

XIANGCHONG LI

Personal Information

NATIONALITY: Chinese
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GITHUB: <https://github.com/mr-superonion>

Positions

PERIOD: October 2021 — Now
POSITION: Postdoctoral Researcher
INSTITUTE: Carnegie Mellon University PA, the USA

Education

PERIOD: October 2018 — September 2021
POSITION: Ph.D. of Science in Physics
UNIVERSITY: The University of Tokyo Tokyo, Japan

PERIOD: October 2016 — September 2018
DEGREE: Master of Science in Physics
UNIVERSITY: The University of Tokyo Tokyo, Japan

PERIOD: September 2011 — July 2015
DEGREE: Bachelor of Science in Physics and Astronomy
UNIVERSITY: Shanghai Jiao Tong University Shanghai, China

Honors and Awards

SCHOLARSHIP: [Research Fellowships for Young Scientists DC1](#)
PERIOD: March 2019 — October 2021
FOUNDATION: Japan Society for the Promotion of Science (JSPS)

SCHOLARSHIP: [Global Science Graduate Course \(GSGC\)](#)
PERIOD: September 2016 — March 2019
FOUNDATION: The Graduate School of Science, The University of Tokyo

Grants

GRANT: NASA SURF Grant (Co-I)
PERIOD: September 2023 — September 2024

GRANT: PSC Seed Grant (PI)
PERIOD: October 2022 — October 2023

GRANT: JSPS DC1 (PI)
PERIOD: March 2019 — October 2021

Advisees

ALAN ZHOU	Carnegie Mellon University Co-advised with Scott Dodelson
ANDY PARK	Carnegie Mellon University Co-advised with Rachel Mandelbaum
GARY YANG	Swarthmore College Co-advised with Naoki Yoshida
RYO TERESAWA	The University of Tokyo Co-advised with Masahiro Takada

Professional Service

REFeree The Astrophysical Journal
REFeree Monthly Notices of the Royal Astronomical Society

Computer Skills

Github 

LANGUAGES: Python, Fortran, C++, Shell script
TOOLS: GNU/Linux, L^AT_EX, Git, Jax
OpenMP, MPI, LSST pipeline

Publication List

2023

- [1] Dalal, R., Li, X., Nicola, A., Zuntz, J., Strauss, M. A., Sugiyama, S., et. al, “Hyper Suprime-Cam Year 3 Results: Cosmology from Cosmic Shear Power Spectra” (Apr. 2023). DOI: [10.48550/arXiv.2304.00701](https://doi.org/10.48550/arXiv.2304.00701). arXiv: [2304.00701](https://arxiv.org/abs/2304.00701) [[astro-ph.CO](#)].
- [2] Dark Energy Survey, Kilo-Degree Survey Collaboration, Abbott, T. M. C., Aguena, M., Alarcon, A., Alves, O., et. al, “DES Y3 + KiDS-1000: Consistent cosmology combining cosmic shear surveys” (May 2023). arXiv: [2305.17173](https://arxiv.org/abs/2305.17173) [[astro-ph.CO](#)].
- [3] Li, X., Mandelbaum, R., “Analytical weak-lensing shear responses of galaxy properties and galaxy detection”. MNRAS 521.4 (June 2023), pp. 4904–4926. DOI: [10.1093/mnras/stad890](https://doi.org/10.1093/mnras/stad890). arXiv: [2208.10522](https://arxiv.org/abs/2208.10522) [[astro-ph.CO](#)].

