KAI WANG 王凯

Contact Information:

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RESEARCH INTERESTS

- Dark Matter Halo: protohalo; halo assembly bias; halo structure
- Galaxy-Halo Connection: galaxy group identification; secondary galaxy-halo connection
- Protoclusters: protocluster identification; protocluster evolution
- Galaxy Quenching: environmental quenching

EDUCATION

Tsinghua University Sep. 2017 - Jul. 2022

Ph.D. in Astronomy

Thesis: Finding galaxy groups/clusters at z~1 and its application; Adviser: Prof. Cheng Li & Prof. Houjun Mo

The University of Massachusetts, Amherst

Nov. 2019 - Oct. 2021

Visiting Scholar

Supervisor: Prof. Houjun Mo

University of Science and Technology of China (USTC)

Sep. 2013 - Jul. 2017

B.S. in Astronomy

EXPERIENCE

Kavli Institute of Astronomy and Astrophysics, Peking University

Jul. 2022 - Now

KIAA Fellow

The University of Massachusetts, Amherst

Nov. 2019 - Oct. 2021

Visiting Scholar

ADVISES

• Zeyu Gao, graduate of Peking University

Project: Decoding SEDs of galaxies with a prior from hydrodynamical simulations; Co-advising with Prof. Yingjie Peng

• Xunda Sun, graduate of University of Chinese Academy of Sciences

Project: The spatial variance of metallicity for simulated galaxies in FIRE-2; Co-advising with Prof. Xin Wang

• Zhijun Zhang, former undergraduate at Peking University

Bachelor Thesis: Identify protoclusters from high-redshift photometric surveys; Co-advising with Prof. Yingjie Peng

SERVICE

· Professional Service

Referee for ApJ and A &A

• Departmental Service

Co-organizer of the speaker lunch at the Tsinghua Center for Astrophysics

2018-2019

Co-organizer of the postdoc science day at KIAA

2022

TEACHING

Invited speaker

Observational Cosmology	Teaching Assistant, Tsinghua University, Autumn 2017
Particle Cosmology	Teaching Assistant, USTC, Spring 2017
General Relativity	Teaching Assistant, USTC, Autumn 2016
REFERENCES	
• Prof. Houjun Mo	University of Massachusetts, Amherst
<u>hjmo@umass.edu</u>Prof. Cheng Li	Tsinghua University
≅ <u>cli2015@tsinghua.edu.cn</u>	
• Prof. Yingjie Peng	Peking University
✓ <u>yjpeng@pku.edu.cn</u>	m . 1
• Prof. Zheng Cai	Tsinghua University
☑ <u>zcai@tsinghua.edu.cn</u>	
GRANTS	
• KIAA fellow start-up research funding 50,000CNY	Jul. 2022 - Jul. 2024
• China Scholarship for the visiting scholar China Scholarship Council (CSC), \$45,600	Nov. 2019 - Oct. 2021
National Astronomy Training Base	Jun. 2016 - Jun. 2017
Measure the conditional luminosity functions of galaxies at $z{\sim}0.6$ using	g CLAUDS and BOSS, 20,000CNY
 National Astronomy Training Base Thermal gravitational-wave background in the general pre-inflationary 	May 2015 - May 2016
HONORS AND AWARDS	Section 10, 20,000 GIVI
• KIAA Fellowship	2022
MUST Fellowship (declined)	2022
• Comprehensive scholarship (2nd class)	2020
• Comprehensive scholarship (1st class)	2019
Outstanding Graduate of USTC	2017
National Inspirational Award	2016
• Encouraging Scholars of USTC	2016
• Excellent Student Scholarship (Silver Award)	2014
• Excellent Student Scholarship (Bronze Award)	2013
TALKS	
Collaboration Workshop on Cosmology and Galaxy Formation	
Speaker	Shanghai, Jun. 2023
• 25th Chinese Astronomical Society Guoshoujing Symposium on C	
Speaker (Best oral presentation)	Huangshan, May 2023
Conference of Star Formation and Nuclei Activity in Galaxies Conference of Star Formation and Nuclei Activity in Galaxies	N N
Speaker • KIAA DoA Sominar Poking University	Nanjing, Mar. 2023
KIAA-DoA Seminar, Peking University	

