

FIELDS OF INTEREST

- **Quasi-periodic oscillations (QPOs):** conducting joint X-ray timing and spectral analysis using novel methods, such as the Hilbert-Huang transform, to understand the physical mechanisms driving QPOs observed from accreting compact objects, including black hole X-ray binaries, ultraluminous X-ray sources and active galactic nucleus.
- **X-ray polarization:** investigating the accretion geometry of compact objects by X-ray polarimetry through current IXPE and future eXTP observations.
- **Accretion under strong magnetic fields:** studying timing and spectral properties, such as evolution of cyclotron resonant scattering features (CRSFs), from X-ray pulsars to understand the accretion physics under strong magnetic fields ($> 10^{12}$ G).

EDUCATION

- Institute of High Energy Physics, Chinese Academy of Sciences** Beijing, China
Ph.D. in Particle Physics and Nuclear Physics 2021.09 – 2026.06 (*expected*)
- Advisor: Prof. Shu Zhang
 - Research area: High Energy Astrophysics
- School of Space Science and Physics, Shandong University** Weihai, China
B.S. in Space Science and Technology 2017.09 – 2021.06
- GPA: 90.6/100.0, Rank: 3/43.

AWARDS AND HONORS

- **International Cooperative Training Program Scholarship for Doctoral Students,** University of Chinese Academy of Sciences 2025.01
- **National Scholarship for Graduate Student** (Most prestigious scholarship for graduate student in China) 2024.11
- **Academic First Class Scholarship,** University of Chinese Academy of Sciences 2024.09
- **Academic First Class Scholarship,** University of Chinese Academy of Sciences 2023.09
- **Outstanding Graduate of Shandong University,** Shandong University 2021.06
- **National Scholarship for Undergraduate Student** (Most prestigious scholarship for undergraduate student in China) 2019.12
- **Academic First Class Scholarship,** Shandong University 2019.09

APPROVED PROPOSALS

- EP-FXT ToO (PI), 9 ks on WFST0525lxnt 2025.05
- EP-FXT ToO (PI), 12 ks on EP 250512a 2025.03
- EP-FXT ToO (PI), 3 ks on EP J1440.2–6317 2025.04
- EP-FXT ToO (PI), 3 ks on EP 250315b 2025.03
- EP-FXT ToO (PI), 9 ks on GRB 250314a 2025.03
- EP-FXT ToO (PI), 3 ks on EP 250108a 2025.01
- EP-FXT ToO (PI), 9 ks on 3C 273 2025.01
- EP-FXT ToO (PI), 3 ks on ATO J062.5554+20.7139 2024.12
- EP-FXT ToO (PI), 6 ks on EP 241119a 2024.11
- EP-FXT ToO (PI), 5 ks on GOTO 065054.49+593624.51 2024.10
- **Insight-HXMT AO6 (PI),** 100 ks on GX 339–4 2023.06
- **Insight-HXMT AO6 (PI),** 100 ks on H 1743–322 2023.06
- **Insight-HXMT AO6 (PI),** 100 ks on 1A 0535+262 2023.06
- **Insight-HXMT AO5 (PI),** 100 ks on GX 339–4 2022.05
- **Insight-HXMT AO5 (PI),** 100 ks on H 1743–322 2022.05

PROJECTS	Tracing the Accretion Geometry of Black Hole X-ray Binary H 1743–322 during Outbursts <i>Undergraduate research training program</i>	2020.05 – 2021.05
	State Transitions of Black Hole X-ray Binary GX 339–4 <i>Undergraduate research training program</i>	2018.05 – 2020.05
SKILLS	Languages: Chinese, English.	
	Programming: Python, C++, MATLAB	
	Familiar with Instruments: XMM-Newton, NuSTAR, Insight-HXMT, NICER, EP, IXPE, RXTE	
PRESENTATIONS	Seminar Talk at the School of Space Science, Shandong University <i>Invited Talk (60 min)</i>	Weihai, China (Jun 18, 2025)
	“Advances in Astronomy” Lecture of Shandong University <i>Invited Lecturer (100 min)</i>	Weihai, China (Jun 18, 2025)
	The 5th China-India Workshop on High Energy Astrophysics <i>Invited Speaker (20 min)</i>	Given remotely, (Dec 19, 2024)
	The 6th Symposium on X-ray Binary Multiwavelength Studies <i>Speaker (15 min)</i>	Qingdao, China, (Nov 15, 2024)
	Unveiling the Dynamic and Energetic Universe with Insight-HXMT for Six Years and Beyond <i>Speaker (15 min)</i>	Zhuhai, China, (Jan 23, 2024)
	The 32nd Texas Symposium on Relativistic Astrophysics <i>Speaker (12 min)</i>	Shanghai, China, (Dec 15, 2023)
	The 5th Symposium on X-ray Binary Multiwavelength Studies <i>Speaker (15 min)</i>	Wuhan, China, (Nov 17, 2023)
	The Insight-HXMT Workshop of 2023 <i>Speaker (15 min)</i>	Qingdao, China, (Jul 10, 2023)
	The Insight-HXMT and X-ray Binaries Workshop at Shandong University <i>Speaker (15 min)</i>	Weihai, China, (Jul 14, 2021)
	The Insight-HXMT and X-ray Binaries Workshop at Xiangtan University <i>Speaker (15 min)</i>	Xiangtan, China, (Apr 3, 2020)
	Einstein Probe Science Topical Panels 4 and 6 <i>Associate Member</i>	2023 – present
	eXTP Science Team <i>Contribute to the white papers</i>	2024 – present

