Yuexin ZHANG

Date of birth: 13 November 1996
Citizenship: Chinese (Passport), Dutch (Residence Permit)
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Education

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

Previous Academic Positions

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

Honors and Awards

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

Member

Insight-HXMT Team 2021–Present

Observation

[1] *Insight*-HXMT, PI: Zhang, 10 ks on GRS 1915+105

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] The first Vasto accretion meeting, Vasto, IT 19–23 Jun 2023
"The corona-jet evolution of black-hole X-ray transients MAXI J1535−571 and MAXI J1820+070 (Poster)"

[2] 10th microquasar workshop, Crete, GR 22–26 May 2023
"The jet-like corona of black-hole X-ray transient from the HIMS to the SIMS"

[3] Nederlandse Astronomen Conferentie 2023, Leeuwarden, NL 15–17 May 2023
"Corona as the energy reservoir for radio jet: a case study of GRS 1915+105 (Poster)"

[4] NOVA network NW3, Amsterdam, NL 19 Jan 2023
"The jet-like corona of black-hole X-ray transients from the HIMS to the SIMS"

[5] 44th COSPAR scientific assembly, Athens, GR 16–24 Jul 2022
"Corona evolution of MAXI J1535−571 revealed by type-C quasi-periodic oscillations observed with Insight-HXMT"
"The evolution of the high-frequency variability in GRS 1915+105 as seen by RXTE (Poster)"

[6] Black hole accretion under the X-ray microscope, Madrid, ES 14–17 Jun 2022
"The evolution of the corona in MAXI J1535−571 through type-C quasi-periodic oscillations with Insight-HXMT (Poster)"

[7] China astronomy annual meeting (online), Nanchong, CN 2–6 Dec 2021
"Mapping the Comptonization region of black holes up to 100 keV through quasi-periodic oscillations in the intermediate state with Insight-HXMT"

[8] 9th China-EU *Insight*-HXMT video meeting (online), Beijing, CN 11–12 Oct 2021

[9] The future of X-ray timing, Amsterdam, NL 21–25 Oct 2019

[10] Recent progress in relativistic astrophysics, Shanghai, CN 6–8 May 2019