

Zhuyun Zhuang

PhD Candidate in Astrophysics

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🌐 <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 with Honors (National Elite Program), Nanjing University <i>Advisor: Yong Shi</i>

Selected Awarded Observing Proposals

- Keck Telescopes (drafting the proposal, submitted on my behalf 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 (PI: Tania Barone): IMF of two lensed, quiescent galaxies at $z \gtrsim 1$.
 - JWST/NIRSpec - 11 hours (PI: Tania Barone): IMF of two lensed, quiescent galaxies at $z \gtrsim 1$.
 - Gemini/GSAOI - 4.5 hours (PI: Nicha 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

Jan 2024	Invited Talk, SHAO Astrophysics Seminar, Shanghai, China
Jan 2024	Invited Talk, NAOC Astrophysics Seminar, Beijing, China
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
Aug 2023	Invited Talk, Swinburne CAS colloquium, Melbourne, Australia
May 2023	Invited Talk, CIERA Observer Group Meeting, Northwestern University, Evanston, USA
Nov 2022	Contributed Talk, Linking the Galactic and Extragalactic (remote), Wollongong, Australia
Aug 2022	Invited Talk, Astrophysics Seminar at University of Notre Dame, South Bend, USA
Jun 2022	Contributed Talk, 240th American Astronomical Society Meeting, Pasadena, USA
Feb 2022	Invited Talk, Galaxies Group Meeting at the University of Michigan, Ann Arbor, 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
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

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. *arXiv e-prints*, arXiv:2407.02556 (July 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. **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).
4. 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).

5. **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).
6. 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).
7. 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).