Haowen Zhong, Ph.D. candidate

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Education Background

2021 – Now **Ph.D. in Physics, University of Minnesota** **MN, US**
Advisor: Vuk Mandic

2017 – 2021 **B.Sc. in Physics, Huazhong University of Science and Technology** **Hubei, China**
Thesis title: *Gravitational waves from bubble collisions in FLRW spacetime.*

Academia Internship

June 2023 – August 2023 Center of Computational Astrophysics, Flatiron Institute

June 2020 - August 2020 Shanghai Astronomical Observatory, Chinese Academy of Sciences

Teaching Experience

Teaching Assistant

PHYS 1301 **Fall 2021**

PHYS 1302 **Spring 2022, Fall 2023, Spring 2024**

PHYS 1101 **Spring 2025**

Selected Research Publications

Journal Articles

1. **H. Zhong**, L. Reali, B. Zhou, E. Berti, and V. Mandic, "A two-step procedure to detect cosmological gravitational wave backgrounds with next-generation terrestrial gravitational-wave detectors," 2025. arXiv: 2501.17717 [gr-qc]. URL: https://arxiv.org/abs/2501.17717.
2. **H. Zhong**, M. Isi, K. Chatziioannou, and W. M. Farr, "Multidimensional hierarchical tests of general relativity with gravitational waves," *Phys. Rev. D*, vol. 110, no. 4, p. 044 053, 2024. DOI: 10.1103/PhysRevD.110.044053. arXiv: 2405.19556 [gr-qc].
3. **H. Zhong**, B. Zhou, L. Reali, E. Berti, and V. Mandic, "Searching for cosmological stochastic backgrounds by notching out resolvable compact binary foregrounds with next-generation gravitational-wave detectors," *Phys. Rev. D*, vol. 110, no. 6, p. 064 047, 2024. DOI: 10.1103/PhysRevD.110.064047. arXiv: 2406.10757 [gr-qc].
4. A. I. Renzini *et al.*, "pygwb: A Python-based Library for Gravitational-wave Background Searches," *Astrophys. J.*, vol. 952, no. 1, p. 25, 2023. DOI: 10.3847/1538-4357/acd775. arXiv: 2303.15696 [gr-qc].
5. **H. Zhong**, R. Ormiston, and V. Mandic, "Detecting cosmological gravitational wave background after removal of compact binary coalescences in future gravitational wave detectors," *Phys. Rev. D*, vol. 107, no. 6, p. 064 048, 2023, [Erratum: Phys.Rev.D 108, 089902 (2023)]. DOI: 10.1103/PhysRevD.107.064048. arXiv: 2209.11877 [gr-qc].
6. **H. Zhong**, B. Gong, and T. Qiu, "Gravitational waves from bubble collisions in FLRW spacetime," *JHEP*, vol. 02, p. 077, 2022. DOI: 10.1007/JHEP02(2022)077. arXiv: 2107.01845 [gr-qc].

Talks

Seminars/Telecons

2025 **Importance of Shot Noise in the Search for an Isotropic Stochastic Gravitational-Wave Background with Next Generation Detectors**, August, LIGO stochastic subgroup telecon

2024 **Searching for cosmological stochastic backgrounds by notching out resolvable compact binary foregrounds with next-generation gravitational-wave detectors**, August, Sun Yat-Sen University

2023 **Removing the Astrophysical Stochastic Gravitational Wave Foreground in Next-Generation Gravitational Wave Detectors & Arbitrary-Dimensional Hierarchical Test of GR with Gravitational Waves**, November, Johns Hopkins University

2022 **Detecting cosmological gravitational waves background after removal of compact binary coalescences in future gravitational wave detectors** , October, CE telecon

Conferences/LVK Meetings

2025 **Detecting a Cosmological Gravitational-Wave Background with Next-Generation Detectors**, Fundamental Physics Across the Gravitational Wave Spectrum, August, Chicago (IL)

2024 **Bypassing the Unresolvable Binary Neutron Star Foreground to Dig into Cosmological Background by Combining Notching Procedure and Joint Analysis**, LVK Meeting, September, Online

Updates on Detecting Cosmological Gravitational Wave Background by Notching Astrophysical Foreground out in t-f space, LVK Meeting, March, Baton Rouge (LA)

2023 **Detecting cosmological gravitational waves background after removal of compact binary coalescences in future gravitational wave detectors**, APS Meeting, April, Minneapolis (MN)

Detecting cosmological gravitational waves background after removal of compact binary coalescences in future gravitational wave detectors, LVK Meeting, March, Online

2022 **Dive into SGWB by Notching Out CBC Foreground For 3G Detector e.g (Cosmic Explorer)**, LVK Meeting, March, Evanston (IL)

Journal Referee

Physical Review D

Awards and Achievements

2020 **National Scholarship (2 out of 170),** HUST

Merit Student Scholarship (10 out of 170), HUST

National Astronomical Observatory Scholarship (2 out of 340), HUST

2019 **National Astronomical Observatory Scholarship (2 out of 317)**, HUST

Scholarship of Academic Excellence in school of Physics (8 out of 170), HUST

2018 **Scholarship of Self-Improvement for freshman (2 out of 22)** , HUST

Scholarship of Academic Excellence for freshman (11 out of 155), HUST.