


# Han Wang 王晗

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 TianQin Research Center for Gravitational Physics, Zhuhai 519082, China

## Education

### Sun Yat-sen University (SYSU)

**Zhuhai, China**

Ph.D. Candidate in Astronomy (Expected graduation: Jun 2025)

Sep 2020 - present

- Thesis: Space-based Gravitational Wave Data Analysis of Stellar-mass Binary Black Holes: A Multi-band View
- Supervisor: Yi-Ming Hu (胡一鸣)

*This thesis focuses on the challenge of detecting gravitational waves from stellar-mass binary black holes in space-based detectors, and uses the idea of archival searches to implement an end-to-end data analysis routine, i.e. from simulated data to detection to parameter estimation. Additionally, the inclusion of eccentricity makes it beneficial to unveil the formation mechanisms of such systems.*

### University of Portsmouth

**Portsmouth, UK**

Visiting Ph.D. Student

Oct 2023 - Oct 2024

- Supervisor: Ian Harry

### Huazhong University of Science and Technology (HUST)

**Wuhan, China**

B.S. in Physics

Sep 2016 - Jun 2020

- Thesis: Analyses of Laser Propagation Noises for TianQin Gravitational Wave Observatory
- Supervisors: Yan Wang (王炎) and Wei Su (苏威)

*This thesis focuses on how global magnetosphere will introduces additional noise to the TianQin Gravitational Wave Observatory and estimates its impact using MHD simulation data.*

### University of California, Berkeley

**Berkeley, CA, USA**

Berkeley International Study Program

Jan 2019 - May 2019

## Selected Awards and Scholarships

### National Scholarship

2024

*Top honor awarded to outstanding students for their exceptional academic achievements, leadership, and contributions to society*

### State Scholarship Fund, China Scholarship Council

Oct 2023 - Oct 2024

*To fund overseas study (in this case, a visit to the University of Portsmouth) for awardees selected through a rigorous academic evaluation process*

### TianQin Jianxing Outstanding Postgraduate Scholarship

2022 & 2023

*Endowed scholarship for outstanding postgraduates who were involved in the TianQin Gravitational Wave Detection Mission*

### The Postgraduate Skills Competition of TianQin Research Center

1<sup>st</sup> in 2021  
& 2<sup>nd</sup> in 2022

*For postgraduates who made an excellent scientific outreach video on topics related to gravitational waves*

### Outstanding Graduate of HUST

2020

*Top honor for undergraduates who would be graduating from HUST that year*

### National Astronomical Observatories Scholarship, Chinese Academy of Sciences

2017 & 2019

*For nationwide outstanding undergraduates who had chosen astronomy as their research direction*

### Merit Student of HUST

2019

*For undergraduates who were recognized for excellence in both academic performance and public service*

### Outstanding Student Cadre of HUST

2017 & 2018

*For outstanding undergraduate leaders who were involved actively in student associations or organizations*

## Conferences and Presentations

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### Conferences:

245 <sup>th</sup> Meeting of the American Astronomical Society, <i>National Harbor</i> , Maryland, USA - <a href="#">talk</a>	Jan 2025
2024 Annual Meeting of the TianQin Research Center, <i>TianQin Research Center</i> , Zhuhai, China - <a href="#">talk</a> - <a href="#">[Best Student Talk Award]</a>	Jan 2025
2024 Annual Meeting of the Chinese Astronomical Society, <i>Zhejiang University</i> , Hangzhou, China - <a href="#">poster</a>	Oct 2024
15 <sup>th</sup> LISA Symposium, <i>University College Dublin</i> , Dublin, Ireland - <a href="#">poster</a> <a href="#">↗</a>	Jul 2024
Faculty of Technology Research and Innovation Conference, <i>University of Portsmouth</i> , Portsmouth, UK - <a href="#">poster</a>	Jun 2024
24 <sup>th</sup> BritGrav meeting, <i>Queen Mary University of London</i> , London, UK - <a href="#">talk</a>	Apr 2024
1 <sup>st</sup> Symposium on Gravitational Wave Astronomy in the Audio Band, <i>Beijing Normal University</i> , Zhuhai, China - <a href="#">remote talk</a>	Mar 2024
2023 Annual Meeting of the Gravity and Relativistic Astrophysics Division of the Chinese Physical Society, <i>Chongqing University</i> , Chongqing, China - <a href="#">talk</a>	Apr 2023

### Selected Seminars:

LISA Ground Segment Meet Up, <i>University of Birmingham</i> , Birmingham, UK	Jan 2024
SYSU-PKU Bilateral Seminar on Gravitational Wave Astronomy, <i>TianQin Research Center</i> , Zhuhai, China	Mar 2023
Research Tools and Techniques Seminar, <i>TianQin Research Center</i> , Zhuhai, China	Dec 2021