PUBLICATIONS
(FIRST-AUTHOR)

1. **Shui Q.-C.**, Zhang S. *, Feng H. *, et al., 2025, **ApJ**, **984**, **130**
A Phase-resolved View of Millihertz Quasiperiodic Oscillations in the Ultraluminous X-Ray Source M51 ULX-7: Evidence for a Magnetically Truncated Disk and Geometrical Beaming
2. **Shui Q.-C.** *, Zhang S. *, Peng J.-Q. *, et al., 2024, **ApJ**, **973**, **92**
A Phase-resolved View of “Heartbeat”-like Variability in IGR J17091-3624 during the 2022 Outburst
3. **Shui Q.-C.** *, Zhang S. *, Peng J.-Q. *, et al., 2024, **ApJ**, **973**, **59**
Phase-resolved Spectroscopy of Low-frequency Quasiperiodic Oscillations from the Newly Discovered Black Hole X-Ray Binary Swift J1727.8-1613
4. **Shui Q.-C.** *, Zhang S. *, Zhang S.-N. *, et al., 2024, **ApJL**, **965**, **L7**
Recovery of High-energy Low-frequency Quasiperiodic Oscillations from Black Hole X-Ray Binary MAXI J1535–571 with a Hilbert–Huang Transform Method
5. **Shui Q.-C.** *, Zhang S. *, Wang P.-J. *, et al., 2024, **MNRAS**, **528**, **7320**
Cyclotron line evolution revealed with pulse-to-pulse analysis in the 2020 outburst of 1A 0535+262
6. **Shui Q.-C.** *, Zhang S. *, Zhang S.-N. *, et al., 2023, **ApJ**, **957**, **84**
A Phase-resolved View of the Low-frequency Quasiperiodic Oscillations from the Black Hole Binary MAXI J1820+070
7. **Shui Q.-C.** *, Zhang S. *, Chen Y.-P. *, et al., 2023, **ApJ**, **943**, **165**
Tracing the Accretion Geometry of H1743-322 with Type C Quasiperiodic Oscillations in Multiple Outbursts
8. **Shui Q.-C.**, Yin H.-X. *, Zhang S., Qu J.-L., et al., 2021, **MNRAS**, **508**, **287**
State transitions of GX 339-4 during its outburst rising phase

PUBLICATIONS
(CORRESPONDING-AUTHOR)

1. Peng J.-Q. *, Zhang S. *, **Shui Q.-C.** *, et al., 2024, **ApJL**, **973**, **L7**
Insight-HXMT, NICER, and NuSTAR Views to the Newly Discovered Black Hole X-Ray Binary Swift J151857.0–572147
2. Peng J.-Q. *, Zhang S. *, **Shui Q.-C.** *, et al., 2024, **ApJL**, **965**, **L22**
NICER, NuSTAR, and Insight-HXMT Views to Black Hole X-Ray Binary SLX 1746–331
3. Peng J.-Q. *, Zhang S. *, **Shui Q.-C.** *, et al., 2024, **ApJL**, **960**, **L17**
NICER, NuSTAR, and Insight-HXMT Views to the Newly Discovered Black Hole X-Ray Binary Swift J1727.8–1613
4. Peng J.-Q. *, Zhang S. *, **Shui Q.-C.** *, et al., 2024, **ApJ**, **975**, **4**
The Peculiar Disk Evolution of 4U 1630–472 Observed by Insight-HXMT During its 2022 and 2023 Outbursts

