

# HUI-YU ZHU POSTDOC.

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<https://jacquelynzhzhy.github.io>

CURRENT POSITION	<b>Senior Researcher in Institute for Basic Science</b> <i>Cosmology, Gravity and Astroparticle Physics Group</i> • <b>Address:</b> Institute for Basic Science (IBS), 55, Expo-ro, Yuseong-gu, Daejeon, Korea.	2024.11 -
EDUCATION	<b>Hong Kong University of Science and Technology (HKUST)</b> <i>Ph.D. in Physics</i> • <b>Supervisor:</b> Prof. George Smoot and Prof. Yi Wang <b>Southern University of Science and Technology (SUSTech)</b> <i>B.S. in Physics</i> • <b>Supervisor:</b> Prof. Leonardo Modesto	2019 - 2024     2015 - 2019
AWARDS AND SCHOLARSHIP	• <b>Postgraduate Scholarship, HKUST</b> • <b>The Graduation Design Excellence Award, SUSTech</b> • <b>National Encouragement Scholarship, China</b> • <b>Bronze Medal, University Physics Competition</b> • <b>National Encouragement Scholarship, China</b> • <b>Second Prize, Chinese Undergraduate Physics Tournament</b> • <b>Third Prize, Outstanding Student Scholarship, SUSTech</b> • <b>Bronze Medal, Musical Instrument Competition In Guangdong</b>	2019 - 2024 2019 2018 2017 2017 2017 2016 2015
TEACHING EXPERIENCE	<b>Teaching Assistant in the HKUST</b> <i>Physics Department</i> • General Physics I with Calculus • Introduction of Stellar Astrophysics • Methods of Experimental Physics I • Methods of Experimental Physics I <b>Teaching Assistant in the SUSTech</b> <i>Physics Department</i> • Introduction to Quantum Field Theory • General Relativity: From Black Hole to Cosmology	   2022 2022 2021 2020   2019 2018
SERVICES	<b>Organizer for:</b> Workshop on QNM and BH Perturbation, IBS <b>Assistant for:</b> International Conference on High Energy Physics, HKUST <b>Assistant for:</b> International Conference on Quantum Gravity, SUSTech	
SKILLS	<b>Languages:</b> Chinese (Native), English (Fluent), Japanese (Beginner), Italian(Beginner). <b>Programming:</b> Python, Mathematica.	

INVITED TALKS & SEMINARS	• <b>Workshop on QNM and BH Perturbation</b> , IBS, Daejeon, Korea	2025.05
	• Seminar at <b>Niels Bohr Institute</b> , Copenhagen , Denmark	2025.04
	• <b>Workshop on Cosmology, Gravitation and Particle Physics</b> , FZU, Czech	2025.04
	• Seminar at <b>École normale supérieure de Lyon</b> , France	2025.04
	• Seminar at <b>HKUST</b> , Hong Kong, China	2024.12
	• <b>Workshop on Cosmology, Gravity, Particle Physics</b> , CAS-IBS-IST, Japan	2024.10
	• Seminar at <b>Yangzhou University</b> , China	2024.04
	• Seminar at <b>Shanghai Jiao Tong University</b> , China	2024.03
	• Seminar at <b>SUSTech</b> , China	2023.10
	• Seminar at <b>Kyoto University</b> , Japan	2023.06
	• Seminar at <b>RIKEN iTHEMS</b> , Japan	2023.06
	• Seminar at <b>Kavli IPMU</b> , Japan	2023.06
CONTRIBUTED TALKS & POSTER	• <b>New Horizon of Black Hole Physics</b> , YITP, Kyoto, Japan	2025.01
	• <b>High1 Workshop on Particle, String and Cosmology</b> , KAIST & IBS, Korea	2025.01
	• <b>COSMO24</b> , Kyoto University, Japan (Poster)	2024.10
	• <b>Workshop on cosmology, Gravity, and Particle physics</b> , USTC-IBS-IST, Japan	2024.09
	• <b>New horizons for Psi school &amp; workshop</b> , IST, Lisbon, Portugal (Poster)	2024.07
	• <b>YITP Long Term Workshop on Gravity and Cosmology</b> , Kyoto, Japan	2024.01
	• <b>International Symposium on Cosmology and Particle Astrophysics</b> , Hong Kong	2023.11
	• <b>Joint Annual Conference of Physical Societies</b> , Hong Kong, China	2023.07
	• <b>Conference on String theory, Gravity and Cosmology</b> , APCPT (Online)	2022.06
	• <b>Conference on Gravity and Cosmology</b> , YITP (Online)	2022.06
SCHOOLS	• <b>LPTHE Advanced Summer School in QFT and QG</b> , Vietnam	2024
	• <b>Summer School on String Theory, Field Theory and Holographic Theory</b> , China	2021
	• <b>Winter School on X-ray Data Analysis</b> , Fudan University, China	2018
	• <b>Xinjiang Astronomical Observatory Summer Camp</b> , China	2017
ACADEMIC VISITING	• <b>Niels Bohr Institute</b> , 1 week (Host: Vitor Cardoso)	2025
	• <b>Lyon ENS</b> , 1 week (Host: Etera Livine)	2025
	• <b>HKUST</b> , 1 week (Host: Yi Wang)	2025
	• <b>Yangzhou University</b> , 1 week (Host: Yen Chin Ong)	2024
	• <b>Shanghai Jiaotong University</b> , 1 week (Host: Yucheng Qiu)	2024
	• <b>Kyoto University</b> , 2 weeks (Host: Takahiro Tanaka)	2023
	• <b>Kavli IPMU</b> , 1 week (Host: Misao Sasaki)	2023
	• <b>University of Science and Technology of China</b> , 4 months (Host: Yifu Cai)	2023

