Zihao Wu

Education

Harvard University — Cambridge, MA
Ph.D. Candidate. Advisor: Daniel J. Eisenstein — 2023 – Expected 2028

Peking University — Beijing, CN
B.S. in Astronomy — 2019 – 2023

Research Interests

1. Galaxy Formation and Evolution in the Early Universe
2. Galaxy Clustering and Dark Matter Halos
3. Supermassive and Intermediate-Mass Black Holes

Honor

Outstanding Graduate, Beijing City & Peking University	Dec 2022
First prize, Lin-bridge Scholarship for Astronomy Research	Sep 2022
First prize, Xingcheng Academic Forum in Physics, Peking University	May 2022
First prize, Mathematics Competition for College Students, Beijing	Dec 2020
Excellent Undergraduate Research, Peking University	May 2023

Observatory Allocations

JWST NIRSpec Multi-Object Spectroscopy	71.7 hours (PID 8018; Co-I)
JWST MIRI Low Resolution Spectroscopy	62.8 hours (PID 8544; Co-I)
JWST NIRCam Wide Field Slitless Spectroscopy	12.2 hours (PID 7336; Co-I)

Talks & Posters

JADES Collaboration Meeting, Boston — Jun 2025
Talk: Weak Metal Emission Lines of JADES-GS-z14-1 from Extremely Deep JWST MIRI, NIRCam, NIRSpec Observations.

First Galaxies, Oxford — Apr 2025
Flash talk: Stellar Continuum and Nebular Emission of JADES-GS-z14-1 from JWST MIRI/F770W Observations.

JADES Collaboration Meeting, Santa Cruz — Jan 2025
Talk: Stellar Continuum and Nebular Emission from JADES-GS-z14-1.
Talk: Wisp Subtraction in JWST NIRCam with the Non-negative Matrix Factorization Algorithm.

JADES Collaboration Meeting, Copenhagen — Jun 2024
Talk: MIRI Flux of JADES-GS-z14-0 From Individual Exposures Fitting

PKU-KIAA Seminar, Peking University — Jul 2024
Talk: Constraining the Abundance of Intermediate-mass Black Holes from Quasar Microlensing.

Yellow Mountain Guoshoujing Annual Conference — May 2023
Talk: The Elusive Population of Disk Galaxies with Double Radio Lobes

East Asia AGN Workshop — Oct 2021
Poster: AGN Identification from Galaxy 2D Light Profile Decomposition

Professional Service

Member, The JWST Advanced Deep Extragalactic Survey (JADES)	2023 – present
Organizer, Harvard Astronomy Student-Faculty Forum	2024 – present
Student representative on Harvard Griffin GSAS Student Council	2024 – present
Student representative on Harvard Astronomy Student Faculty Council	2024 – 2025
Academic chair, Student Council of School of Physics, Peking University	2020 – 2021

Community Service

Volunteer in Cambridge Explore the Universe	2024
Students tutor in advanced physics courses	2022
Bicycle mechanic and cyclist in a 900 km 20-day long-distance team cycling	2020

Selected Press Coverage

CfA Press Release (2024)
"CfA Astronomers Help Find Most Distant Galaxy Using James Webb Space Telescope"

Sky & Telescope Magazine (2023)
"Unearthing Galactic Gems"

Publication

Zihao Wu, Daniel J. Eisenstein, Benjamin D. Johnson, Kevin Hainline, *et al.*
"JADES: A Prominent Galaxy Overdensity Candidate within the First 500 Myr"
arXiv e-prints, arXiv:2601.15960 (2026)

Zihao Wu, Benjamin D. Johnson, Daniel J. Eisenstein, Phillip Cargile, *et al.*
"JWST Advanced Deep Extragalactic Survey (JADES) Data Release 5: Wisp Subtraction with the Non-negative Matrix Factorization Algorithm"
arXiv e-prints, arXiv:2601.15958 (2026)

Zihao Wu, Daniel J. Eisenstein, Benjamin D. Johnson, Peter Jakobsen, *et al.*
"JADES-GS-z14-1: A Compact, Faint Galaxy at $z \approx 14$ with Weak Metal Lines from Extremely Deep JWST MIRI, NIRCam, and NIRSpec Observations"
arXiv e-prints, arXiv:2507.22858 (2025)

Zihao Wu, Luis C. Ho
"Detecting Intermediate-mass Black Holes Using Quasar Microlensing"
The Astrophysical Journal, 985, 2 (2025)

Zihao Wu, Luis C. Ho, Ming-Yang Zhuang
"An Elusive Population of Massive Disk Galaxies Hosting Double-lobed Radio-loud AGNs"
The Astrophysical Journal 941, 95 (2022)

P. Rinaldi, G. Rieke, **Z. Wu**, *et al.*
"Deciphering the Nature of Virgil: An Obscured AGN Lurking Within an Apparently Normal Lyman- Emitter During Cosmic Reionization"
arXiv e-prints, arXiv:2504.01852 (2025)

