From intracluster medium dynamics to particle acceleration

Zhang, X.

List of publications

First-author publications

1. **Zhang, X.**, Simionescu, A., Akamatsu, H., Kaastra, J. S., de Plaa, J., & van Weeren, R. J. (2020), A&A, 642, A89.

2. **Zhang, X.**, Simionescu, A., Kaastra, J. S., Akamatsu, H., Hoang, D. N., Stuardi, C., van Weeren, R. J., Rudnick, L., Kraft, R. P., & Brown, S. (2020), A&A, 642, L3.

3. **Zhang, X.**, Simionescu, A., Stuardi, C., van Weeren, R. J., Intema, H. T., Akamatsu, H., de Plaa, J., Kaastra, J. S., Bonafede, A., Brüggen, M., ZuHone, J., & Ichinohe, Y. (2021), A&A, 656, A59.

4. **Zhang, X.**, Simionescu, A., Gastaldello, F., Eckert D., Camillini, L., Natale, R., Akamatsu, H., Botteon, A., Cassano, R., Cuciti, V., Bruno, L., Shimwell, T.W., & Kaastra, J.S. (2022), to be submitted.

Co-author publications

1. Hoang, D. N., **Zhang, X.**, Stuardi, C., Shimwell, T. W., Bonafede, A., Brüggen, M., Brunetti, G., Botteon, A., Cassano, R., de Gasperin, F., Di Gennaro, G., Hoeft, M., Intema, H., Rajpurohit, K., Röttgering, H. J. A., Simionescu, A., & van Weeren, R. J. (2021), A&A, 656, A154.

2. Botteon, A., Shimwell, T. W., Cassano, R., Cuciti, V., **Zhang, X.**, Bruno, L., Camillini, L., Natale, R., Jones, A., Gastaldello, F., Simionescu, A., Rossetti, M., Akamatsu, H., van Weeren, R. J., Brunetti, G., Brüggen,

M., Groeneveld, C., Hoang, D. N., Hardcastle, M. J., Ignesti, A., Di Gennaro, G., Bonafede, A., Drabent, A., Röttgering, H. J. A., Hoeft, M., & de Gasperin, F. (2022), A&A, 660, A78.

3. Urdampilleta, I., Simionescu, A., Kaastra, J. S., **Zhang, X.**, Di Gennaro, G., Mernier, F., de Plaa, J., & Brunetti, G. (2021), A&A, 646, A95.

4. Zhu, Z., Simionescu, A., Akamatsu, H., **Zhang, X.**, Kaastra, J. S., de Plaa, J., Urban, O., Allen, S. W., & Werner, N. (2021), A&A, 652, A147.

5. Shimwell, T. W., Hardcastle, M. J., Tasse, C., Best, P. N., Röttgering, H. J. A., Williams, W. L., Botteon, A., Drabent, A., Mechev, A., Shulevski, A., van Weeren, R. J., Bester, L., Brüggen, M., Brunetti, G., Callingham, J. R., Chyży, K. T., Conway, J. E., Dijkema, T. J., Duncan, K., de Gasperin, F., Hale, C. L., Haverkorn, M., Hugo, B., Jackson, N., Mevius, M., Miley, G. K., Morabito, L. K., Morganti, R., Offringa, A., Oonk, J. B. R., Rafferty, D., Sabater, J., Smith, D. J. B., Schwarz, D. J., Smirnov, O., O'Sullivan, S. P., Vedantham, H., White, G. J., Albert, J. G., Alegre, L., Asabere, B., Bacon, D. J., Bonafede, A., Bonnassieux, E., Brienza, M., Bilicki, M., Bonato, M., Calistro Rivera, G., Cassano, R., Cochrane, R., Croston, J. H., Cuciti, V., Dallacasa, D., Danezi, A., Dettmar, R. J., Di Gennaro, G., Edler, H. W., Enßlin, T. A., Emig, K. L., Franzen, T. M. O., García-Vergara, C., Grange, Y. G., Gürkan, G., Hajduk, M., Heald, G., Heesen, V., Hoang, D. N., Hoeft, M., Horellou, C., Iacobelli, M., Jamrozy, M., Jelić, V., Kondapally, R., Kukreti, P., Kunert-Bajraszewska, M., Magliocchetti, M., Mahatma, V., Małek, K., Mandal, S., Massaro, F., Meyer-Zhao, Z., Mingo, B., Mostert, R. I. J., Nair, D. G., Nakoneczny, S. J., Nikiel-Wroczyński, B., Orrú, E., Pajdosz-Śmierciak, U., Pasini, T., Prandoni, I., van Piggelen, H. E., Rajpurohit, K., Retana-Montenegro, E., Riseley, C. J., Rowlinson, A., Saxena, A., Schrijvers, C., Sweijen, F., Siewert, T. M., Timmerman, R., Vaccari, M., Vink, J., West, J. L., Wołowska, A., **Zhang, X.**, & Zheng, J. (2022), A&A, 659, A1.

