



# Yi-Ming Hu

## Curriculum Vitae

### Education

- 2011–2015 **Ph.D. in Physics and Astronomy**, *The University of Glasgow*, UK.  
2007–2011 **Bachelor of Science in Astronomy**, *Nanjing University*, China.

### Work experience

- 2017–Present **Associate Professor**, *School of Physics and Astronomy, Sun Yat-sen University*, China.  
2015–2017 **Postdoc**, *Research Institute of Information Technology, Tsinghua University*, China.  
2015–2016 **Junior Scientist/Postdoc**, *The Max Planck Institute for Gravitational Physics (Albert Einstein Institute)*, Germany.

### Research interests

- TianQin My primary research interest is to explore the astronomy and fundamental physics that could be achieved through the construction of TianQin, a proposed space-based gravitational wave detector. My current affiliation is TianQin research center for gravitational physics.
- GW astronomy As an astronomer deep down, I'm studying all possible gravitational wave sources for space-based GW missions, ranging from Galactic compact binaries, stellar mass compact binary inspirals, extreme mass-ratio inspirals, massive black hole binary mergers, as well as stochastic gravitational wave background.
- Data Analysis I'm a Bayesianism, and my previous experience in LIGO equipped me with knowledge to perform GW data analysis related to space-based GW missions. I plan to construct data analysis pipelines for all sorts of potential sources to TianQin, to detect signals out of noise, and to measure parameters upon detected events.

### Awards, Honors and Grants

- 2019 Member of Guangdong Association of Young scientists  
2017 NSFC, Grant No. 11703098  
2017 Special Breakthrough Prize in Fundamental Physics (shared with collaborators)

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- 2016 Gruber Prize in Cosmology (shared with collaborators)
- 2013 Principal's Early Career Mobility Fund
- 2011 China Scholarship Council Scholarship
- 2010 National Aspiration Scholarship

## Selected Publication List (<sup>†</sup> means corresponding author)

- 2020 **Science with the TianQin Observatory: Preliminary result on extreme-mass-ratio inspirals**, Hui-Min Fan, **Yi-Ming Hu<sup>†</sup>**, Enrico Barausse, Alberto Sesana, Jian-Dong Zhang<sup>†</sup>, Xuefeng Zhang, Tie-Guang Zi, Jianwei Mei<sup>†</sup>, arXiv e-print, 2005.08212.
- 2020 **Science with the TianQin Observatory: Preliminary Results on Galactic Double White Dwarf Binaries**, Shun-Jia Huang, **Yi-Ming Hu<sup>†</sup>**, Valeriya Korol, Peng-Cheng Li, Zheng-Cheng Liang, Yang Lu, Hai-Tian Wang, Shenghua Yu, Jianwei Mei<sup>†</sup>, arXiv e-print, 2005.07889.
- 2020 **Science with the TianQin observatory: Preliminary results on stellar-mass binary black holes**, Shuai Liu<sup>†</sup>, **Yi-Ming Hu<sup>†</sup>**, Jian-dong Zhang<sup>†</sup>, Jianwei Mei<sup>†</sup>, Physical Review D, vol. 101, 103027.
- 2020 **Post-Newtonian waveform for charged binary black hole inspirals and analysis with GWTC-1 events**, Hai-Tian Wang<sup>†</sup>, Peng-Cheng Li<sup>†</sup>, Jin-Liang Jiang, **Yi-Ming Hu**, Yi-Zhong Fan<sup>†</sup>, arXiv e-print, 2004.12421.
- 2020 **Is GW190425 Consistent with Being a Neutron Star–Black Hole Merger?**, Ming-Zhe Han, Shao-Peng Tang, **Yi-Ming Hu**, Yin-Jie Li, Jin-Liang Jiang, Zhi-Ping Jin, Yi-Zhong Fan<sup>†</sup>, Da-Ming Wei, Astrophysical Journal Letters, vol. 891, L5.  
This work gets highlighted in astrobites
- 2019 **Constraining modified gravity with ringdown signals: an explicit example**, Jiahui Bao, Changfu Shi, Haitian Wang, Jian-dong Zhang<sup>†</sup>, **Yiming Hu**, Jianwei Mei, Jun Luo, Physical Review D, vol. 100, 084024.
- 2019 **TianQin project and international collaboration**, **Yi-Ming Hu**, Jianwei Mei, Jun Luo<sup>†</sup>, Chinese Science Bulletin, vol. 64, no. 24, p. 2475-2483.
- 2019 **Results from an Einstein@Home search for continuous gravitational waves from Cassiopeia A, Vela Jr. and G347.3**, Jing Ming<sup>†</sup>, Maria Alessandra Papa, Avneet Singh, Heinz-Bernd Eggenstein, Sylvia J. Zhu, Vladimir Dergachev, **Yi-Ming Hu**, Reinhard Prix, Bernd Machenschalk, Christian Beer, Oliver Behnke, Bruce Allen, Physical Review D, vol. 100, 024063.
- 2019 **Science with TianQin: Preliminary Results on Testing the No-hair Theorem with Ringdown Signals**, Changfu Shi, Jiahui Bao, Haitian Wang, Jian-dong Zhang<sup>†</sup>, **Yi-Ming Hu**, Alberto Sesana, Enrico Barausse, Jianwei Mei, Jun Luo, Physical Review D, vol. 100, 044036.
- 2019 **Science with TianQin: Preliminary Results on Massive Black Hole Binaries**, Hai-Tian Wang, Zhen Jiang, Alberto Sesana, Enrico Barausse, Shun-Jia Huang, Yi-Fan Wang, Wen-Fan Feng, Yan Wang, **Yi-Ming Hu<sup>†</sup>**, Jianwei Mei, Jun Luo, Physical Review D, vol. 100, 043003.

