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Institution: National Astronomical Observatories, Chinese Academy of Sciences (NAOC)

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EDUCATION AND JOB:

- May 2022 - Now: Assistant researcher,
  NAOC, Beijing, China. *Collaborator:* Prof. Ran Li
- May 2019 - Apr 2022: Post-doc
  Kavli Institute for Astronomy and Astrophysics (KIAA), Peking University, Beijing, China. *Collaborated advisor:* Prof. Linhua Jiang
- Jul. 2016 - Nov. 2018: visiting PhD student,
  the Argelander-Institut für Astronomie (AIfA), University of Bonn, Bonn, Germany. *Supervisor:* Prof. Thomas Reiprich
- Sep. 2014 - Jan. 2019: PhD in astrophysics,
  NAOC, Beijing, China. *Supervisor:* Prof. Lijun Gou
- Sep. 2011 - Jun. 2014: Master in Astrophysics,
  NAOC, Beijing, China. *Supervisor:* Prof. Jinlin Han
- Sep. 2007 - Jun. 2011: Bachelor in applied physics,
  Shandong University, Weihai, China

RESEARCH INTEREST:

- galaxy, galaxy clusters and cosmology, weak lensing, optical observation, X-ray astronomy

ACADEMIC SERVICE:

- Reviewed for Journal: Astronomy & Astrophysics (A&A)
- Reviewed for Chandra observation proposal

RESEARCH FUNDING:

- NSFC young scientist program, 300k RMB, PI, 2023-2025, “the identification of very extended galaxy clusters with XMM-COSMOS and CDF-S data”
- National Key R&D Program, 4800k RMB, co-I, 2022-2027, “Conducting precision measurements of the dark matter universe using CSST data”

ACADEMIC PUBLICATION:

- **As of Nov. 2025, 17 published/accepted papers in total, 182 citations.**
  8 first-author/corresponding-author published papers;
  9 co-authored published/accepted papers;
  2 first-author papers *in preparation*.
- **Published papers as first/corresponding author:**
  1. A Comparative Study of Halo Mass Estimates from Group Catalogs and Lensing Signals (Chen, X., **Xu, W.***, Li, R., et al. 2025, apj, 990, 171)
     *: corresponding author
  2. XMM-SERVS X-ray eXtended Galaxy Cluster (XVXGC) catalog (**Xu, W.,** Jiang L., et al. , 2024, a&a, 691, A300)
  3. The Measurement of the Splash-back Radius of Dark Matter Halos (**Xu, W.,** Shan, H., et al. 2024, apj, 971, 157)

4. Catalog of X-ray-selected extended galaxy clusters from the ROSAT All-Sky Survey (RXGCC) (**Xu, W.,** et al., 2022, a&a, 658, A59)
5. Halo Mass-Concentration Relation at High-Mass End (**Xu, W.,** et al. 2021, apj, 922, 162)
6. A New X-ray Selected Sample of Very Extended Galaxy Groups from the ROSAT All-Sky Survey (**Xu, W.**, Ramos-Ceja, M. E., et al. 2018, a&a, a162, 17)
7. X-ray fluorescent lines from the Compton-thick AGN in M51 (**Xu, W.,** Liu, Z., et al. 2016, mnras, 455, L26)
8. An efficient method to identify galaxy clusters by using SuperCOSMOS, 2MASS and WISE data (**Xu, W.**, Wen, Z., et al. 2014, Science China Physics, Mechanics, and Astronomy, 57, 2168)

- **Published papers as co-author:**
  - Beyond the Virial Radius: FAST view of HI in Galaxy Clusters to 5xR200 (Cheng, C., Zhang, C., Ibar, E., Smith, R., **Xu, W.,** et al., submited to ApJ)
  - Multi-wavelength analysis of PSR J0437–4715 with pulse profile modeling (Qi, L., Zhang, J., **Xu, W.,** et al., submited to ApJ)