6. Bonafede, A., Brunetti, G., Rudnick, L., Vazza, F., Bourdin, H., Giovannini, G., Shimwell, T. W., **Zhang, X.**, Mazzotta, P., Simionescu, A., Biava, N., Bonnassieux, E., Brienza, M., Brüggen, M., Rajpurohit, K., Riseley, C. J., Stuardi, C., Feretti, L., Tasse, C., Botteon, A., Carretti, E., Cassano, R., Cuciti, V., de Gasperin, F., Gastaldello, F., Rossetti, M.,

Rottgering, H. J. A., Venturi, T., & van Weeren, R. J. (2022), Accepted for publication in ApJ, arXiv e-prints, arXiv:2203.01958.

Other publications

1. Li, T., Wu, J.-H., Meng, N.-K., Dai, Y., & **Zhang, X.-Y.** (2021), Research in Astronomy and Astrophysics, 21, 259.

2. Dai, Y., Fang, Y., **Zhang, X.**, Meng, N., Wu, J., & Zhu, Z.-H. (2021), MNRAS, 507, 455.

Curriculum Vitae

I was born in Zhenhai, Ningbo, China, on October 11, 1992. Zhenhai is a seaside town 20 kilometers south of the city center. I lived there for the first 18 years of my life before moving to Beijing to study in 2011.

I was admitted by Beijing Normal University (BNU) where I joined the Department of Astronomy. Honestly, astronomy was not my first choice at the age of 18, but it was my childhood dream. I spent seven years at BNU for the Bachelor and Master degrees. Under the supervision of Prof. Jianghua Wu, who later became my Master supervisor, I began my first research project in 2013 on analyzing optical data of blazars. During my Master program, I continued the research on blazar variability and involved more on observations. Over the three years, I spent many nights at Xinglong Station operating telescopes. In addition to my thesis research, in 2014, I completed two summer intern projects. One is for stellar spectra classification with Prof. Jifeng Liu at the National Astronomical Observatories of China. Another one is for quasar variability search using *GALEX* archival data with Prof. Minfeng Gu at Shanghai Astronomical Observatory.

I had the opportunity to gain international experience during my seven years at BNU, with short trips to Perth, Australia in 2012 and Turku, Finland in 2016. In Perth, I spent a few days in ICRAR learning basic radio astronomy. In Turku, I worked for three weeks in Tuorla Observatory on the *Swift* spectra of AGNs. It was my first time learning X-ray spectroscopy, though the nonthermal spectra of point sources are very different from what I am currently doing on galaxy clusters. Honestly, these short visits are still insufficient for gaining international experience and establishing international collaborations. For this reason, I was motivated to pursue

my PhD abroad.

I started my PhD program in 2018 at Leiden University and SRON on the topic of merging galaxy clusters supervised by Prof.dr. Jelle Kaastra and Dr. Aurora Simionescu. My PhD research is X-ray focused but includes a lot of radio data, for which I receive great help from Dr. Reinout van Weeren. During my PhD, I have opportunities to collaborate with astronomers from different parts of the world, including Europe, America, and Asia. Meanwhile, I achieved several milestones, the first oral presentation in a conference, the first press release, and the first successful observation proposals in X-ray, radio and optical with data observed.

In September 2022, I will begin postdoctoral research at the Max Planck Institute for Extraterrestrial Physics. I will be part of the eROSITA clusters and cosmology working group, focusing on galaxy clusters and groups in the eROSITA All Sky Survey.

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Going abroad for a PhD on a new topic is a big step, especially when you have to deal with a two-year pandemic. It would be difficult to complete it without the help and support of my supervisors, colleagues, and family.

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