Beijing, Mar. 2023

• Lunch Talk at the Department of Astronomy, Tsinghua University Invited speaker

Beijing, Nov. 2022

 Lunch Talk at Kavli-IPMU, University of Tokyo Invited speaker

Remote, Jun. 2021

• Journal Club at University of Massachusetts, Amherst Speaker

Amherst MA, Mar. 2021

• The 11-th Prime Focus Spectrograph collaboration meeting Speaker

Pasadina CA, Dec. 2019

• The 10-th Prime Focus Spectrograph collaboration meeting Speaker

Shanghai, Dec. 2018

PUBLICATION

- ◆19 publications (16 refereed + 3 submitted); 8 as the first/corresponding author (8 refereed)
- **♦ 136** citations
- ◆ Open in NASA/ADS Library

First/Corresponding* author papers:

- 1. **Kai Wang**, et al. (2023) Environmental dependence of the mass-metallicity relation in cosmological hydrodynamical simulations ApJ, 951, 66
- 2. **Kai Wang**, et al. (2023) Late-formed halos prefer to host quiescent central galaxies. I. Observational results MNRAS, 522, 3188
- 3. **Kai Wang**, et al. (2023) Dissect two-halo galactic conformity effect: The dependence of star formation activities on the large-scale environment for central galaxies MNRAS 523, 1268
- 4. Kai Wang, et al. (2023) Relating galaxies across different redshift to study galaxy evolution MNRAS 520, 1774
- 5. **Kai Wang**, et al. (2021) Finding proto-clusters to trace galaxy evolution: I. The finder and its performance MNRAS 505, 3892
- 6. **Kai Wang**, et al. (2020) Identifying galaxy groups at high redshift from incomplete spectroscopic data: I. The group finder and application to zCOSMOS MNRAS 499, 89
- 7. Kai wang, et al. (2017) Thermal gravitational-wave background in the general pre-inflationary scenario JCAP 01, 053
- 8. Yi-Fan Wang, Kai Wang, et al. (2016) Smoothing methods comparison for CMB E- and B-mode separation RAA 16, 4

Co-author papers:

- 9. Yangyao Chen, H.J Mo, **Kai Wang** (2023) Massive Dark Matter Halos at High Redshift: Implications for Observations in the JWST Era MNRAS accepted
- 10. Jiacheng Meng, et al. (2023) Measuring galaxy abundance and clustering at high redshift from incomplete spectroscopic data: Tests on mock catalogs Submitted to ApJ
- 11. Yangyao Chen et al. (2023) A Conditional Abundance Matching Method of Extending Simulated Halo Merger Trees to Resolve Low-Mass Progenitors and Sub-halos MNRAS accepted
- 12. Yangyao Chen et al. (2023) MAHGIC: A Model Adapter for the Halo-Galaxy Inter-Connection MNRAS 507, 2510
- 13.Qingyang Li et al. (2023) Groups and Protocluster Candidates in the CLAUDS and HSC-SSP Joint Deep Surveys ApJ 933, 9
- 14.Zhaoyu Wang et al. (2021) The clustering of galaxies in the DESI imaging legacy surveys DR8:I. the luminosity and color dependent intrinsic clustering Sci. China Phys. Mech. Astron. 64, 289811
- 15. Yangyao Chen et al. (2021) How to empirically model star formation in dark matter halos: I. Inferences about central galaxies from numerical simulations MNRAS 504, 4865
- 16. Yangyao Chen et al. (2021) Relating the structure of dark matter halos to their assembly and environment ApJ, 899, 81
- 17. Jia-Ni Ye, Kai Wang, et al. (2017) Superconducting cosmic strings as sources of cosmological fast radio bursts Eur. Phys. J. C 77:720

- 18. Larissa Santo et al. (2017) Statistical imprints of CMB B-type polarization leakage in an incomplete sky survey analysis JCAP, 01, 043
- 19.Larissa Santo et al. (2016) Probing the statistical properties of CMB \$B\$-mode polarization through Minkowski Functionals JCAP 07, 029