A. Mock Observations for the CSST Mission: Multi-Channel Imager–The Cluster Field (Xie, Y., Chen, X., […], **Xu, W.**, et al., 2026, RAA, 26, 024007)
B. A catalogue of 3363 galaxy clusters derived from XMM-Newton X-ray images (Yuan, Z., Wen, Z., **Xu, W.** & Han, J., 2025, mnras, 543, 3698)
C. XMM-Newton follow-up of a sample of apparent low surface brightness galaxy groups detected in the ROSAT All-Sky Survey (Spinelli, C., Veronica, A., […], **Xu, W.**, et al. 2025, a&a, 700, A220)
D. Assessing mass-loss and stellar-to-halo mass ratio of satellite galaxies: a galaxy-galaxy lensing approach utilizing DECaLS DR8 data (Wang, C., Li, R., Shan, H., **Xu, W.**, Yao, J., Jing, Y., Gao, L., et al., 2024, mnras, 528, 2728)
E. MaNGA DynPop - IV. Stacked total density profile of galaxy groups and clusters from combining dynamical models of integral-field stellar kinematics and galaxy-galaxy lensing (Wang, C., Li, R., Zhu, K., Shan, H., **Xu, W.**, Cappellari, M., Gao, L., et al., 2024, mnras, 527, 1580)
F. Spectroscopic Confirmation of Two X-Ray Diffuse and Massive Galaxy Clusters at Low Redshift (Chen, K., **Xu, W.,** & Jiang, L., 2022, apj, 940, 79)
G. Ram Pressure Stripping of HI-rich Galaxies Infalling into Massive Clusters (Wang, J., **Xu, W.**, et al. 2020, apj, 903(2):103)
H. The clumpy torus around type II AGN as revealed by X-ray fluorescent lines (Liu, J., Liu, Y., […], **Xu, W.**, et al. 2016, mnras, 459, L100)
I. The Spin of The Black Hole in the X-ray Binary Nova Muscae 1991 (Chen, Z., Gou, L., […], **Xu, W.**, et al. 2016, apj, 825, 45)

- **Papers in preparation:**
  - X-ray – cosmic shear cross-correlations: detection and constraints on baryonic effects (**Xu, W.**, Li, R., Shan, H., Yao, J., *to submit to ApJ*)
  - The prediction of CSST performance on the profile of dark matter halos (**Xu, W.,** Li, R., Shan, H., Yao, J., *to submit to RAA*)

OBSERVATION PROPOSALS:

- EP - FXT, 30ksec, ID: Cycle2-0045, approved, 2025, PI
- AstroSat AO-12, 119ksec, ID: A10-065, observed, 2021, PI

- XMM-Newton AO-19, 60ksec, ID:86388, observed, 2019, Co-I

SELECTED TALKS:

- eROSITA & HUBS Scientific Exploitation Workshop 2024, Mar. 2024, 20min talk, "Detection of X-ray extended clusters & Research of dark matter halos"
- NAOC workshop of physics of galaxy clusters, July 2024, 45min talk of "X-ray galaxy clusters with low surface-brightness profile"
- Tsinghua DOA lunch talk, Nov. 2024, 40min talk, "The research of dark matter halo with galaxy-galaxy lensing method"
- Xtalk online seminars, Dec. 2024, 40min talk, "Detection of X-ray extended galaxy clusters with ROSAT and XMM-Newton data"
- The KooGiG-Junior forum (KIAA Forum on Gas in Galaxies for Early Career Scientists), online, Nov. 2021, talk (15min)
- 2020 Jing-Guang-Xia Astrophysics Meeting, Xiamen, Dec. 2020 (10min)
- Annual Meeting of Chinese Astronomical Society, Delingha, Oct. 2019 (15min)
- KIAA lunch talk, Dec. 2018, talk (45min)
- German eROSITA Consortium meeting, Ringberg, Oct. 2018, talk (15+5 min)
- NAOC Seminar, Dec. 2017, talk (45+15 min)
- NJU Seminar, Dec. 2017, talk (45+15 min)

TUTORIALS:

- X-ray astronomy, Uni-Bonn, 2018
- high-energy astrophysics, NAOC, 2015
- high-energy astrophysics, PKU, 2015

HONORS AND AWARDS:

- 2016, National scholarship of China
- 2016, CAS-DAAD scholarship
- 2014/2015, NAOC-AMD scholarship
- Outstanding member of student union at College and Graduate school
- 2010, NAOC Scholarships
- 2009, National Encouragement scholarship
- 2007-2011, First scholarship three times and Second one for four times in Shandong University at Weihai