JIACHEN BAI

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EDUCATION

Bachelor of Science | *Astronomy*   Sep. 2021 – Jul. 2025
GPA:3.8/4 (2nd among 21) | School of Physics and Astronomy, Beijing Normal University (BNU)   Beijing, China

WORK EXPERIENCE

Observational Astrophysics Internship   Sep 2023 – Oct 2023
Observatorio Astrofísico de Javalambre, CEFCA   Teruel, Spain
- Using observational data to determine properties of clusters and variable stars.

Undergraduate Research Project (Group Leader)   May 2023 – May 2024
School of Physics and Astronomy, BNU   Beijing, China
- Constraining modified gravity with CC,SN,BAO,CMB.

Cosmology Internship   Jun 2024 – Aug 2024
National Astronomical Observatories, CAS   Beijing, China
- Constraining modified gravity and massive neutrinos using CMB and weak lensing.

RESEARCH INTERESTS

Dark Energy & Modified Gravity
My research focuses on understanding the nature of dark energy and exploring alternative cosmological models through modified gravity theories. I aim to investigate the dynamics driving the accelerated expansion of the universe, probing the validity of ΛCDM and exploring potential deviations.

Computational Cosmology
My work integrates data-driven approaches with traditional analytical methods to improve cosmological parameter estimation, model validation, and the understanding of gravity. I also explore the potential of AI in optimizing simulations and accelerating cosmological data analysis.

Large-scale Structure
I am deeply interested in the large-scale structure of the universe, focusing on understanding the distribution and evolution of galaxies, galaxy clusters, and cosmic voids over vast cosmic scales. My research aims to extract new information relevant to cosmological models through simulations and observations of the LSS.

PUBLICATIONS

FREmu: Power Spectrum Emulator for f(R) Gravity   arXiv: 2405.05840, Published in ApJ
Jiachen Bai, Jun-Qing Xia

HONORS AND AWARDS

The BNU First Prize Scholarship (15%)   Sep 2022
Beijing Normal University

The BNU First Prize Scholarship (15%)   Sep 2023
Beijing Normal University

Most Excellent Undergraduate Research Project (10%)   May 2024
Beijing Normal University

Linbridge Prize for Excellent Undergraduate Research Projects in Astronomy and Astrophysics Sep 2024
Kavli Institute for Astronomy and Astrophysics at Peking University

SKILLS

Languages: Chinese (Native), English (IELTS: 7.5, CET6: 575)
Programming: Python, Fortran, MATLAB, Mathematica
Document Creation: Microsoft Office Suite, LaTex, Markdown

HOBBIES

Running: Semi-Marathon PB: 1h34m40s.
Badminton: I have won 3rd Place in the Jiangsu provincial sports meeting.
Game Developing: I'm now developing a computer game related to Astronomy and training AI to play this game.