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- 2019 **Preliminary study on parameter estimation accuracy of supermassive black hole binary inspirals for TianQin**, *Wen-Fan Feng, Hai-Tian Wang, Xin-Chun Hu, Yi-Ming Hu<sup>†</sup>, Yan Wang<sup>†</sup>*, Physical Review D, vol. 99, 123002.
- 2018 **Gravitational waves induced by the asymmetric jets of gamma-ray bursts**, *Shuang Du, Xiao-Dong Li<sup>†</sup>, Yi-Ming Hu, Fang-Kun Peng, Miao Li*, Monthly Notices of the Royal Astronomical Society, vol. 480, no. 1, p. 402-406.
- 2018 **Fundamentals of the orbit and response for TianQin**, *Xin-Chun Hu, Xiao-Hong Li, Yan Wang<sup>†</sup>, Wen-Fan Feng, Ming-Yue Zhou, Yi-Ming Hu, Shou-Cun Hu, Jian-Wei Mei, Cheng-Gang Shao*, Classical and Quantum Gravity, vol. 35, no. 9, 095008.
- 2018 **Optimizing searches for electromagnetic counterparts of gravitational wave triggers**, *Michael W Coughlin<sup>†</sup>, Duo Tao, Man Leong Chan, Deep Chatterjee, Nelson Christensen, Shaon Ghosh, Giuseppe Greco, Yiming Hu, Shasvath Kapadia, Javed Rana, Om Sharan Salafia, Christopher Stubbs*, Monthly Notices of the Royal Astronomical Society, vol. 478, no.1 p. 692-702.
- 2017 **Science Prospects for Space-borne Gravitational Wave Missions**, *Yi-Ming Hu<sup>†</sup>, Jianwei Mei, Jun Luo*, National Science Review, vol. 4, no. 5, p. 683-684.
- 2017 **Excitation of high frequency voices from intermediate-mass-ratio inspirals with large eccentricity**, *Wen-Biao Han<sup>†</sup>, Zhoujian Cao, Yi-Ming Hu<sup>†</sup>*, Classical and Quantum Gravity, vol. 34, no. 22, p. 225010.
- 2017 **Neutron Star–Black Hole Coalescence Rate Inferred from Macronova Observations**, *Xiang Li, Yi-Ming Hu<sup>†</sup>, Zhi-Ping Jin, Yi-Zhong Fan<sup>†</sup>, Da-Ming Wei*, Astrophysical Journal Letters, vol. 844, no. 2, p. L22.
- 2017 **Systematic errors in estimation of gravitational-wave candidate significance**, *Collin Capano, Thomas Dent, Chad Hanna, Martin Hendry, Yi-Ming Hu<sup>†</sup>, Chris Messenger, John Veitch*, Physical Review D, vol. 96, p. 082002.
- 2017 **Maximising the detection probability of kilonovae associated with gravitational wave observations**, *Man Leong Chan, Yi-Ming Hu<sup>†</sup>, Chris Messenger, Martin Hendry, Ik Siong Heng*, Astrophysical Journal, vol. 834, no. 1, p. 84.
- 2016 **Long-short GRBs within the horizon of the advanced LIGO/VIRGO network and Time lag between compact object coalescence and GRB onset**, *Xiang Li, Yi-Ming Hu, Yi-Zhong Fan<sup>†</sup>, Da-Ming Wei*, Astrophysical Journal, vol. 827, no. 1, p. 75.
- 2015 **Global Optimisation for Future Gravitational Wave Detectors' Sites**, *Yi-Ming Hu<sup>†</sup>, Peter Raffai, Laszlo Gondan, Ik Siong Heng, Nandor Kelecsenyi, Martin Hendry, Zsuzsa Marka, Szabolcs Marka*, Classical and Quantum Gravity, vol. 32, no. 10, p. 105010.
- 2014 **Glitch or anti-glitch: a Bayesian view**, *Yi-Ming Hu<sup>†</sup>, Matthew Pitkin, Ik Siong Heng, and Martin A. Hendry*, Astrophysical Journal Letters, vol. 784, no. 2, p. L41.