## REFERENCES

- [1] Q. Ding, M. He, V. Takhistov and H. Y. Zhu, “Superradiant Bosons Driving Supermassive Black Hole Mergers,” [arXiv:2505.09696 [hep-ph]].
- [2] H. Y. Zhu, X. Tong, G. Manzoni and Y. Ma, “Survival of the Fittest: Testing Superradiance Termination with Simulated Binary Black Hole Statistics,” *Astrophys. J.* **981**, no.2, 165 (2025) doi:10.3847/1538-4357/adb1db [arXiv:2409.14159 [gr-qc]].

- [3] K. Fan, X. Tong, Y. Wang and H. Y. Zhu, “Modulating binary dynamics via the termination of black hole superradiance,” *Phys. Rev. D* **109**, no.2, 024059 (2024) doi:10.1103/PhysRevD.109.024059 [arXiv:2311.17013 [gr-qc]].
- [4] C. Chen, A. Ota, H. Y. Zhu and Y. Zhu, “Missing one-loop contributions in secondary gravitational waves,” *Phys. Rev. D* **107**, no.8, 083518 (2023) doi:10.1103/PhysRevD.107.083518 [arXiv:2210.17176 [astro-ph.CO]].
- [5] X. Tong, Y. Wang and H. Y. Zhu, “Termination of superradiance from a binary companion,” *Phys. Rev. D* **106** (2022) no.4, 043002 doi:10.1103/PhysRevD.106.043002 [arXiv:2205.10527 [gr-qc]].
- [6] Y. C. Qiu and H. Y. Zhu, “Probing neutrino sector via a statistical approach,” *Int. J. Mod. Phys. A* **37** (2022) no.10, 2250055 doi:10.1142/S0217751X22500555 [arXiv:2110.10462 [hep-ph]].
- [7] X. Tong, Y. Wang and H. Y. Zhu, “Gravitational Collider Physics via Pulsar–Black Hole Binaries II: Fine and Hyperfine Structures Are Favored,” *Astrophys. J.* **924** (2022) no.2, 99 doi:10.3847/1538-4357/ac36db [arXiv:2106.13484 [astro-ph.HE]].
- [8] L. Modesto, H. Y. Zhu and J. Y. Zhang, “Approaching a spacetime singularity in conformal gravity,” [arXiv:1906.09043 [gr-qc]].

**Note:** Except [2] & [8], the author’s name is listed in the sequence of the surname’s first character, among which I am the corresponding author for [1] and [3]. In other work, I contribute equally with my collaborators.