

# TONG BAO

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PhD candidate

School of Astronomy and Space Science, Nanjing University

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github: [twilight](#)

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## Education

- 2019-: PhD, Nanjing University
  - Major: High Energy Astrophysics
  - Thesis: Time-varying Characteristics of X-ray Source
  - Advisor: Professor Zhiyuan Li
- 2015-2019: Bachelors of Science, Nanjing University,
  - Major: Astronomy

## Research Interests

- Periodic variations of X-ray sources (X-ray binaries, cataclysmic variables, etc)
- Quasi-periodic oscillations/eruptions of AGNs
- Stellar dynamics in dense environments
- X-ray Instrumentation

## Publications

- [1] **Bao, T.**, Li, Z., & Cheng, Z. 2023, MNRAS, 521, 4257, “Periodic X-ray sources in the massive globular cluster 47 Tucanae: Evidence for dynamically formed cataclysmic variables” [\[ADS\]](#)
- [2] **Bao, T.**, & Li, Z. 2022, MNRAS, 509, 3504, “Searching for quasi-periodic oscillations in active galactic nuclei of the Chandra Deep Field South” [\[ADS\]](#)
- [3] **Bao, T.**, & Li, Z. 2020, MNRAS, 498, 3513, “Periodic X-ray sources in the Galactic bulge: application of the Gregory-Loredo algorithm” [\[ADS\]](#)
- [4] Yu, Z.-l., Xu, X.-j., Li, X.-D., **Bao, T.**, et al. 2018, ApJ, 853, 182, “An Empirical Correlation of  $T_{max}$ - $M_{WD}$  of Dwarf Novae and the Average White Dwarf Mass in Cataclysmic Variables in the Galactic Bulge” [\[ADS\]](#)

## Seminars and Conference Oral Presentations

- The 20th Meeting of the High Energy Astrophysics Division of the AAS, Waikōloa, Hawaii, 2023. Title: “Periodic X-ray sources in globular clusters : diagnosing dynamical formation and evolution of cataclysmic variables”
- Department Colloquium, Columbia University, Department of Physics, New York, NY (2023). Title: “Periodicities in X-ray sources: diagnosing the nature and evolution for exotic binaries in dense environment”

- Chandra Data Science: Novel Methods in Computing and Statistics for X-ray Astronomy, 2021. Title: "Searching for Quasi-periodic Oscillations of Active Galactic Nuclei in the Chandra Deep Field South"
- Chandra Frontiers in Time-Domain Science, 2020. Title: "Periodic X-ray Sources in the Galactic Center/Bulge – Application of the Gregory-Loredo Algorithm"
- Research on the Variations of Active Galactic Nuclei, Xiamen, China, 2023. Title: "Searching for Quasi-periodic Oscillations in Active Galactic Nuclei of the Chandra Deep Field South"
- Structure, Formation, and Evolution of Star Clusters, Zhuhai, China, 2023. Title: "Periodic X-ray sources in globular clusters : diagnosing dynamical formation and evolution of cataclysmic variables" (Talk & Poster)
- The 60th Anniversary of X-Ray Astronomy: X-ray Astronomy in the Time-domain & Multimessenger Era, Beijing, China, 2022. Title: "Searching for Quasi-periodic Oscillations in Active Galactic Nuclei of the Chandra Deep Field South"
- 2021-2022 Academic Annual Meeting of Jiangsu Astronomical Society, Nanjing, China, 2022. Title: "Periodic X-ray sources: Diagnosing dynamical origin of exotic binaries in the massive globular cluster 47 Tucanae"
- The 4th X-ray binary Multi-Band research Symposium, Kunming, China, 2021. Title: "Periodic X-ray sources: Diagnosing dynamical origin of exotic binaries in the massive globular cluster 47 Tucanae"
- The 3rd X-ray binary Multi-Band research Symposium, Jinan, China, 2020. Title: "Periodic X-ray Sources in dense environment"

## Teaching

- **Teaching Assistant.** "An Introduction to X-ray Astronomy", 2022 spring, 2021 spring and 2020 spring.  
In this class, I led the X-ray data processing training project<sup>1</sup>. I taught students how to reduce the X-ray data, analyze the spectrum and light curves of CVs, X-ray binaries, ULXs, AGNs, etc.
- **Peer mentor** of Nanjing university during 2015-2018. I assist the classmates and freshmen with Calculus and Physics Courses.

## Awards

- The Principal Special Scholarship for PhD students of Nanjing University in 2019
- The annual scholarship of National Astronomical Observatory, Chinese Academy of Sciences, in 2017
- The second-Class People's Scholarship in 2017
- The Third-Class People's Scholarship in 2016

## Scientific Collaborations and Outreach

- Member of the The High Energy X-ray Probe (HEX-P) Collaboration (2023-present)
- Member of Magnetic CV collaboration (2023-present)
- Visiting the Columbia Astrophysics Laboratory at Columbia University, New York. (April 2023)

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<sup>1</sup>[https://github.com/baotong6/xray\\_astronomy](https://github.com/baotong6/xray_astronomy)

- Research Assistant in the Columbia Astrophysics Laboratory at Columbia University, New York. (June 2018 - September 2018)

## **Public Outreach**

- Volunteer for the Summer Camp for High School Students at the School of Astronomy and Space Science, 2022
- Volunteer for Undergraduate Summer Camp at the School of Astronomy and Space Science, 2021
- Speaker for astronomy lectures in Zuo Dijiang Observatory Open Day Activities, 2020
- Volunteer for Zuo Dijiang Observatory Open Day Activities, 2023
- Volunteer for "Astronomical Night for Public" Activity of Zuo Dijiang Observatory, Nanjing university, 2021-2023

## **Declaration**

I hereby declare that the above written particulars are true to my knowledge and belief.

**Place :** Nanjing

BAO TONG

**Date :**2023.7.3