Xiao-Tian Xu

Works and Publications

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Refereed publications: (co-)first/corresponding authored works

1. **Xiao-Tian Xu**, Bin-Bin Zhang, Yun-Lang Guo, and Xiang-Dong Li, 2025, ApJ, 994, 264:
   "Tracing the Physical Lineage of GRB 211211A: Population Constraints on NS-WD Merger Gamma-Ray Bursts"
   DOI 10.3847/1538-4357/ae1831, https://arxiv.org/abs/2508.10551
2. Shan-Shan Weng, **Xiao-Tian Xu (corresponding author)**, Han-Long Peng, et al.,
   accepted by SCIENCE CHINA Physics, Mechanics & Astronomy:
   "A statistical study of type II outbursts of XRPs: Brighter accreting pulsars rotate faster"
   https://www.sciengine.com/SCPMA/doi/10.1007/s11433-025-2818-y, https://arxiv.org/abs/2509.21103
3. **Xu, X.-T.**, Schürmann, C., Langer, N., et al., accepted by A&A:
   "Populations of evolved massive binary stars in the Small Magellanic Cloud I: Predictions from detailed binary evolution models"
   https://arxiv.org/abs/2503.23876
4. Schürmann, C., **Xu, X.-T. (corresponding author)**, Langer, et al., accepted by A&A:
   "Populations of evolved massive binary stars in the Small Magellanic Cloud II: predictions from the rapid binary evolution code ComBinE"
   https://arxiv.org/abs/2503.23878
5. Kun Xu, Hao-Ran Yang, Ying-Han Mao, **Xiao-Tian Xu (corresponding author)**, Xiang-Dong Li, Jifeng Liu,
   2023, ApJ, 947,76:
   "Back to the Starting Point: on the Simulation of Initial Magnetic Fields and Spin Periods of Non-accretion Pulsars"
   DOI:10.3847/1538-4357/acc8ce, https://arxiv.org/abs/2304.03530
6. Sen, K., **Xu, X.-T. (co-first author)**, Langer, N., et al., 2021, A&A, 652, A138:
   "X-ray emission from BH+O star binaries expected to descend from the observed galactic WR+O binaries"
   DOI: 10.1051/0004-6361/202141214, https://arxiv.org/abs/2106.01395
7. **Xu, Xiao-Tian,** & Li, Xiang-Dong, 2019, ApJ, 872, 102:
   "On the Bimodal Spin Period Distribution of Be/X-ray Pulsars"
   DOI: 10.3847/1538-4357/aafee0, https://arxiv.org/abs/1901.04707
8. **Xu, Xiao-Tian,** & Li, Xiang-Dong, 2018, ApJ, 859, 46:
   "A Circumbinary Disk Model for the Rapid Orbital Shrinkage in Black Hole Low-mass X-Ray Binaries"
   DOI: 10.3847/1538-4357/aabe91, https://arxiv.org/abs/1804.07914
9. **Xu, Xiao-Tian,** & Li, Xiang-Dong, 2018, MNRAS, 480, 3856:
   "Are There Pre-Main-Sequence/Black Hole X-ray Binaries?"
   DOI: 10.1093/mnras/sty2146, https://arxiv.org/abs/1809.04269

Refereed publications: collaborations

1. Qinghui Sun, Constantine P. Deliyannis, ... **Xiao-Tian Xu**, et al. 2025, Nature Communication, 16, 9729
   "Subgiants in NGC 188 Reveal that Rotationally Induced Mixing Creates the Main Sequence Li-Dip"
   https://www.nature.com/articles/s41467-025-64724-0
2. Bodensteiner, J., Shenar, T., ... **Xu, X.-T.** 2025, A&A, 698, 38:
   "Binarity at Low Metallicity (BLOeM): Multiplicity properties of Oe and Be stars"
   DOI: 10.1051/0004-6361/202452623, https://arxiv.org/abs/2502.02641
3. Wang, C., Bodensteiner, J., **Xu, X.-T.**, et al., 2024, ApJ, 975, 20:
   "Stripped helium-star and compact object binaries in coeval populations — predictions based on detailed binary evolution models"
   DOI: 10.3847/2041-8213/ad86b7, https://arxiv.org/abs/2410.10283
4. Sen, K., Mellah, I. E., Langer, N., **Xu, X.-T.**, et al., 2024, A&A, 690, 256:
   "Whispering in the dark: Faint X-ray emission from black holes with OB star companions"
   DOI: 10.1051/0004-6361/202450940, https://arxiv.org/abs/2406.08596
5. Olejak, A., Klencki, J., **Xu, X.-T.**, et al., 2024, A&A, 689, A305:
   "Unequal-mass binary black hole mergers in stable mass transfer formation channel"
   DOI: 10.1051/0004-6361/202450480, https://arxiv.org/abs/2404.12426
6. Schootemeijer, A., Shenar, T., ... **Xu, X.-T.**, 2024, A&A, 689, A157:
   "An absence of binary companions to Wolf-Rayet stars in the Small Magellanic Cloud"
   DOI: 10.1051/0004-6361/202449978, https://arxiv.org/abs/2406.01420
7. Wang, C., Langer, N., ... **Xu, X.-T.**, et al., 2022, Nature Astronomy, 6, 480:
   "Stellar mergers as the origin of the blue main-sequence band in young star clusters"
   DOI: 10.1038/s41550-021-01597-5, https://arxiv.org/abs/2202.05552
8. Antoniadis, J., Aguilera-Dena, D. R., ... **Xu, X.-T.**, 2022, A&A, 657, L6:
   "Explodability fluctuations of massive stellar cores enable asymmetric compact object mergers like GW190814"
   DOI: 10.1051/0004-6361/202142322, https://arxiv.org/abs/2110.01393
9. Sen, K., Langer, N., ... **Xu, X.-T.**, 2022, A&A, 659, A98:
   "Detailed models of interacting short-period massive binary stars"
   DOI: 10.1051/0004-6361/202142574, https://arxiv.org/abs/2111.03329
10. Schürmann, C., Langer, N., **Xu, X.-T.**, Wang, C., 2022, A&A, 667, A122:
    "The spins of stripped B stars support magnetic internal angular momentum transport"
    DOI: 10.1051/0004-6361/202244153, https://arxiv.org/abs/2208.03129
11. Langer, N., Schürmann, C., ... **Xu, X.-T.**, 2020, A&A, 638, 39:
    "Properties of OB star-black hole systems derived from detailed binary evolution models"
    DOI: 10.1051/0004-6361/201937375, https://arxiv.org/abs/1912.09826

Non-refereed publications

- **Xu, X-.T.** Contribution to the Max Planck Institute for Astrophysics Stellar Model Grid Repository Stellar Model Grid Repository (SMC binary MC simulation2)
  https://wwwmpa.mpa-garching.mpg.de/stellgrid/

- **Xu, X.-T.**, 2024, PhD thesis, (three works with published in refereed journals)
  “Comprehensive population synthesis predictions for massive binary stars in the Small Magellanic Cloud”
  https://bonndoc.ulb.uni-bonn.de/xmlui/handle/20.500.11811/11282 (open access)

Submitted / in prep.

- K. Sen, M. Renzo, ..., **X.-T. Xu**, submitted to ApJ:
  "Interacting binaries on the Main Sequence as in-situ tracers of mass transfer efficiency and stability"
  https://arxiv.org/abs/2511.15347
- **Xu, X.-T.** , Langer, N., A. Schootemeijer, et al., in prep.:
  "Population synthesis predictions for Wolf-Rayet star-black hole binaries in the Small Magellanic Cloud and their implications for merging binary black holes"