Cong Zhou

"A journey of a thousand miles begins with a single step."
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Education

University of Science and Technology of China (USTC) *09/2020 - present*
Ph.D. student *Expected in 06/2026*
Advisor: Prof. Wen Zhao & Prof. Zhen Pan

University of Science and Technology of China (USTC) *09/2016 - 07/2020*
B.S. (Honor) in astrophysics, Yan Jici Talent Program in Physics, School of Physical Sciences,
GPA: 3.87/4.30, Rank: 1/29 in Department of Astronomy, 16/336 in School of Physical Sciences
Advisor: Prof. Wen Zhao

Research Interests

Quasi-Periodic Eruptions (QPEs) & Extreme Mass Ratio Inspirals (EMRIs)

- Extension of the QPE timing method proposed in *Zhou et al. 2025* to include more physical effects, to higher adiabatic order, and investigate its application to current and future QPE observations.
- Tests of GR with QPEs.
- Possible connection between QPEs and EMRIs in LISA era.
- Evironmental effects on EMRIs.

Nuclear Transients

- Dynamics of stars and compact objects in nuclear stellar cluster.
- Possible connection between QPEs and other nuclear transients, e.g., TDEs and AGN variability.
- AGN flares as potential electromagnetic counterpart of Binary Black Hole (BBH) merger events.

Publications

- **Cong Zhou**, Zhen Pan, Ning Jiang, and Wen Zhao., *"Dynamical measurement of supermassive black hole masses: QPE timing method"*, MNRAS 543, 1816 (2025)
- **Cong Zhou**, Yuhe Zeng, and Zhen Pan., *"Secular Evolution of Quasiperiodic Eruptions"*, ApJ 985 242 (2025)
- **Cong Zhou**, Binyu Zhong, Yuhe Zeng, Lei Huang, and Zhen Pan., *"Probing orbits of stellar mass objects deep in galactic nuclei with quasiperiodic eruptions. II. Population analysis"*, PRD 110, 083019 (2024)
- **Cong Zhou**, Lei Huang, Kangrou Guo, Ya-Ping Li, and Zhen Pan., *"Probing orbits of stellar mass objects deep in galactic nuclei with quasiperiodic eruptions"*, PRD 109, 103031 (2024)
- Qian Hu, **Cong Zhou**, Jhao-Hong Peng, Linqing Wen, Qi Chu, and Manoj Kovalam., *"Semianalytical approach for sky localization of gravitational waves"*, PRD 104, 104008 (2021)
- Wen Zhao, Tan Liu, Linqing Wen, Tao Zhu, Anzhong Wang, Qian Hu, and **Cong Zhou**, *"Model-independent test of the parity symmetry of gravity with gravitational waves"*, Eur. Phys. J. C 80, 630 (2020).

Talks & Presentations

Measuring SMBH masses with QPEs *June 2025 @ ESAC*
X-ray Quasi-Periodic Eruptions & Repeating Nuclear Transients, Madrid, Spain **(Contributed talk)**

Orbits, Origins, and Masses: Decoding Quasi-Periodic Eruptions *Apr 2025 @ Online*
TDE simulation group, Online **(Seminar)**

Probing orbits of stellar mass objects deep in galactic nuclei with quasi-periodic eruptions — *Oct 2024 @ TDLI*
Transient Phenomena and Physical Processes Around Supermassive Black Holes, Shanghai, China
(Contributed talk)

Probing orbits of stellar mass objects deep in galactic nuclei with quasi-periodic eruptions — *Mar 2024 @ PKU*
GWnext 2024, Beijing, China **(Poster)**

Teaching

Electrodynamics (*undergraduates*) — *2020 Spring @ USTC*
Teaching Assistant
Instructor: Prof. Wandong Liu

Thermal Physics A (*undergraduates*) — *2021 Spring @ USTC*
Teaching Assistant
Instructor: Prof. Hongyan Zhou & Prof. Huiyuan Wang

Space and Time (*undergraduates*) — *2021 Fall @ USTC*
Teaching Assistant
Instructor: Prof. Wen Zhao

The Theory of General Relativity (*graduates*) — *2021 Fall @ USTC*
Teaching Assistant
Instructor: Prof. Wen Zhao

The Theory of General Relativity (*graduates*) — *2022 Fall @ USTC*
Teaching Assistant
Instructor: Prof. Wen Zhao

Awards

Poster prize (2nd place), GWNext 2024, Peking University — *2024*
The 39th Guo Moruo Scholarship (the highest honor for undergraduates in USTC) — *2019*
National Astronomical Observatory of China Scholarship — *2019*
Scholarship of Yan Jici Talent Program in Physics — *2018*
Outstanding Student Scholarship (Grade B) — *2018*
Zhang Zongzhi Sci-Tech Scholarship — *2017*
Outstanding Student Scholarship (Grade A) — *2016*

Professional Skills

Programming	Python, Mathematica, Cython, C, LaTex
High-performance computing	Linux systems, Slurm
Research-relevant software	Bilby
Languages	Mandarin Chinese (native), English (fluent)