

# XIANGHAN CUI

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Homepage: <https://xianghancui.github.io>

## EDUCATION

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2026.01 – Present

Radio Astronomy

Netherlands Institute for Radio Astronomy (ASTRON), the Netherlands

*Postdoc researcher*, Collaborator: Prof. Joeri van Leeuwen

2025.07 – Present

Radio Astronomy

National Astronomical Observatories, China

*Postdoc researcher*, Collaborator: Prof. Pei Wang, Prof. Di Li, Prof. Chengmin Zhang, and Prof. Chaowei Tsai

2019.09 – 2025.06

Radio Astronomy

University of Chinese Academy of Sciences/National Astronomical Observatories, China

*Master and PhD student*, Mentors: Prof. Di Li and Prof. Chengmin Zhang

2023.12 – 2025.01

International Centre for Radio Astronomy Research/Curtin Institute of Radio Astronomy, Australia

*Visiting PhD student*, Mentor: Dr. Clancy W. James

2017.03 – 2018.06

School of Management, Huazhong University of Science and Technology, China

*Minor degree*

2015.09 – 2019.06

Optoelectronic Information Science and Engineering

Department of Physics, Wuhan University of Technology, China

*Major B.S. degree*, Mentor: associate Prof. Xinting Jia

## RESEARCH INTERESTS

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- Radio transient (fast radio burst): statistical and population analysis, physical mechanism
- Pulsar and neutron star: statistical and population analysis, evolution model

## EXPERIENCE

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### **Presentations**

- 2025.05 PhD Thesis Defense, Beijing, China  
Population and mechanisms studies of fast radio bursts (45 mins)
- 2024.11 Fast Radio Burst 2024, Khao Lak, Thailand  
Bias-corrected fast radio burst spectra using CHIME injection data (3 mins)
- 2024.06 Astronomical Society of Australia Annual Scientific Meeting Perth Hub, Perth, Australia  
Intrinsic spectral properties of CHIME fast radio bursts (8 mins)
- 2024.06 Chinese Fast Radio Burst Conference 2024, Wuhan, China (online)  
Fast radio burst mechanism and possible precursor emissions (15 mins)
- 2024.02 East Asian Young Astronomers Meeting 2024, Chiang Mai, Thailand  
Radiation mechanism of fast radio bursts: compressed bunch model (15 mins)
- 2023.08 Annual Meeting of the Chinese Astronomical Society, Weihai, China  
Fast radio bursts generated by coherent curvature radiation from compressed bunches for FRB 20190520B (poster talk)
- 2023.07 Scientific Program of FAST/Future Pulsar Symposium 12, Nanyang, China  
Multiple origins of normal radio pulsars? - some implications from statistical results (15 mins)
- 2023.07 Department of physics, Wuhan University of Technology, Invited Talk, Wuhan, China  
Statistical analysis and mechanism research of fast radio burst (30 mins)
- 2021.11 Australia-China Consortium for Astrophysical Research (ACAMAR) 7 meeting, online  
The hints to the origin of different luminosity distributions for repeating and non-repeating fast radio bursts (poster talk)

### **Scientific Activities**

- 2022 – 2025 MNRAS reviewer
- 2024.10 Radio School 2024, Geraldton, Australia

### **Teaching Assistant**

- 2021 – 2023 High Energy Astrophysics and Gravitational Wave (070200M02048H), UCAS graduate course, Prof. Chengmin Zhang

## AWARDS AND SCHOLARSHIPS

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- 2025, Distinguished Graduate, Beijing Municipal Education Commission
- 2025, Distinguished Graduate, UCAS
- 2024, Presidential Scholarship (Excellent Prize), Chinese Academy of Sciences
- 2024, Outstanding Student, UCAS
- 2023, Zhu Li Yuehua Outstanding Doctoral Scholarship, Chinese Academy of Sciences
- 2023, Scholarship of China Scholarship Council, Ministry of Education of P.R.China
- 2022, Scholarship of the Chinese Astronomical Society, Chinese Astronomical Society
- 2021, ACAMAR 7: People's Choice Poster Award, ACAMAR
- 2021, National Scholarship (for PhD students), Ministry of Education of P.R.China
- 2020, Merit Student, UCAS

## PUBLICATIONS

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### First Author

1. **Xianghan Cui**, Clancy. W. James, Di Li, et al., 2025, [ApJ](#)  
Bias-corrected fast radio burst population and spectra using CHIME injection data
2. **Xianghan Cui**, Zhengwu Wang, Chengmin Zhang, et al., 2023, [ApJ](#)  
Fast radio bursts generated by coherent curvature radiation from compressed bunches for FRB 20190520B
3. **Xianghan Cui**, Chengmin Zhang, Di Li, et al., 2022, [Ap&SS](#)  
Luminosity distribution of fast radio bursts from CHIME/FRB Catalog 1 by means of the updated Macquart relation
4. **Xianghan Cui**, Chengmin Zhang, Di Li, et al., 2021, [MNRAS](#)  
Statistical tests of young radio pulsars with/without supernova remnants: implying two origins of neutron stars
5. **Xianghan Cui**, Chengmin Zhang, Shuangqiang Wang, et al., 2021, [RAA](#)  
Statistical properties of fast radio bursts elucidate their origins: magnetars are favored over gamma-ray bursts
6. **Xianghan Cui**, Chengmin Zhang, Shuangqiang Wang, et al., 2020, [MNRAS](#)  
Fast radio bursts: do repeaters and non-repeaters originate in statistically similar ensembles?
7. **Xianghan Cui**, Chaolin Wang, Xinting Jia, 2019, [Journal of the Optical Society of America A](#)  
Nonparaxial propagation of vector vortex beams diffracted by a circular aperture

### Co-author

1. Jintao Xie, ..., **Xianghan Cui**, et al., 2025, [ApJS](#)  
Polarization characteristics of the hyperactive FRB 20240114A
2. Yuhao Zhu, ..., **Xianghan Cui**, et al., 2024, [Chinese Physics Letters](#)  
A narrowband burst from FRB 20190520B simultaneously observed by FAST and Parkes
3. YiYan Yang, ..., **Xianghan Cui**, et al., 2023, [MNRAS](#)  
Investigating the distribution of double neutron stars and unconventional component mass
4. Yuhao Zhu, Chenhui Niu, **Xianghan Cui**, et al., 2023, [Universe](#)  
Do multi-structural one-off FRBs trace similar cosmology history with repeaters?
5. Chengmin Zhang, **Xianghan Cui**, Di Li, et al., 2022, [Universe](#)  
Evolution of spin period and magnetic field of the Crab pulsar: decay of the braking index by the particle wind flow torque
6. Jianwei Zhang, ..., **Xianghan Cui**, et al., 2022, [PASP](#)  
Revisiting the magnetic field distribution of normal pulsars: implications for the multiple origins for neutron stars
7. Jianwei Zhang, ..., **Xianghan Cui**, et al., 2021, [PRD](#)  
Gaussian mixture models of the total mass distribution of stellar black holes from LIGO-Virgo GWTC-2: Implications on the origin of GW190521
8. Jianwei Zhang, ..., **Xianghan Cui**, et al., 2021, [Chinese Physics B](#)  
Simulation of the gravitational wave frequency distribution of neutron star-black hole mergers