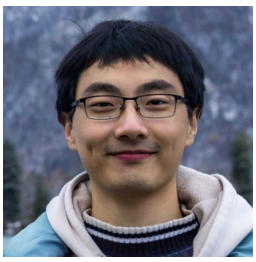
Lingrui Lin, Ph.D. student



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https://astronlin.github.io/ https://github.com/Astronlin

Education

2021 – present **Ph.D. student, School of Astronomy and Space Science, Nanjing University**
Thesis goal: *Multi-scale kinematics and dynamics of interstellar medium in galaxies*
Supervisor: *Zhi-Yu Zhang*

2017 – 2021 **B.Sc., School of Astronomy and Space Science, Nanjing University**
Thesis title: *Atomic gas kinematics of supernova remnant IC 443*
Supervisor: *Zhi-Yu Zhang*

Experiences

Sep 23, 2023 – Sep 30, 2023 **Visitor,** Arcetri Astrophysical Observatory, Florence, Italy
Topic: *[C I] kinematics of a high-z radio galaxy: PKS 0529-549*
Host: *Federico Lelli*

Oct 1, 2023 – Dec 22, 2023 **Early-Career Scientific Visitor,** European Southern Observatory (ESO), Garching bei München, Germany
Topic: *[C I] kinematics of a high-z radio galaxy: PKS 0529-549*
Host: *Carlos De Breuck*

Research

Journal Articles

1. **L. Lin**, F. Lelli, C. De Breuck, and Coauthors, "A Dynamically cold gas disk in an AGN-host galaxy at z $\simeq$ 2.6: flat rotation curve, disk-halo degeneracy, and gas accretion," *In prep.*,
2. **L. Lin**, Z.-Y. Zhang, J. Wang, and Coauthors, "Inadequate turbulent support in low-metallicity molecular clouds," *Under review at Nature Astronomy*,
3. F. Li, Z.-Y. Zhang, J. Wang, G. Luo, **L. Lin**, and J. Zhou, "Dense gas properties around the centre of the Circinus galaxy," *Mon. Not. R. Astron. Soc.*, vol. 527, no. 1, pp. 531–543, Jan. 2024. DOI: 10.1093/mnras/stad3241.
4. Y. Sun, Z.-Y. Zhang, J. Wang, *et al.*, "An improved method to measure $^{12}C/^{13}C$ and $^{14}N/^{15}N$ abundance ratios: revisiting CN isotopologues in the Galactic outer disc," *Mon. Not. R. Astron. Soc.*, vol. 527, no. 3, pp. 8151–8192, Jan. 2024. DOI: 10.1093/mnras/stad3643. arXiv: 2311.12971 [astro-ph.GA].
5. Y. Deng, Z.-Y. Zhang, P. Zhou, *et al.*, "Multiple gas phases in supernova remnant IC 443: mapping shocked H_2 with VLT/KMOS," *Mon. Not. R. Astron. Soc.*, vol. 518, no. 2, pp. 2320–2340, Jan. 2023. DOI: 10.1093/mnras/stac3139. arXiv: 2210.16909 [astro-ph.GA].
6. F. Lelli, Z.-Y. Zhang, T. G. Bisbas, *et al.*, "Cold gas disks in main-sequence galaxies at cosmic noon: Low turbulence, flat rotation curves, and disk-halo degeneracy," *Astron. Astrophys.*, vol. 672, A106, A106, Apr. 2023. DOI: 10.1051/0004-6361/202245105. arXiv: 2302.00030 [astro-ph.GA].
7. G. Luo, Z.-Y. Zhang, T. G. Bisbas, *et al.*, "Dependence of Chemical Abundance on the Cosmic-Ray Ionization Rate in IC 348," *Astrophys. J.*, vol. 942, no. 2, 101, p. 101, Jan. 2023. DOI: 10.3847/1538-4357/aca657. arXiv: 2211.13380 [astro-ph.GA].

8 L. Zhang, Z.-Y. Zhang, J. W. Nightingale, *et al.*, "Discovery of a radio jet in the Cloverleaf quasar at z = 2.56," *Mon. Not. R. Astron. Soc.*, vol. 524, no. 3, pp. 3671–3682, Sep. 2023. DOI: 10.1093/mnras/stad2069. arXiv: 2212.07027 [astro-ph.GA].

Conference Proceedings

1 C. De Breuck, B. Emonts, W. Wang, *et al.*, "ALMA observations of high redshift radio galaxies," in *ALMA at 10 years: Past, Present, and Future*, Dec. 2023, 50, p. 50. DOI: 10.5281/zenodo.10244516.

Telescope Proposals

I am familiar with both radio/mm/sub-mm single-dish and interferometers.
Successful telescope projects as P.I.:
ALMA; NOEMA; SMA; IRAM 30-m; SMT; JCMT; FAST; GBT; Effelsberg
Successful telescope projects as Co.I.:
ALMA; NOEMA; VLA; IRAM 30-m; SMT; JCMT; FAST; GBT; Effelsberg; JWST; CFHT; Gemini

Skills

Astronomical Expertise

1. Radio/mm/sub-mm observation and data reduction (both spectrometer and bolometer)
2. Single dish and interferometry data combination in u-v plane
3. Kinematic analysis using Position-Velocity diagrams
4. Proficient usage: GILDAS/CLASS, CASA, ^{3D}Barolo, Carta, Montage; Basic usage: GILDAS/PIIC, Starlink, MIR, Glue, …
5. Code development, including a python-based pipeline (FAST Interstellar H I, Fish) to calibrate/imaging the FAST data; see more in https://astronlin.github.io/.

Computational Skills

1. Coding: Python, Fortran, C++, LaTeX, Html, …
2. Operating System: Linux (help to maintain the Ubuntu/CentOS Server in our group and the remote connection), Mac OS (PC), Windows (PC)
3. Text Editor: Vim (proficient)

General

1. Languages: Mandarin Chinese (Native), English (Fluent).
2. Sports: Table tennis (ping-pong, advanced), Swimming (proficient), Basketball (competent), Badminton (competent), Tennis (novice), …
3. Photograph: Adobe Photoshop/Camera Raw, Adobe Premiere

Miscellaneous Experience

Responsibilities

2017 – 2018 Academic Representative, NJU Astronomy Class 2017

2018 – 2021 Monitor, NJU Astronomy Class 2017

Miscellaneous Experience (continued)

2018 – 2019 — Leader, Academic Division of NJU Great Astronomy Fans Association

— Captain, NJU Astronomy Table Tennis team

Awards

2018 — National Encouragement Scholarship

2018-2020 — Top Talent Program Scholarship × 3

2021 — Linqiao Scholarship of Peking University

— Outstanding undergraduate graduate