## Conference and invited talks

- December 2019 **Invited talk at Guangzhou University, Guangzhou, *Science with the TianQin Observatory.***
- December 2019 **The Sixth Workshop of TianQin Space Science Mission, Zhuhai, *Progress on Studies of TianQin Scientific Objectives.***
- November 2019 **KIAA Forum 2019: The Future of Gravitational Wave Astrophysics, Beijing, *Science with TianQin: Prospects and applications of massive black hole binaries detections.***
- November 2019 **3rd Seminar on TianQin science case, Zhuhai, 1. *Prospect of TianQin on Massive Black Hole Binaries and EMRI*; 2. *Prospect of TianQin on Stellar-mass Black Hole Binary.***
- July 2019 **GR22 – Amaldi13 conference, Valencia, *Science with TianQin: Preliminary Results on Massive Black Hole Binaries.***
- May 2019 **2nd Seminar on TianQin science case, Wuhan, *Science with TianQin: Preliminary Results on Massive Black Hole Binaries.***
- May 2019 **2nd GrEAT meeting, Glasgow, *Science with TianQin: Preliminary Results on Massive Black Hole Binaries.***
- April 2019 **2019 CCNU-USTC Junior Cosmology Symposium, Wuhan, *Science with TianQin: Preliminary Results on Massive Black Hole Binaries.***
- April 2019 **Invited talk at SYSU, Guangzhou, *Science with TianQin: Preliminary Results on Massive Black Hole Binaries.***
- March 2019 **RESCEU Workshop on Space Gravitational-Wave Detection, Tokyo, *Analysis of TianQin Scientific Objectives.***
- January 2019 **Seminar on Simulation Technology of Space-based Gravitational Wave Detection, Zhuhai, *Data analysis pipeline for space-based gravitational wave detections.***
- January 2019 **Invited talk at KIAA, Beijing, *Analysis of TianQin Scientific Objectives.***
- December 2018 **The Fifth Workshop of TianQin Space Science Mission, Zhuhai, *Analysis of TianQin Scientific Objectives.***
- September 2018 **Advanced seminar of gravitational wave physics, Changsha, *Analysis of TianQin scientific targets.***
- July 2018 **12th International LISA Symposium, Chicago, *The Effect of the Earth Gravity Field Measurement Uncertainty on Gravitational Waves Detection with TianQin,* poster.**
- May 2018 **2nd workshop on GW astrophysics, Xiamen, *Introduction of TianQin mission.***
- April 2018 **Zhuhai Workshop on GW detection and Nucleosynthesis, Zhuhai, *Introduction of TianQin mission.***
- March 2018 **Junior Cosmology Symposium: Gravitational Waves and Early Universe, Hefei, *Impact of Earth Multiple Moments on TianQin Gravitational Wave Detection.***

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- March 2018 **1st Seminar on TianQin science case, Zhuhai**, *Analysis of TianQin Science Cases.*
- December 2017 **Invited talk at USTC, Hefei**, *Maximising the detection probability of kilonovae associated with gravitational wave observations.*
- December 2017 **Workshop on GW detection and Nucleosynthesis, Xinglong**, *Earth Gravity field effect on TianQin.*
- November 2017 **ACGRG9, Perth**, *Earth Gravity field effect on TianQin.*
- October 2017 **The 6th Beijing GW workshop, Beijing**, *Multiband Gravitational Wave astronomy.*
- August 2017 **The 1st Youth GW workshop, Anji**, *NS-BH rate from macronovae observation.*
- June 2017 **Invited talk at Guangzhou University, Guangzhou**, *Progress of the TianQin project.*
- May 2017 **Invited talk at Yunnan Observatory, Kunming**, *Maximising the detection probability of kilonovae associated with gravitational wave observations.*
- April 2017 **The 5th Beijing GW workshop, Beijing**, *NS-BH rate from macronovae observation.*
- August 2016, Glasgow **LVC meeting**, *Improvements of the line-robust statistic.*
- June 2016 **GWPAW, Boston**, *Constructing a more physical Line-Robust Statistic*, poster.
- March 2016 **LVC meeting, Pasadena**, *Tuning of Bayesian statistics in Einstein@Home for O1.*
- April 2015 **BritGrav meeting, Birmingham**, *Estimation of gravitational wave event statistical significance.*
- September 2014 **Invited talk at Caltech, Pasadena**, *Determine the optimal sites for Gravitational Wave Detectors.*
- August 2014 **LVC meeting, Stanford**, *Significance MDC progress and discussion – the Hamlet test.*