J. Helton, G. Rieke, S. Alberts, **Z. Wu**, D. Eisenstein, *et al.*
"JWST/MIRI photometric detection at 7.7 μm of the stellar continuum and nebular emission in a galaxy at z>14"
Nature Astronomy, 1-12 (2025)

F. Sun, D. J. Eisenstein, F. DEugenio, K. Hainline, *et al.*
"JADES: Discovery of Large Reservoirs of Small Dust Grains in the Circumgalactic Medium of Massive Galaxies at $z \sim 3.5$ through Deep JWST/NIRCam Imaging and Grism Spectroscopy"
arXiv e-prints, arXiv:2601.15961 (2026)

K. N. Hainline, D. J. Eisenstein, L. Whitler, B. Robertson, *et al.*
"JWST Advanced Deep Extragalactic Survey (JADES) Data Release 5: Photometrically Selected Galaxy Candidates at $z > 8$"
arXiv e-prints, arXiv:2601.15959 (2026)

C. Carreira, B. E. Robertson, A. L. Danhaive, Z. Ji, *et al.*
"JWST Advanced Deep Extragalactic Survey (JADES) Data Release 5: Catalogs of inferred morphological properties of galaxies from JWST/NIRCam imaging in GOODS-N and GOODS-S"
arXiv e-prints, arXiv:2601.15957 (2026)

B. E. Robertson, B. D. Johnson, S. Tacchella, D. J. Eisenstein, *et al.*
"JWST Advanced Deep Extragalactic Survey (JADES) Data Release 5: Photometric Catalog"

arXiv e-prints, arXiv:2601.15956 (2026)

S. Alberts, D. J. Eisenstein, A. J. Bunker, E. Curtis-Lake, *et al.*
"JWST Advanced Deep Extragalactic Survey (JADES) Data Release 5: MIRI Coordinated Parallels in GOODS-S and GOODS-N"
arXiv e-prints, arXiv:2601.15955 (2026)

B. D. Johnson, B. E. Robertson, D. J. Eisenstein, S. Tacchella, *et al.*
"JWST Advanced Deep Extragalactic Survey (JADES) Data Release 5: NIRCam Imaging in GOODS-S and GOODS-N"
arXiv e-prints, arXiv:2601.15954 (2026)

J. M. Helton, J. E. Morrison, K. N. Hainline, F. DEugenio, *et al.*
"Ionizing Photon Production Efficiencies and Chemical Abundances at Cosmic Dawn Revealed by Ultra-Deep Rest-Frame Optical Spectroscopy of JADES-GS-z14-0"
arXiv e-prints, arXiv:2512.19695 (2025)

Z. Zhang, M. Li, M. Oguri, X. Lin, *et al.*
"Little red dot variability over a century reveals black hole envelope via a giant Einstein cross"
arXiv e-prints, arXiv:2512.05180 (2025)

A. L. Danhaive, S. Tacchella, A. J. Bunker, E. Curtis-Lake, *et al.*
"The dark side of early galaxies: `geko` uncovers dark-matter fractions at $z \sim 4$–6"
arXiv e-prints, arXiv:2510.14779 (2025)

J. A. A. Trussler, A. J. Cameron, D. J. Eisenstein, H. Katz, *et al.*
"Cloudy with a chance of starshine: Possible photometric signatures of nebular-dominated emission in $1.5 < z < 8.5$ JADES galaxies"
arXiv e-prints, arXiv:2510.12622 (2025)

F. DEugenio, E. J. Nelson, D. J. Eisenstein, R. Maiolino, *et al.*
"JADES Dark Horse: demonstrating high-multiplex observations with JWST/NIRSpec dense-shutter spectroscopy in the JADES Origins Field"
arXiv e-prints, arXiv:2510.11626 (2025)

A. L. Danhaive, S. Tacchella, W. McClymont, B. Robertson, *et al.*
"Beyond the stars: Linking Hα sizes, kinematics, and star formation in galaxies at $z \sim 4$–6 with JWST grism surveys and `geko`"
arXiv e-prints, arXiv:2510.06315 (2025)

Y. Zhu, M. J. Rieke, Z. Ji, A. J. Bunker, *et al.*
"Clump-like Structures in High-Redshift Galaxies: Mass Scaling and Radial Trends from JADES"
arXiv e-prints, arXiv:2601.15965 (2026)

P. Rinaldi, P. Prez-Gonzlez, G. Rieke, *et al.*
"Deciphering the Nature of Virgil: An Obscured AGN Lurking Within an Apparently Normal Lyman- Emitter During Cosmic Reionization"
arXiv e-prints, arXiv:2504.01852 (2025)

J. Witstok, R. Smit, W. Baker, P. Rinaldi, *et al.*
"On the origins of oxygen: ALMA and JWST characterize the multi-phase, metal-enriched, star-bursting medium within a 'normal' $z > 11$ galaxy"
arXiv e-prints, arXiv:2507.22888 (2025)