

Yuexin ZHANG

Date of birth: 13 November 1996

Citizenship: Chinese (Passport), Dutch (Residence Permit)

Contact details: Kapteyn Astronomical Institute, University of Groningen,
P.O. BOX 800, 9700 AV Groningen, The Netherlands

Tel (+31) 684300370 — E-mail yzhang@astro.rug.nl

Webpage: <https://lzzyx96txdy.github.io>

Employment

Center for Astrophysics, Harvard & Smithsonian, US NWO Rubicon Postdoc Fellow	Nov 2023–present
Kapteyn Astro. Institute, University of Groningen, NL NWO Rubicon Postdoc Fellow	Oct 2023–present
Kapteyn Astro. Institute, University of Groningen, NL PhD	Oct 2019–Sep 2023

Education

Kapteyn Astro. Institute, University of Groningen, NL PhD in Astronomy. Advisor: Mariano Méndez and Diego Altamirano	Oct 2019–Sep 2023
Department of Physics, Fudan University, CN B.S. (<i>Honor</i>) in Physics. Advisor: Cosimo Bambi	Sep 2015–June 2019
Hamburg University, DE Summer Exchange Student	Jul 2018

Previous Academic Positions

University of Southampton, UK Visiting Researcher. PI: Diego Altamirano	Feb 2023
Institute of High-Energy Physics, CAS, CN Visiting Researcher. PI: Shuang-Nan Zhang and Jin-Lu Qu	Mar 2021–Mar 2022
Shanghai Astronomical Observatory, CAS, CN Summer Visiting Student. PI: Wenfei Yu	Jun 2019–Sep 2019

Honors and Awards

NWO Rubicon Fellowship ($\sim 150,000$ EUR) <i>“New light on the origin of X-ray variability in Galactic accreting black holes”</i>	2023–2025
CSC and UoG Joint Scholarship ($\sim 100,000$ EUR) <i>“Spectral variability of compact X-ray sources”</i>	2019–2023
Shanghai Outstanding Graduate	2019
Wangdao Scholar (named after the former president of Fudan)	2019
Fudan’s Undergraduate Research Opportunities Program (10,000 CNY) <i>“Testing general relativity using X-ray reflection spectroscopy”</i>	2018–2019

Member

Insight-HXMT Science Team	2021–Present
---------------------------	--------------

Observation

- [1] *Insight-HXMT*, PI: Zhang, > 3 ms

Publications

- [1] **Zhang, Y.**, Méndez, M., Motta, S. et al. (2023). A systematic study of the high-frequency bump in the black-hole low-mass X-ray binary GX 339–4. *About to submit*.
- [2] Jin, P., Zhang, G., **Zhang, Y.** et al. (2023). The bright black hole X-ray binary 4U 1543–47 during 2021 outburst - I. A clear state transition from super-Eddington to sub-Eddington accretion revealed by Insight-HXMT. *Submitted to MNRAS*.
- [3] Ma, R., Méndez, M., García, F. et al., **incl. Zhang, Y.** (2023). Variable corona during the transition from type-C to type-B quasi-periodic oscillations in the black hole X-ray binary MAXI J1820+070. *Monthly Notices of the Royal Astronomical Society*, 525(1), 854-875
- [4] Yang, Z. X., Zhang, L., Zhang S. N., **incl. Zhang, Y.** (2023). Fast transitions of X-ray variability in the black hole transient GX 339–4: comparison with MAXI J1820+070 and MAXI J1348–630. *Monthly Notices of the Royal Astronomical Society*, 521(3), 3570-3584
- [5] **Zhang, Y.**, Méndez, M., García, F. et al. (2023). A NICER look at the jet-like corona of MAXI J1535–571 through type-B quasi-periodic oscillation. *Monthly Notices of the Royal Astronomical Society*, 520(4), 5144-5156
- [6] **Zhang, Y.**, Méndez, M., García, F. et al. (2022). The evolution of the high-frequency variability in the black hole candidate GRS 1915+105 as seen by RXTE. *Monthly Notices of the Royal Astronomical Society*, 514(2), 2891-2901
- [7] García, F., Karpouzas, K., Méndez, M. et al., **incl. Zhang, Y.** (2022). The evolving properties of the corona of GRS 1915+105: a spectral-timing perspective through variable-Comptonization modelling. *Monthly Notices of the Royal Astronomical Society*, 513(3), 4196-4207.
- [8] Liu, H., Fu, Y., Bambi, C. et al., **incl. Zhang, Y.** (2022). The disk wind in GRS 1915+105 as seen by Insight-HXMT. *The Astrophysical Journal*, 933(2), 122.
- [9] Yang, Z. X., Liang, Z., Bu, Q. C. et al., **incl. Zhang, Y.** (2022). The accretion flow geometry of MAXI J1820+070 through broadband noise research with Insight-HXMT. *The Astrophysical Journal*, 932(1), 7.
- [10] **Zhang, Y.**, Méndez, M., García, F. et al. (2022). The evolution of the corona in MAXI J1535–571 through type-C quasi-periodic oscillations with Insight-HXMT. *Monthly Notices of the Royal Astronomical Society*, 512(2), 2686-2696.
- [11] Méndez, M., Karpouzas, K., García, F. et al., **incl. Zhang, Y.** (2022). Coupling between the accreting corona and the relativistic jet in the microquasar GRS 1915+105. *Nature Astronomy*, 6(5), 577-583.
- [12] Karpouzas, K., Méndez, M., García, F. et al., **incl. Zhang, Y.** (2021). A variable corona for GRS 1915+105. *Monthly Notices of the Royal Astronomical Society*, 503(4), 5522-5533.
- [13] Tripathi, A., **Zhang, Y.**, Abdikamalov, A. B. et al. (2021). Testing general relativity with NuSTAR data of galactic black holes. *The Astrophysical Journal*, 913(2), 79.
- [14] Abdikamalov, A. B., Ayzenberg, D., Bambi, C. et al. **incl. Zhang, Y.** (2021). Implementation of a radial disk ionization profile in the relxill_nk model. *Physical Review D*, 103(10), 103023.
- [15] Liu, H., Ji, L., Bambi, C. et al., **incl. Zhang, Y.** (2021). Testing evolution of

