

# ZEFENG LI

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## EDUCATION & EMPLOYMENT

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Postdoctoral Research Associate, Durham University	Oct 2023 - present
Ph.D., Astronomy & Astrophysics, Australian National University	Oct 2019 - Aug 2023
Thesis: <i>metallicity correlations in galaxies</i>	Advisor: Mark R. Krumholz & Emily Wisnioski
Algorithm Engineer, Cloudwalk Technology	Oct 2018 - May 2019
B.S., Physics, Astronomy, Peking University	Sept 2013 - Jul 2017

## VISITING EXPERIENCES

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Summer Research, Australian National University	Oct 2017 - Jan 2018
Undergraduate Visiting Research, University of Arizona	Mar 2016 - Jul 2016

## CONFERENCES & TALKS

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Seminar talk at THU	Beijing, May 2025
Invited talk at University of Leicester	Leicester (remote), Mar 2025
Seminar talk at USTC	Hefei, Dec 2024
Contributed talk, ESO-SKA conference	Busselton, Dec 2024
Friday lunch talk at Durham University	Durham, Nov 2024
Contributed talk, METALS 2023	Santiago (remote), Nov 2023
Seminar talk at PKU / KIAA	Beijing, Sept 2023
Seminar talk at JLU	Changchun, Sept 2023
Seminar talk at SHAO	Shanghai, Sept 2023
Seminar talk at NJU	Nanjing, Sept 2023
Seminar talk at UWA / ICRAR	Perth, Apr 2023
Attendee, CSST workshop	Beijing (remote), Jul 2022
Poster, From Stars to Galaxies II	Gothenburg, Jun 2022
Oral talk, star formation group meeting at SHAO	Shanghai (remote), Jan 2022
Poster, KIAA Forum on Gas in Galaxies	Beijing (remote), Nov 2021
Poster, MOS-Galaxy STScI workshop	Baltimore (remote), May 2021
Contributed talk, Annual Conference of the Chinese Astronomical Society	Wuhan, Nov 2016

## PROFESSIONAL EXPERIENCE

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### Team

- MUSE large program of star formation and AGN in the JELS-COSMOS field: Co-I
- JWST Emission Line Survey (JELS): Co-I
- MUSE-ALMA Unveiling the Virgo Environment (MAUVE): member

### Computation

- Python packages ADABIN (adaptive binning) and METCORR (two-point correlation computation)
- Enterprise-class machine learning / deep learning (convolutional neural network)

### **Observation**

- 6-m class telescope (Multiple Mirror Telescope): 5 nights
- 2-m class telescope (Bok Telescope, Siding Spring 2.3m Telescope): 18 nights

### **Tutorial**

- PHYS1122 (2024-25 academic year): Foundations of Physics

### **Community service**

- Isaac Newton Telescope Group anonymous proposal review

## **AWARDS**

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RSAA HDR travel fund (A\$5,000)	Australian National University, Dec 2022
ASTRO 3D travel fund (A\$3,000 in total)	Australian National University, Dec 2022
Vice Chancellor travel fund (A\$1,500)	Australian National University, Dec 2022
Summer Research Scholarship (A\$2,000)	Australian National University, Oct 2017
Weiming Scholarship for outstanding thesis (top 10%)	Peking University, Jul 2017
Lin-Qiao Scholarship for outstanding undergraduate research (top 20%)	Peking University, Oct 2016
Shenkeqi Scholarship (top 30%)	Peking University, Sept 2014

## PUBLICATIONS

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All the papers can be found in my [ADS library](#) or [ORCID homepage](#) (**h-index** = 12).

### Corresponding-author

- (9) **Li, Z.**, Krumholz, M. R., McLeod, A. F., Swinbank, A. M., Wisnioski, E., Mendel, J. T., Belfiore, F., Cresci, G., Venturi, G., Kang, J. 2025, in submission  
*Element nucleosynthetic origins from abundance spatial distributions beyond the Milky Way*
- (8) **Li, Z.**, Dudzevičiūtė, U., Puglisi, A., Gillman, S., Swinbank, A. M., Cortese, L., Smail, I., McLeod, A. F., Glazebrook, K., Taylor, D. J., Bacon, R., Harrison, C., Ibar, E., Molina, J., Obreschkow, D. 2025, in submission  
*KURVS: chemical properties from multiple strong line calibrations for star-forming galaxies at  $z \sim 1.5$*
- (7) Chen, Q.-H., Garcia, A. M., Grasha, K., Wisnioski, E., **Li, Z.**, Torrey, P., Remus, R.-S., Kimmig, L. C., Battisti, A. 2025, in submission  
*Environmental effects on stellar age azimuthal variation in spiral galaxies in Auriga simulations*
- (6) Zhang, C., **Li, Z.**, Hu, Z., Krumholz, M. R. 2024, accepted for MNRAS (2 citation)  
*Understanding the Mechanisms Behind the Distribution of Galactic Metals*
- (5) Li, S.-L., **Li, Z.**, Wisnioski, E., Krumholz, M. R., Sánchez, S. F. 2024, [MNRAS](#), 536, 430 (2 citation)  
*Comparing metallicity correlations in nearby non-AGN and AGN-host galaxies*
- (4) **Li, Z.**, Grand, R. J. J., Wisnioski, E., Mendel, J. T., Krumholz, M. R., Ting, Y.-S., Pakmor R., Fragkoudi, F., Gómez, F. A., Marinacci, F., Ciucă, I. 2024, [MNRAS](#), 528, 7103 (2 citations)  
*Cosmological evolution of metallicity correlation functions from the Auriga simulations*
- (3) **Li, Z.**, Wisnioski, E., Mendel, J. T., Krumholz, M. R., Kewley, L. J., López-Cobá, C., Sánchez, S. F., Anderson, J. P., Galbany, L. 2023, [MNRAS](#), 518, 286 (17 citations)  
*Spatial metallicity distribution statistics at  $\sim 100$  pc scales in the AMUSING++ nearby galaxy sample*
- (2) **Li, Z.**, Krumholz, M. R., Wisnioski, E., Mendel, J. T., Kewley, L. J., Sánchez, S. F., Galbany, L. 2021, [MNRAS](#), 504, 5496 (20 citations)  
*Detection of metallicity correlations in 100 nearby galaxies*
- (1) **Li, Z.**, McGreer, I. D., Wu, X.-B., Fan, X., Yang, Q. 2018, [ApJ](#), 861, 6 (24 citations)  
*The Ensemble Photometric Variability of Over  $10^5$  Quasars in the Dark Energy Camera Legacy Survey and the Sloan Digital Sky Survey*