- [4] Li, X., Mandelbaum, R., Jarvis, M., Li, Y., Park, A., Zhang, T., “A Differentiable Perturbation-based Weak Lensing Shear Estimator”. *arXiv e-prints*, arXiv:2309.06506 (Sept. 2023), arXiv:2309.06506. DOI: [10.48550/arXiv.2309.06506](https://doi.org/10.48550/arXiv.2309.06506). arXiv: [2309.06506](https://arxiv.org/abs/2309.06506) [[astro-ph.CO](#)].
- [5] Li, X., Zhang, T., Sugiyama, S., Dalal, R., Rau, M. M., Mandelbaum, R., et. al, “Hyper Suprime-Cam Year 3 Results: Cosmology from Cosmic Shear Two-point Correlation Functions” (Apr. 2023). DOI: [10.48550/arXiv.2304.00702](https://doi.org/10.48550/arXiv.2304.00702). arXiv: [2304.00702](https://arxiv.org/abs/2304.00702) [[astro-ph.CO](#)].
- [6] Lu, T., Haiman, Z., Li, X., “Cosmological constraints from HSC survey first-year data using deep learning”. *MNRAS* 521.2 (May 2023), pp. 2050–2066. DOI: [10.1093/mnras/stad686](https://doi.org/10.1093/mnras/stad686). arXiv: [2301.01354](https://arxiv.org/abs/2301.01354) [[astro-ph.CO](#)].
- [7] Miyatake, H., Sugiyama, S., Takada, M., Nishimichi, T., Li, X., Shirasaki, M., et. al, “Hyper Suprime-Cam Year 3 Results: Cosmology from Galaxy Clustering and Weak Lensing with HSC and SDSS using the Emulator Based Halo Model” (Apr. 2023). arXiv: [2304.00704](https://arxiv.org/abs/2304.00704) [[astro-ph.CO](#)].
- [8] More, S., Sugiyama, S., Miyatake, H., Rau, M. M., Shirasaki, M., Li, X., et. al, “Hyper Suprime-Cam Year 3 Results: Measurements of Clustering of SDSS-BOSS Galaxies, Galaxy-Galaxy Lensing and Cosmic Shear” (Apr. 2023). DOI: [10.48550/arXiv.2304.00703](https://doi.org/10.48550/arXiv.2304.00703). arXiv: [2304.00703](https://arxiv.org/abs/2304.00703) [[astro-ph.CO](#)].
- [9] Rau, M. M., Dalal, R., Zhang, T., Li, X., Nishizawa, A. J., More, S., et. al, “Weak lensing tomographic redshift distribution inference for the Hyper Suprime-Cam Subaru Strategic Program three-year shape catalogue”. *MNRAS* 524.4 (Oct. 2023), pp. 5109–5131. DOI: [10.1093/mnras/stad1962](https://doi.org/10.1093/mnras/stad1962). arXiv: [2211.16516](https://arxiv.org/abs/2211.16516) [[astro-ph.CO](#)].
- [10] Sugiyama, S., Miyatake, H., More, S., Li, X., Shirasaki, M., Takada, M., et. al, “Hyper Suprime-Cam Year 3 Results: Cosmology from Galaxy Clustering and Weak Lensing with HSC and SDSS using the Minimal Bias Model” (Apr. 2023). arXiv: [2304.00705](https://arxiv.org/abs/2304.00705) [[astro-ph.CO](#)].
- [11] Zhang, T., Li, X., Dalal, R., Mandelbaum, R., Strauss, M. A., Kannawadi, A., et. al, “A general framework for removing point spread function additive systematics in cosmological weak lensing analysis”. *MNRAS* (June 2023). DOI: [10.1093/mnras/stad1801](https://doi.org/10.1093/mnras/stad1801). arXiv: [2212.03257](https://arxiv.org/abs/2212.03257) [[astro-ph.CO](#)].
- [12] Zhang, T., Rau, M. M., Mandelbaum, R., Li, X., Moews, B., “Photometric redshift uncertainties in weak gravitational lensing shear analysis: models and marginalization”. *MNRAS* 518.1 (Jan. 2023), pp. 709–723. DOI: [10.1093/mnras/stac3090](https://doi.org/10.1093/mnras/stac3090). arXiv: [2206.10169](https://arxiv.org/abs/2206.10169) [[astro-ph.CO](#)].

2022

- [13] Aihara, H., AlSayyad, Y., Ando, M., Armstrong, R., Bosch, J., Egami, E., et. al, “Third data release of the Hyper Suprime-Cam Subaru Strategic Program”. *PASJ* 74.2 (Apr. 2022), pp. 247–272. DOI: [10.1093/pasj/psab122](https://doi.org/10.1093/pasj/psab122). arXiv: [2108.13045](https://arxiv.org/abs/2108.13045) [[astro-ph.IM](#)].
- [14] Chiu, I.-N., Ghirardini, V., Liu, A., Grandis, S., Bulbul, E., Bahar, Y. E., et. al, “The eROSITA Final Equatorial-Depth Survey (eFEDS). X-ray observable-to-mass-and-redshift relations of galaxy clusters and groups with weak-lensing mass calibration from the Hyper Suprime-Cam Subaru Strategic Program survey”. *A&A* 661, A11 (May 2022), A11. DOI: [10.1051/0004-6361/202141755](https://doi.org/10.1051/0004-6361/202141755). arXiv: [2107.05652](https://arxiv.org/abs/2107.05652) [[astro-ph.CO](#)].
- [15] Li, X., Li, Y., Massey, R., “Weak gravitational lensing shear measurement with FPFs: analytical mitigation of noise bias and selection bias”. *MNRAS* 511.4 (Apr. 2022), pp. 4850–4860. DOI: [10.1093/mnras/stac342](https://doi.org/10.1093/mnras/stac342). arXiv: [2110.01214](https://arxiv.org/abs/2110.01214) [[astro-ph.CO](#)].
- [16] Li, X., Miyatake, H., Luo, W., More, S., Oguri, M., Hamana, T., et. al, “The three-year shear catalog of the Subaru Hyper Suprime-Cam SSP Survey”. *PASJ* 74.2 (Apr. 2022), pp. 421–459. DOI: [10.1093/pasj/psac006](https://doi.org/10.1093/pasj/psac006). arXiv: [2107.00136](https://arxiv.org/abs/2107.00136) [[astro-ph.CO](#)].