- LFQPOs with mass accretion rate in GRS 1915+105 with Insight-HXMT. *The Astrophysical Journal*, 909(1), 63.
- [16] **Zhang, Y.**, Abdikamalov, A. B., Ayzenberg, D. et al. (2019). Tests of the Kerr hypothesis with GRS 1915+105 using different RELXILL flavors. *The Astrophysical Journal*, 884(2), 147.
- [17] **Zhang, Y.**, Abdikamalov, A., Ayzenberg, D. et al. (2019). About the Kerr nature of the stellar-mass black hole in GRS 1915+105, *The Astrophysical Journal*, 875 (1), 41.
- [18] **Zhang, Y.**, Zhou, M., & Bambi, C. (2018). Iron line spectroscopy of black holes in asymptotically safe gravity. *The European Physical Journal C*, 78 (5), 376.

Conferences and Talks

-
- | | |
|---|----------------|
| [1] Seminar, Amsterdam, NL | 13 Sep 2023 |
| <i>“The accretion-ejection coupling in Galactic accreting black holes”</i> | |
| [2] Seminar, Kunming, CN | 14 Aug 2023 |
| <i>“The accretion-ejection coupling in Galactic accreting black holes”</i> | |
| [3] Seminar, Shanghai, CN | 1 Aug 2023 |
| <i>“The accretion-ejection coupling in Galactic accreting black holes”</i> | |
| [4] Seminar, Beijing, CN | 27 Jul 2023 |
| <i>“The accretion-ejection coupling in Galactic accreting black holes”</i> | |
| [5] The first Vasto accretion meeting, Vasto, IT | 19–23 Jun 2023 |
| <i>“The corona-jet evolution of black-hole X-ray transients MAXI J1535–571 and MAXI J1820+070 (Poster)”</i> | |
| [6] 10th microquasar workshop, Crete, GR | 22–26 May 2023 |
| <i>“The jet-like corona of black-hole X-ray transient from the HIMS to the SIMS”</i> | |
| [7] Nederlandse Astronomen Conferentie 2023, Leeuwarden, NL | 15–17 May 2023 |
| <i>“Corona as the energy reservoir for radio jet: a case study of GRS 1915+105 (Poster)”</i> | |
| [8] NOVA network NW3, Amsterdam, NL | 19 Jan 2023 |
| <i>“The jet-like corona of black-hole X-ray transients from the HIMS to the SIMS”</i> | |
| [9] 44th COSPAR scientific assembly, Athens, GR | 16–24 Jul 2022 |
| <i>“Corona evolution of MAXI J1535–571 revealed by type-C quasi-periodic oscillations observed with Insight-HXMT”</i> | |
| <i>“The evolution of the high-frequency variability in GRS 1915+105 as seen by RXTE (Poster)”</i> | |
| [10] Black hole accretion under the X-ray microscope, Madrid, ES | 14–17 Jun 2022 |
| <i>“The evolution of the corona in MAXI J1535–571 through type-C quasi-periodic oscillations with Insight-HXMT (Poster)”</i> | |
| [11] China astronomy annual meeting (online), Nanchong, CN | 2–6 Dec 2021 |
| <i>“Mapping the Comptonization region of black holes up to 100 keV through quasi-periodic oscillations in the intermediate state with Insight-HXMT”</i> | |
| [12] 9th China-EU Insight-HXMT video meeting (online), Beijing, CN | 11–12 Oct 2021 |
| [13] The future of X-ray timing, Amsterdam, NL | 21–25 Oct 2019 |
| [14] Recent progress in relativistic astrophysics, Shanghai, CN | 6–8 May 2019 |