### Co-author

(For the papers in earthscience the full names of the journals are shown.)

- (20) Duncan, K. J. et al. (including **Li, Z.**) 2025, in submission  
*The JWST Emission Line Survey (JELS): Extending rest-optical narrow-band emission line selection into the Epoch of Reionization*
- (19) Pirie, C. A. et al. (including **Li, Z.**) 2025, accepted for MNRAS  
*The JWST Emission Line Survey (JELS): An untargeted search for  $H\alpha$  emission line galaxies at  $z > 6$  and their physical properties*
- (18) Myszka, A. et al. (including **Li, Z.**) 2025, [MNRAS](#), 540, 919  
*Exploring the chemical content of Galaxies using the SAMI Zoom Survey: a data release of 92 spatially resolved HII regions in nearby galaxies*
- (17) Taylor, D. J. et al. (including **Li, Z.**) 2025, [MNRAS](#), 536, 1149  
*The properties of the interstellar medium in dusty, star-forming galaxies at  $z \sim 2-4$ : The shape of the CO spectral line energy distributions*
- (16) Zhu, Z., **Li, Z.**, Campbell, I. H., Cawood, P. A., Lu, N., Nebel, O. 2024, [Earth and Planetary Science Letters](#), 648, 119070

*Quantifying the loss of continental crust into the mantle from mass/volume balance in modern collisional mountains*

- (15) Chen, Q.-H. et al. (including **Li, Z.**) 2024, [MNRAS](#), 534, 883  
*Quantifying the azimuthal variations in the interstellar medium in the spiral galaxies with the TY-PHOON survey*
- (14) Shen, Y. et al. (including **Li, Z.**) 2024, [ApJS](#), 272, 26  
*The Sloan Digital Sky Survey Reverberation Mapping Project: Key Results*
- (13) Li, S.-L. et al. (including **Li, Z.**) 2024, [MNRAS](#), 529, 4993  
*The mass-metallicity and fundamental metallicity relations in non-AGN and AGN-host galaxies*
- (12) Chen, Q.-H. et al. (including **Li, Z.**) 2024, [MNRAS](#), 527, 2991  
*The MAGPI Survey: Effects of Spiral Arms on Different Tracers of Interstellar Medium at  $z \sim 0.3$*
- (11) Zhu, Z. et al. (including **Li, Z.**) 2023, [Geochimica et Cosmochimica Acta](#), 346, 133  
*Evolution of the preserved European continental crust, constrained by U-Pb, O and Hf isotopic analyses of river detrital zircons*
- (10) Di, Y., **Li, Z.**, Amelin, Y. 2021, [Journal of Analytical Atomic Spectrometry](#), 36: 1489-1502  
*Monitoring and quantitative evaluation of Faraday cup deterioration using multidynamic isotope analyses of laboratory standards*
- (9) Kinemuchi, K. et al. (including **Li, Z.**) 2020, [ApJS](#), 250, 10  
*The Sloan Digital Sky Survey Reverberation Mapping Project: Photometric g and i Light Curves*
- (8) Di, Y. et al. (including **Li, Z.**) 2020, [American Mineralogist](#), 105 (2): 149-161  
*Original Water Content of Potassic Basalts from the Cenozoic Wudalianchi-Erkeshan-Keluo Volcanic Field, Northern China*
- (7) Wolf, C. et al. (including **Li, Z.**) 2020, [MNRAS](#), 491, 1970  
*Ultra-luminous quasars at redshift  $z > 4.5$  from SkyMapper*
- (6) Grier, C. J. et al. (including **Li, Z.**) 2019, [ApJ](#), 887, 1  
*The Sloan Digital Sky Survey Reverberation Mapping Project: Initial CIV Lag Results from Four Years of Data*
- (5) Zou, H. et al. (including **Li, Z.**) 2019, [ApJS](#), 245, 4  
*The Third Data Release of the Beijing-Arizona Sky Survey*
- (4) Shen, Y. et al. (including **Li, Z.**) 2019, [ApJ](#), 883, 14  
*The Sloan Digital Sky Survey Reverberation Mapping Project: Improving Lag Detection with an Extended Multi-Year Baseline*
- (3) Zou, H. et al. (including **Li, Z.**) 2017, [AJ](#), 153, 276  
*The First Data Release of the Beijing-Arizona Sky Survey*
- (2) Wang, F. et al. (including **Li, Z.**) 2017, [ApJ](#), 839, 27  
*First Discoveries of  $z > 6$  Quasars with the DECam Legacy Survey and UKIRT Hemisphere Survey*
- (1) Yang, J. et al. (including **Li, Z.**) 2017, [AJ](#), 153, 184  
*Discovery of 16 New  $z \sim 5.5$  Quasars: Filling in the Redshift Gap of Quasar Color Selection*