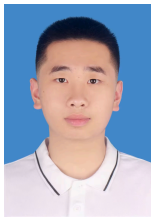
中国科学技术大学 University of Science and Technology of China



Jiahang Zhong

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Education Background

University of Science and Technology of China **Undergraduate** **School of the Gifted Young**
Theoretical Physics **2022.9-2026.9**

GPA: 4.12/4.3 **Ranking:** 2/127

- Professional Courses: GR, QFT1, QFT2, Cosmology...
- English: ToFEL: 98 Possess the ability to independently read and write English academic papers.

Scholarship

- **China National Scholarship 2024**
- **JAC Motors & NIO Joint Scholarship 2023**

Research Experience

Can asteroid-mass PBHDM be compatible with catalyzed phase transition interpretation of PTA?
/First Author arXiv:2504.12105

- **Abstract**: In this study, we present the first comprehensive analysis of this catalytic effect during supercooled PTs within the high PBH number density regime. By conducting data fitting with the NANOGrav 15-year dataset, we find that the PBH catalytic effect significantly alters the estimation of PT parameters. Notably, our analysis of the bubble collision GWs reveals that, the asteroid-mass PBHs ($10^{-16} - 10^{-12} M_{\odot}$) as the whole dark matter is incompatible with the PT interpretation of pulsar timing array signals. However, incorporating SIGWs can reduce this incompatibility for PBHs in the mass range $10^{-14} - 10^{-12} M_{\odot}$.

Course Project

Cosmologocal Phase Transition /Course: Computational Physics 2024.09-2025.01
Debyen Phonon /Course: Thermodynamics and Statistical Physics A 2024.03-2024.06
Atom origin /Course: Atomic Physics A 2024.03-2024.06
Quantization of Vector Field /Course: Quantum Field Theory 2023.09-2024.01
Collective Sideband Transition Based on Optical Adiabatic Control /Course: Optics A 2023.09-2024.01

- **See in web: https://eulara.github.io/JiahangZhong.github.io/:**

Teaching Assistant Experience

- **Theoretical Mechanics A** 2024.09-2025.01

Skills

- Code Language: Python, Mathematica.
- Familiar with Public Package: CosmoTransition (Use for calculating phase transition in early universe).
- Familiar with Bayesian data fit and MCMCsampler **emcee**.