## Outreach and Services

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Lead developer of <a href="#">TianQinSYSU/GWSpace</a> <a href="#">↗</a>	
Illustration development of TianQin Gravitational Wave Detection Mission	
Outreach videos on gravitational waves [In Chinese] <a href="#">link1</a> <a href="#">↗</a> <a href="#">link2</a> <a href="#">↗</a>	
Volunteer of <a href="#">Stargazing at Portsmouth Historic Dockyard</a> <a href="#">↗</a>	Jan 2024
Leader of Astronomy Enthusiasts Group of TianQin Research Center <i>Organizing sidewalk astronomy observation and other outreach events.</i>	2020 - 2022
Lab manager of the Innovative Base for Physics Experiment (IBPE) of HUST <i>Responsible for lab planning, procurement, daily maintenance, public outreach, etc. IBPE is a free platform that encourages undergraduates to engage in physics-related self-study and self-research.</i>	2017 - 2018
Vice President of the Astronomy Enthusiasts Association of HUST	2017 - 2018
Core management of the Astronomy Enthusiasts Association of HUST <i>Organizing sidewalk astronomy observation and camping &amp; stargazing trips, inviting talks by astronomy experts, writing scientific outreach content for members, live-streaming astronomical events (e.g., total lunar eclipses), giving astronomy outreach lectures at local high schools, etc.</i>	2016 - 2019












## Teaching

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### Teaching Assistant of

Methods in Mathematical Physics	Fall 2022
Fundamentals of Physics II	Fall 2021
Thermodynamics and Statistical Physics	Spring 2020

## Publications

- Han Wang**, Michael J. Williams, Ian Harry, Yi-Ming Hu. “Archival Search and Property Inference of Stellar-Mass Binary Black Holes in Space-Based Gravitational Wave Observations”. In: *In prep* ().
- Hanzhang Wang, Shuai Liu, **Han Wang**, Chen Hong-Yu, Long Wang, Yi-Ming Hu. “Detection for Intermediate-mass Binary Black Holes in Population III Star Clusters with TianQin”. In: *Submitted to A&A* ().
- En-Kun Li, Hong-Yu Chen, Ya-Nan Li, Zhi-Yuan Li, **Han Wang**, et al. “Data Analysis of Space-borne Gravitational Wave Missions (in Chinese)”. In: *Sci. Sin.-Phys. Mech. Astron.* 55 (2025), p. 230406. doi: [10.1360/SSPMA-2024-0357](https://doi.org/10.1360/SSPMA-2024-0357) . URL: <https://www.sciengine.com/SSPMA/doi/10.1360/SSPMA-2024-0357>.
- Hong-Yu Chen, **Han Wang**, En-Kun Li, Yi-Ming Hu. “Signal-to-noise Ratio Analytic Formulae of the Inspiral Binary Black Holes in TianQin”. In: *arXiv e-prints (Submitted to Phys. Rev. D)*, arXiv:2410.19401 (Oct. 2024), arXiv:2410.19401. doi: [10.48550/arXiv.2410.19401](https://doi.org/10.48550/arXiv.2410.19401) . arXiv: [2410.19401](https://arxiv.org/abs/2410.19401) [[astro-ph.GA](#)] .
- En-Kun Li, Shuai Liu, Alejandro Torres-Orjuela, Xian Chen, Kohei Inayoshi, et al. (incl. **Han Wang**). “Gravitational Wave Astronomy With TianQin”. In: *arXiv e-prints*, arXiv:2409.19665 (Sept. 2024), arXiv:2409.19665. doi: [10.48550/arXiv.2409.19665](https://doi.org/10.48550/arXiv.2409.19665) . arXiv: [2409.19665](https://arxiv.org/abs/2409.19665) [[astro-ph.GA](#)] .
- Han Wang**, Ian Harry, Alexander Nitz, Yi-Ming Hu. “Space-based gravitational wave observatories will be able to use eccentricity to unveil stellar-mass binary black hole formation”. In: *Phys. Rev. D* 109.6, 063029 (Mar. 2024), p. 063029. doi: [10.1103/PhysRevD.109.063029](https://doi.org/10.1103/PhysRevD.109.063029) . arXiv: [2304.10340](https://arxiv.org/abs/2304.10340) [[astro-ph.HE](#)] .
- En-Kun Li\*, **Han Wang**\*, Hong-Yu Chen, Huimin Fan, Ya-Nan Li, et al. “GWSpace: a multi-mission science data simulator for space-based gravitational wave detection”. In: *arXiv e-prints (Submitted to Class. Quant. Grav.)*, arXiv:2309.15020 (Sept. 2023), arXiv:2309.15020. doi: [10.48550/arXiv.2309.15020](https://doi.org/10.48550/arXiv.2309.15020) . arXiv: [2309.15020](https://arxiv.org/abs/2309.15020) [[gr-qc](#)] .
- Wei Su, Yan Wang, Chen Zhou, Lingfeng Lu, Ze-Bing Zhou, et al. (incl. **Han Wang**). “Analyses of Laser Propagation Noises for TianQin Gravitational Wave Observatory Based on the Global Magnetosphere MHD Simulations”. In: *Astrophys. J.* 914.2, 139 (June 2021), p. 139. doi: [10.3847/1538-4357/abfc49](https://doi.org/10.3847/1538-4357/abfc49) . arXiv: [2102.10574](https://arxiv.org/abs/2102.10574) [[astro-ph.SR](#)] .