1. Yu Z.-L. *, Zhang S. *, ..., **Shui Q.-C.**, et al., 2025, **A&A**, **699**, **A130**
An investigation into the X-ray bursts in Cir X-1
2. Peng J.-Q. *, Zhang S. *, **Shui Q.-C.**, et al., 2025, **JHEAp**, **45**, **316**
A possible jet and corona configuration for Swift J1727.8-1613 during the hard state
3. Dai X.-H. *, Kong L.-D. *, ..., **Shui Q.-C.**, et al., 2025, **A&A**, **692**, **A117**
Unveiling the rebrightening mechanism of GRS 1915+105: Insights from a change in the quasi-periodic oscillations and from a wind analysis
4. Yu Z.-L. *, Zhang S. *, ..., **Shui Q.-C.**, et al., 2024, **A&A**, **690**, **A279**
The correlation between dip width and peak flux in Cir X-1
5. Wang P.-J. *, Zhang S. *, ..., **Shui Q.-C.**, et al., 2024, **A&A**, **689**, **A47**
Burst-recurrence properties revealed with Insight-HXMT and NICER for the newly discovered accreting millisecond pulsar MAXI J1816-195
6. Chen Y.-P. *, Zhang S. *, ..., **Shui Q.-C.**, et al., 2024, **MNRAS**, **531**, **1756**
Insight-HXMT observations of thermonuclear X-ray bursts from 4U 1608-52 in the low/hard state: the energy-dependent hard X-ray deficit and cooling saturation of the corona
7. Kong L.-D. *, Ji L. *, ..., **Shui Q.-C.**, et al., 2024, **A&A**, **686**, **A211**
Likely detection of magnetic field related LFQPO in the soft X-ray rebrightening of GRS 1915+105
8. Peng J.-Q. *, Zhang S. *, ..., **Shui Q.-C.**, et al., 2024, **A&A**, **685**, **A71**
New insight into the hard X-ray emission influenced by the type I bursts observed by Insight-HXMT during the outburst of 4U 1636-536
9. Li P.-P., Tao L. *, ..., **Shui Q.-C.**, et al., 2024, **MNRAS**, **529**, **1187**
Broad-band noise and quasi-periodic oscillation characteristics of the X-ray pulsar RX J0440.9+4431
10. Wang P.-J. *, Chen Y.-P. *, ..., **Shui Q.-C.**, et al., 2024, **JHEAp**, **41**, **106**
Type-I X-ray burst evolution of the new millisecond pulsar MAXI J1816-195 revealed by Insight-HXMT
11. Zhao Q.-C., Tao L. *, ..., **Shui Q.-C.**, et al., 2024, **ApJL**, **961L**, **42**
The First Polarimetric View on Quasiperiodic Oscillations in a Black Hole X-Ray Binary
12. Yu Z.-L. *, Zhang S. *, ..., **Shui Q.-C.**, et al., 2024, **MNRAS**, **527**, **8029**
The post-quiescence properties of Cir X-1 at orbital phase around periastron observed by NuSTAR and NICER
13. Li P.-P., Tao L. *, ..., **Shui Q.-C.**, et al., 2023, **MNRAS**, **526**, **3637**
Timing properties of the X-ray accreting pulsar RX J0440.9+4431 studied with Insight-HXMT and NICER
14. Chen Y.-P. *, Zhang S. *, ..., **Shui Q.-C.**, et al., 2023, **JHEAp**, **40**, **76**
Insight-HXMT observations on thermonuclear X-ray bursts from 4U 1608-52 in 2022: The accretion rate dependent anisotropy of burst emission
15. Peng J.-Q. *, Zhang S. *, ..., **Shui Q.-C.**, et al., 2023, **ApJ**, **955**, **96**
Back to Business: SLX 1746-331 after 13 Years of Silence
16. Zhang P. *, Soria R. *, ..., **Shui Q.-C.**, et al., 2023, **A&A**, **677**, **A178**
Intermittent properties of the quasi-periodic oscillations of MAXI J1820+070 revealed by Insight-HXMT
17. Peng J.-Q. *, Zhang S. *, ..., **Shui Q.-C.**, et al., 2023, **MNRAS**, **518**, **2521**
A possible overall scenario for the outburst evolution of MAXI J1820+070 revealed by Insight-HXMT
18. Chen Y.-P. *, Zhang S. *, ..., **Shui Q.-C.**, et al., 2023, **ApJL**, **942L**, **12**
Return of 4U 1730-22 after 49 yr Silence: The Outburst Properties Observed by NICER and Insight-HXMT
19. Chen Y.-P. *, Zhang S. *, ..., **Shui Q.-C.**, et al., 2023, **ApJL**, **942L**, **12**
Return of 4U 1730-22 after 49 yr Silence: The Outburst Properties Observed by NICER and Insight-HXMT