Jie Wu (吴洁) Ph.D. student

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E-mail: wujie3375@gmail.com
Website: wujie3375.github.io

Research Interests

- **Gravitational wave:** Signal simulation, post-Newtonian waveform.
- **Detection:** Space- and ground-based detectors, Time-delay interferometry, Noise.
- **Binary system:** Stellar binary black hole, Massive black hole binary, Galactic binary.
- **Data processing:** Parameter estimation, Fisher matrix, Bayesian analysis.
- **Gravitation:** Modified theory of gravity, Cosmology, Dark matter.
- **Astronomy:** Electromagnetic observation, Multi-messenger observation.

Currently, my primary research focus is on the simulation of gravitational wave signals in space, assessment of detector performance, and the processing and analysis of gravitational wave data.

Education

Chongqing University — Chongqing, China
Ph.D. in Physics — Sep 2022 - Jun 2028 *(expected)*

- Advisor: Prof. Jin Li
- Research: Gravitational wave data simulation and detector performance evaluation

China West Normal University — Nanchong, China
B.S. in Physics — Sep 2018 - Jun 2022

- Advisors: Assoc. Prof. Di Wu and Assoc. Prof. Guo-Ping Li
- Research: Ground-based gravitational wave detection and data processing
- Thesis (in Chinese): An Analysis of the LIGO Gravitational Waves Data Based on Newtonian Approximate Model

Experience

Beijing Normal University — Beijing, China
VISITOR — Feb 2024 - Apr 2024

- Advisor: Prof. Zhoujian Cao
- Research: Gravitational wave waveform simulation and moving source effect

University of Chinese Academy of Sciences — Beijing, China
PARTICIPANT — Feb 2020 - Feb 2021

- Advisor: Assoc. Prof. Yong Tang
- Research: Analysis of gravitational wave data
- Program: College Student Innovation and Practice Program

Skills

Languages: Chinese (native), English.

Programming: `Python`, `Mathematica`, `MATLAB`.

Data Analysis: Experienced in handling and analyzing large datasets, including statistical analysis, data visualization, and signal processing.

Teaching: High School Physics Teacher Qualification Certificate.

Awards & Honors

- **Theoretical Physics Graduate Scholarship** 2024.9
- **Second Prize**, The 7th Sichuan Chongqing Astronomy Competition 2023.12
- **Graduate Academic Scholarship** (Twice) 2022 - 2023
- **Excellent Graduation Thesis** 2022.6
- **Outstanding Graduate** 2022.5
- **Haotian Astronomy Scholarship** 2020.12
- **Fist-class Scholarship** (Three times) 2020 - 2021
- **Second-class Scholarship** (Four times) 2018 - 2021
- **Third Prize**, The 5th Sichuan Chongqing Astronomy Competition 2018.11

Publications

1. **Jie Wu**, Mengfei Sun, and Jin Li*. Constraints and detection capabilities of GW polarizations with space-based detectors in different TDI combinations.arXiv:2411.03631.
2. **Jie Wu** and Jin Li*. Prospects of constraining on the polarizations of gravitational waves from binary black holes using space-and ground-based detectors.*Phys.Rev.D* **110**, 084057 (2024).arXiv:2407.13590.
3. **Jie Wu**, Jin Li*, Xiaolin Liu, and Zhoujian Cao. Comparison and application of different post-Newtonian models for inspiralling stellar-mass binary black holes with space-based GW detectors. *Phys.Rev.D* **109**, 104014 (2024).arXiv:2401.03113.
4. **Jie Wu** and Jin Li*. Subtraction of the confusion foreground and parameter uncertainty of resolvable galactic binaries on the networks of space-based gravitational-wave detectors. *Phys.Rev.D* **108**, 124047 (2023).arXiv:2307.05568.
5. **Jie Wu**, Jin Li*, and Qing-Quan Jiang*. Application of Newtonian approximate model to LIGO gravitational wave data processing (Suggested by editors). *Chin.Phys.B* **32**, 090401 (2023).