KAI WANG 王凯

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RESEARCH INTERESTS

- ✦ Galaxy-Halo Connection
  - ◯ Galaxy groups ◯ Secondary galaxy-halo connections ◯ Observational signature
- ✦ Connecting Galaxies/Structures across Cosmic Time
  - ◯ Protocluster identification ◯ Protocluster-descendant cluster connections ◯ Stellar mass assembly histories
- ✦ Galaxy Quenching
  - ◯ Internal 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
Thesis 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 at Peking University
  Co-advising with Prof. Yingjie Peng
  Project: Decoding the spectral energy distributions of galaxies with the knowledge from hydrodynamical simulations
- Xunda Sun, graduate at University of Chinese Academy of Sciences
  Co-advising with Prof. Xin Wang
  Project: The spatial variance of metallicity for simulated galaxies in FIRE-2
- Zhijun Zhang, former undergraduate at Peking University
  Co-advising with Prof. Yingjie Peng
  Bachelor Thesis: Identify protoclusters from high-redshift photometric galaxy surveys

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:

- Environmental dependence of the mass-metallicity relation in cosmological hydrodynamical simulations
  Kai Wang, Xin Wang, Yangyao Chen
  2023, ApJ, 951 66 (arXiv:2305.08161)
- Late-formed halos prefer to host quiescent central galaxies. I. Observational results
  Kai Wang, Yangyao Chen, Qingyang Li, Xiaohu Yang
  2023, MNRAS, Volume 522, Issue 2 (arXiv:2304.07189)
- Dissect two-halo galactic conformity effect: The dependence of star formation activities on the large-scale environment for central galaxies
  Kai Wang, Yingjie Peng, Yangyao Chen
  2023, MNRAS, Volume 523, Issue 1 (arXiv:2304.06886)
- Relating galaxies across different redshift to study galaxy evolution
  Kai Wang, H.J. Mo, Cheng Li, Yangyao Chen
  2023, MNRAS, Volume 520, Issue 2 (arXiv:2211.00485)
- Finding proto-clusters to trace galaxy evolution: I. The finder and its performance
  Kai Wang, H.J. Mo, Cheng Li, Yangyao Chen
  2021, MNRAS Volume 505, 3892 (arXiv:2104.12223)
- Identifying galaxy groups at high redshift from incomplete spectroscopic data: I. The group finder and application to zCOSMOS
  Kai Wang, H.J. Mo, Cheng Li, Jiacheng Meng, Yangyao Chen
  2020, MNRAS Volume 499, 89 (arXiv:2006.05426)
- Thermal gravitational-wave background in the general pre-inflationary scenario
  Kai Wang, Larissa Santo, Jun-Qing Xia, Wen Zhao
  2017, JCAP 01, 053 (arXiv:1608.04189)

- Smoothing methods comparison for CMB E- and B-mode separation
  Yi-Fan Wang, **Kai Wang***, Wen Zhao
  2016, Research in Astronomy and Astrophysics 16, 4 (arXiv:1511.01220)

Co-author papers:

- Massive Dark Matter Halos at High Redshift: Implications for Observations in the JWST Era
  Yangyao Chen, H.J. Mo, **Kai Wang**
  2023, Submitted to MNRAS (arXiv:2304.13890)
- Measuring galaxy abundance and clustering at high redshift from incomplete spectroscopic data: Tests on mock catalogs
  Jiacheng Meng, Cheng Li, Houjun Mo, Yangyao Chen, **Kai Wang**
  2023, Submitted to ApJ (arXiv:2008.13733)
- A Conditional Abundance Matching Method of Extending Simulated Halo Merger Trees to Resolve Low-Mass Progenitors and Sub-halos
  Yangyao Chen, H.J. Mo, Cheng Li, **Kai Wang**, Huiyuan Wang, Xiaohu Yang
  2023, Submitted to MNRAS (arXiv:2301.08972)
- MAHGIC: A Model Adapter for the Halo-Galaxy Inter-Connection
  Yangyao Chen, H.J. Mo, Cheng Li, **Kai Wang**, Huiyuan Wang, Xiaohu Yang, Youcai Zhang, Neal Katz
  2021, MNRAS Volume 507, 2510 (arXiv:2106.03984)
- The clustering of galaxies in the DESI imaging legacy surveys DR8:I. the luminosity and color dependent intrinsic clustering
  Zhaoyu Wang, Haojie Xu, Xiaohu Yang, Y. P. Jing, **Kai Wang**, Hong Guo, Fuyu Dong, Min He
  2021, Sci. China Phys. Mech. Astron. 64, 289811 (arXiv:2106.14159)
- How to empirically model star formation in dark matter halos: I. Inferences about central galaxies from numerical simulations
  Yangyao Chen, H. J. Mo, Cheng Li, **Kai Wang**
  2021, MNRAS, Volume 504, 4865 (arXiv:2009.12467)
- Relating the structure of dark matter halos to their assembly and environment
  Yangyao Chen, H.J. Mo, Cheng Li, Huiyuan Wang, Xiaohu Yang, Youcai Zhang, **Kai Wang**
  2021, ApJ, 899 81 (arXiv:2003.05137)
- Superconducting cosmic strings as sources of cosmological fast radio bursts
  Jia-Ni Ye, **Kai Wang**, Yi-Fu Cai
  2017, Eur. Phys. J. C 77:720 (arXiv:1705.10956)
- Statistical imprints of CMB B-type polarization leakage in an incomplete sky survey analysis
  Larissa Santo, **Kai Wang**, Yangrui Hu, Wenjuan Fang, Wen Zhao
  2017, JCAP 01, 043 (arXiv:1612.03564)
- Probing the statistical properties of CMB B-mode polarization through Minkowski Functionals
  Larissa Santo, **Kai Wang**, Wen Zhao
  2016, JCAP 07, 029 (arXiv:1510.07779)