Universe, Tokyo University
ben.horowitz@ipmu.jp
Prof. Lise Christensen Niels Bohr Institute, University of Copenhagen
lichrist@nbi.ku.dk