

Zhuyun Zhuang

PhD Candidate in Astrophysics

✉ zhuang@astro.caltech.edu 📍 Cahill 256, 1216 E. California Blvd, Pasadena, CA 91125, USA
📞 0000-0002-1945-2299 🌐 <https://zhuyunz.github.io/>

Research Interests

Galaxy formation and evolution; chemical evolution of galaxies and element abundances; interstellar medium; stellar population and quenching processes; integral field spectroscopy

Education

2019–2025 (expected)	Ph.D. in Astrophysics , California Institute of Technology <i>Advisors: Charles C. Steidel & Evan N. Kirby (Notre Dame)</i>
2021	M.Sc. in Astrophysics , California Institute of Technology
2019	B.Sc. in Astronomy (National Elite Program), Nanjing University <i>Advisor: Yong Shi</i>

Selected Awarded Observing Proposals

- Keck Telescopes as Co-I (Z. Zhuang as the primary author, submitted by E. N. Kirby or by C. C. Steidel):
 - Keck/LRIS - 3 nights: FUV spectroscopy of star-forming galaxies at $z \sim 3$
 - Keck/KCWI - 8 nights: mass-metallicity relation of low-mass, star-forming galaxies
 - Keck/MOSFIRE+LRIS - 2.5 nights: gravitationally-lensed quiescent galaxies at $z \gtrsim 1$
- Palomar 200-inch Telescope as PI:
 - P200/CWI - 2 nights: the discrepancy in the stellar mass-stellar metallicity relation
- Others as Co-I:
 - HST/WFC3 - 2 orbits (GO 17437; PI: T. Barone): IMF of two lensed, quiescent galaxies at $z \gtrsim 1$.
 - JWST/NIRSpec - 11 hours (GO 3507; PI: T. Barone): IMF of two lensed, quiescent galaxies at $z \gtrsim 1$.
 - Gemini/GSAOI - 4.5 hours (PI: N. Leethochawalit): quenching mechanism for a lensed quiescent galaxy at $z > 1$
 - P200/CWI - 4 nights (PI: Gaoxiang Jin): merging AGN in MaNGA

Honors and Awards

2022–2025	Future Investigators in NASA Earth and Space Science and Technology (FINESST; \$150K)
2022 & 2023	David and Barbara Groce Travel Fund, Caltech
2019	Outstanding Graduates, Nanjing University
2015–2018	Elite Program Fellowship for Undergraduate Student, Nanjing University
2017	Zheng Gang Scholarship (Top 1%), Nanjing University
2017	First Prize, The 20 th Forum of Sciences and Arts of Nanjing University
2016	The National Astronomical Observatories Scholarship, Chinese Academy of Science
2016 & 2018	National Scholarship (Top 1%), Chinese Ministry of Education

Selected Research Presentations

Seminars:

- Jan 2024 SHAO Astrophysics Seminar, Shanghai, China
- Jan 2024 NAOC Astrophysics Seminar, Beijing, China
- Aug 2023 Swinburne CAS colloquium, Melbourne, Australia
- May 2023 CIERA Observer Group Meeting, Northwestern University, Evanston, USA
- Aug 2022 Astrophysics Seminar at University of Notre Dame, South Bend, USA
- Feb 2022 Galaxies Group Meeting at the University of Michigan, Ann Arbor, USA

Conferences:

- Sep 2024 Highlighted Talk, GALAXIES AT CROSSROADS, Brno, Czech Republic
- Sep 2024 Contributed Talk, Keck Science Meeting, Pasadena, USA
- Dec 2023 Contributed Talk, Resolving Galaxy Ecosystems Across All Scales, Hong Kong, China
- Oct 2023 Contributed Talk, A Life Devoted to Stellar Populations, Tenerife, Spain
- Sep 2023 Contributed Talk, GalFRESCA 2023, Riverside, USA
- Sep 2023 Contributed Talk, Galaxy Transformation Across Space and Time, Canberra, Australia
- Nov 2022 Contributed Talk, Linking the Galactic and Extragalactic (remote), Wollongong, Australia
- Jun 2022 Contributed Talk, 240th American Astronomical Society Meeting, Pasadena, USA
- Sep 2021 Contributed Talk, Keck Science Meeting, San Diego, USA

