KAI WANG 王凯

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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

- 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
  hjmo@umass.edu
- Prof. Cheng Li — Tsinghua University
  cli2015@tsinghua.edu.cn
- Prof. Yingjie Peng — Peking University
  yjpeng@pku.edu.cn
- Prof. Zheng Cai — Tsinghua University
  zcai@tsinghua.edu.cn

GRANTS

- KIAA fellow start-up research funding — Jul. 2022 - Jul. 2024
  50,000CNY
- China Scholarship for the visiting scholar — Nov. 2019 - Oct. 2021
  China Scholarship Council (CSC), $45,600
- National Astronomy Training Base — Jun. 2016 - Jun. 2017
  Measure the conditional luminosity functions of galaxies at z∼0.6 using CLAUDS and BOSS, 20,000CNY
- National Astronomy Training Base — May 2015 - May 2016
  Thermal gravitational-wave background in the general pre-inflationary scenario, 20,000CNY

HONORS AND AWARDS

- 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 Galaxies and Cosmology
  Speaker (Best oral presentation) — Huangshan, May 2023
- Conference of Star Formation and Nuclei Activity in Galaxies
  Speaker — Nanjing, Mar. 2023
- KIAA-DoA Seminar, Peking University
  Invited speaker — 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