# Dr. Yifan WANG

Email: yifan.wang@aei.mpg.de ◇ Personal website: https://yi-fan-wang.github.io
Address: Room 044, Callinstraße 38, 30167 Hannover, Germany

## CURRENT POSITION

**Max Planck Institute for Gravitationalphysics (Albert Einstein Institute)**
Department of Observational Relativity and Cosmology
Junior Scientist/Postdoc *Nov 2019 - Present*

## EXPERIENCE

**Member of LIGO and Virgo Collaboration** *Mar 2016 - Jun 2019*

**The Chinese University of Hong Kong** *Aug 2015 - Oct 2019*
Ph.D. in Physics (Advisor: Prof. Tjonnie G. F. Li)
Thesis: *Hunting for Primordial Black Holes with Stochastic Gravitational-Wave Background*

**Institute of Theoretical Physics, Chinese Academy of Sciences** *Jun 2014 - Aug 2014*
Visiting Student (Supervisor: Prof. Qing-Guo Huang)
Research topics: Data Analysis of Cosmic Microwave Background

**University of Science and Technology of China** *Aug 2011 - Jul 2015*
B.S. in the Department of Modern Physics (Supervisor: Prof. Wen Zhao)
Thesis: *Separating E and B Polarization Modes of Cosmic Microwave Background from an Incomplete Sky* (in Chinese)

## RESEARCH TOPICS

I focus on the data analysis and interpretation of *gravitational wave* from compact binary coalescence, and implications for relativity and cosmology. Recently I am especially interested in:

- Searching for primordial black hole dark matter signals in gravitational wave
- Testing general relativity with detected gravitational-wave events, and searching for exotic signals beyond general relativity
- Building waveform templates of gravitational wave from eccentric compact binary coalescence

## HIGHLIGHTED WORK

**Search for gravitational waves from high-mass-ratio compact-binary mergers of stellar mass and sub-solar mass black holes**
*arXiv: 2007.03583, under review*
Alexander Harvey Nitz, Yi-Fan Wang
(We built the largest template bank ever for searching for gravitational waves from compact binary coalescence, the computation took 23k CPUs/46k threads for three weeks, which would cost ∼200k USD with commercial supercomputers. Luckily, we have Atlas for free.)

**Constraints on the Primordial Black Hole Abundance from the First Advanced LIGO Observation Run Using the Stochastic Gravitational-Wave Background**
*Phys. Rev. Lett. 120, 191102 (2018) arXiv: 1610.08725*
Sai Wang, Yi-Fan Wang (co-first author), Qing-Guo Huang, and Tjonnie G.F. Li
(This work was reported as a research highlight by *Nature Physics*.)

## PROFESSIONAL SKILLS

**Programming:** Python, C, C++, Matlab, Mathematica, Fortran, HTCondor, My Github
**Languages:** English(fluent), Chinese(native), German(basic)

## TEACHING EXPERIENCE

In the Chinese University of Hong Kong:

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| PHYS4011 Classical Mechanics II (teaching assistant) | *Spring 2019* |
| UGEB2401B Astronomy (teaching assistant) | *Autumn 2018* |
| UGEB2401B Astronomy (teaching assistant) | *Spring 2018* |
| PHYS1003A General Physics for Engineer (teaching assistant) | *Autumn 2017* |
| UGEB2401B Astronomy (teaching assistant) | *Spring 2017* |
| PHYS1003A General Physics for Engineer (teaching assistant) | *Autumn 2016* |
| UGEB2401B Astronomy (teaching assistant) | *Spring 2016* |
| PHYS1003A General Physics for Engineer (teaching assistant) | *Autumn 2015* |

In the University of Science and Technology of China:

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| 022164 College physics experiment III (teaching assistant) | *Spring 2015* |
| 022504 Electromagnetism B (teaching assistant) | *Autumn 2014* |