Teaching Experience

- Spring 2021 TA, Ay105: Optical Astronomy Instrumentation Lab (undergraduate), Caltech
- Winter 2021 TA, Ay127: Astrophysical Cosmology (graduate), Caltech
- Fall 2020 TA, Ay123: Structure and Evolution of Stars (graduate), Caltech
- Fall 2018 TA, Basics of Python Programming (undergraduate), Nanjing University

Services and Outreach

- 2023– Referee for ApJ, ApJL
- Jul 2024 Speaker, Astronomy on Tap: Los Angeles
- 2023–2024 Astronomy Colloquium Czar, Caltech Astronomy
- Jun 2022 Chambliss Judge, 240th AAS
- Jun 2021 Host, Astronomy on Tap (virtual, in Mandarin)
- Jan 2021 Chambliss Judge, 237th AAS
- 2020–2021 Student Office Czar, Caltech Astronomy
- 2019– Member, American Astronomical Society
- 2016–2017 Head of Public Relations Department at Astronomy Students Union, Nanjing University

Publications

First-author publications:

1. **Zhuang, Z. et al.** Metals in Star-forming Galaxies with KCWI. I. Methodology and First Results on the Abundances of Iron, Magnesium, and Oxygen. *ApJ* **972**, 182. doi:10.3847/1538-4357/ad5ff8 (Sept. 2024).

2. **Zhuang, Z. et al.** A Glimpse of the Stellar Populations and Elemental Abundances of Gravitationally Lensed, Quiescent Galaxies at $z \gtrsim 1$ with Keck Deep Spectroscopy. *ApJ* **948**, 132. doi:10.3847/1538-4357/acc79b (May 2023).
3. **Zhuang, Z.**, Kirby, E. N., Leethochawalit, N. & de los Reyes, M. A. C. NGC 147 Corroborates the Break in the Stellar Mass-Stellar Metallicity Relation for Galaxies. *ApJ* **920**, 63. doi:10.3847/1538-4357/ac1340 (Oct. 2021).

Co-author publications:

1. Nunez, E. H. et al. KBSS-InCLOSE I: Design and First Results from the Inner CGM of QSO Line Of Sight Emitting Galaxies at $z \sim 2-3$. *arXiv e-prints*, arXiv:2408.14647. doi:10.48550/arXiv.2408.14647 (Aug. 2024).
2. de los Reyes, M. A. C., Kirby, E. N., **Zhuang, Z.**, Steidel, C. C., Chen, Y. & Wheeler, C. Dwarfs in Void Environments (DIVE): The Stellar Kinematics of Void Dwarf Galaxies Using the Keck Cosmic Web Imager. *ApJ* **951**, 52. doi:10.3847/1538-4357/acd189 (July 2023).
3. Strotjohann, N. L. et al. Bright, Months-long Stellar Outbursts Announce the Explosion of Interaction-powered Supernovae. *ApJ* **907**, 99. doi:10.3847/1538-4357/abd032 (Feb. 2021).
4. Burdge, K. B. et al. A Systematic Search of Zwicky Transient Facility Data for Ultracompact Binary LISA-detectable Gravitational-wave Sources. *ApJ* **905**, 32. doi:10.3847/1538-4357/abc261 (Dec. 2020).
5. Fremling, C. et al. The Zwicky Transient Facility Bright Transient Survey. I. Spectroscopic Classification and the Redshift Completeness of Local Galaxy Catalogs. *ApJ* **895**, 32. doi:10.3847/1538-4357/ab8943 (May 2020).