



# JIACHEN BAI

+86 151-8977-5516  
astrobaijc@gmail.com  
baijc@mail.bnu.edu.cn  
Home Page: [astrobai.github.io](https://astrobai.github.io)  
GitHub: AstroBai  
ORCID: 0009-0000-4504-7433  
iNSPIRE: Jiachen Bai

## EDUCATION

### Bachelor of Science | *Astronomy*

GPA:3.8/4 | School of Physics and Astronomy, Beijing Normal University (BNU)

Sep. 2021 – Jul. 2025

Beijing, China

## WORK EXPERIENCE

### Observational Astrophysics Internship

Observatorio Astrofísico de Javalambre, CEFCA

- Using observational data to determine properties of clusters and variable stars.

Sep 2023 – Oct 2023

Teruel, Spain

### Undergraduate Research Project (Group Leader)

School of Physics and Astronomy, BNU

- Constraining modified gravity with CC,SN,BAO,CMB.

May 2023 – May 2024

Beijing, China

### Cosmology Internship

National Astronomical Observatories, CAS

- Constraining modified gravity and massive neutrinos using CMB and weak lensing.

Jun 2024 – Aug 2024

Beijing, China

## RESEARCH INTERESTS

### Dark Energy

I am interested in finding alternative theories to the  $\Lambda$ CDM Model that better explain cosmological observations.

### Modified Gravity

I'm interested in testing modified gravity models using cosmological data.

### Cosmological Simulations

I'm interested in creating universes using human-made machines(computers) and using them to do science.

### AI for Astronomy

I'm interested in how to use such powerful tools to help us understand the Universe better.

### The Large scale Structure of the Universe

I'm interested in extracting new information through simulations and observations of the LSS.

### Extra Dimensional Theories

I'm interested in how to find evidence for extra dimensional models through cosmological observations.

## PUBLICATIONS

### FREmu: Power Spectrum Emulator for $f(R)$ Gravity

Jiachen Bai, Jun-Qing Xia

arXiv: 2405.05840, Published in ApJ

## HONORS AND AWARDS

### The BNU First Prize Scholarship (15%)

Beijing Normal University

Sep 2022

### The BNU First Prize Scholarship (15%)

Beijing Normal University

Sep 2023

### Most Excellent Undergraduate Research Project (10%)

Beijing Normal University

May 2024

## SKILLS

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**Languages:** Chinese (Native), English (IELTS: TBD, CET6: 575)

**Programming:** Python, Fortran, MATLAB, Mathematica

**Document Creation:** Microsoft Office Suite, LaTeX, Markdown