- [17] Luo, W., Silverman, J. D., More, S., Goulding, A., Miyatake, H., Nishimichi, T., et. al, “Dark matter halos of luminous AGNs from galaxy-galaxy lensing with the HSC Subaru Strategic Program” (Apr. 2022). arXiv: [2204.03817 \[astro-ph.GA\]](#).
- [18] Miyatake, H., Sugiyama, S., Takada, M., Nishimichi, T., Shirasaki, M., Kobayashi, Y., et. al, “Cosmological inference from an emulator based halo model. II. Joint analysis of galaxy-galaxy weak lensing and galaxy clustering from HSC-Y1 and SDSS”. *Phys. Rev. D* 106.8, 083520 (Oct. 2022), p. 083520. DOI: [10.1103/PhysRevD.106.083520](#). arXiv: [2111.02419 \[astro-ph.CO\]](#).
- [19] Sugiyama, S., Takada, M., Miyatake, H., Nishimichi, T., Shirasaki, M., Kobayashi, Y., et. al, “HSC Year 1 cosmology results with the minimal bias method: HSC $\times$ BOSS galaxy-galaxy weak lensing and BOSS galaxy clustering”. *Phys. Rev. D* 105.12, 123537 (June 2022), p. 123537. DOI: [10.1103/PhysRevD.105.123537](#). arXiv: [2111.10966 \[astro-ph.CO\]](#).

2021

- [20] Li, X., Yoshida, N., Oguri, M., Ikeda, S., Luo, W., “Three-dimensional Reconstruction of Weak-lensing Mass Maps with a Sparsity Prior. I. Cluster Detection”. *ApJ* 916.2, 67 (Aug. 2021), p. 67. DOI: [10.3847/1538-4357/ac0625](#). arXiv: [2102.09707 \[astro-ph.CO\]](#).
- [21] Miyatake, H., Sugiyama, S., Takada, M., Nishimichi, T., Shirasaki, M., Kobayashi, Y., et. al, “Cosmological inference from the emulator based halo model II: Joint analysis of galaxy-galaxy weak lensing and galaxy clustering from HSC-Y1 and SDSS” (Nov. 2021). arXiv: [2111.02419 \[astro-ph.CO\]](#).
- [22] Oguri, M., Miyazaki, S., Li, X., Luo, W., Mitsuishi, I., Miyatake, H., et. al, “Hundreds of weak lensing shear-selected clusters from the Hyper Suprime-Cam Subaru Strategic Program S19A data”. *PASJ* 73.4 (Aug. 2021), pp. 817–829. DOI: [10.1093/pasj/psab047](#). arXiv: [2103.15016 \[astro-ph.CO\]](#).
- [23] Wang, W., Li, X., Shi, J., Han, J., Yasuda, N., Jing, Y., et. al, “The Stellar Mass in and around Isolated Central Galaxies: Connections to the Total Mass Distribution through Galaxy-Galaxy Lensing in the Hyper Suprime-Cam Survey”. *ApJ* 919.1, 25 (Sept. 2021), p. 25. DOI: [10.3847/1538-4357/ac0e38](#). arXiv: [2104.05355 \[astro-ph.GA\]](#).
- [24] Wang, W., Takada, M., Li, X., Carlsten, S. G., Lan, T.-W., Shi, J., et. al, “A comparative study of satellite galaxies in Milky Way-like galaxies from HSC, DECaLS, and SDSS”. *MNRAS* 500.3 (Jan. 2021), pp. 3776–3801. DOI: [10.1093/mnras/staa3495](#). arXiv: [2009.06882 \[astro-ph.GA\]](#).

2020

- [25] Li, X., Oguri, M., Katayama, N., Luo, W., Wang, W., Han, J., et. al, “FPFS Shear Estimator: Systematic Tests on the Hyper Suprime-Cam Survey First-year Data”. *ApJS* 251.2, 19 (Dec. 2020), p. 19. DOI: [10.3847/1538-4365/abbad1](#). arXiv: [1911.02195 \[astro-ph.CO\]](#).

2019

- [26] Aihara, H., AlSayyad, Y., Ando, M., Armstrong, R., Bosch, J., Egami, E., et. al, “Second data release of the Hyper Suprime-Cam Subaru Strategic Program”. *PASJ* 71.6, 114 (Dec. 2019), p. 114. DOI: [10.1093/pasj/psz103](#). arXiv: [1905.12221 \[astro-ph.IM\]](#).
- [27] Wang, W., Han, J., Sonnenfeld, A., Yasuda, N., Li, X., Jing, Y., et. al, “The stellar halo of isolated central galaxies in the Hyper Suprime-Cam imaging survey”. *MNRAS* 487.2 (Aug. 2019), pp. 1580–1606. DOI: [10.1093/mnras/stz1339](#). arXiv: [1811.04714 \[astro-ph.GA\]](#).

- [28] Zhang, J., Dong, F., Li, H., Li, X., Li, Y., Liu, D., et. al, “Testing Shear Recovery with Field Distortion”. ApJ 875.1, 48 (Apr. 2019), p. 48. DOI: [10.3847/1538-4357/ab1080](https://doi.org/10.3847/1538-4357/ab1080). arXiv: [1808.02593](https://arxiv.org/abs/1808.02593) [[astro-ph.CO](#)].

2018

- [29] Li, X., Katayama, N., Oguri, M., More, S., “Fourier Power Function Shapelets (FPFS) shear estimator: performance on image simulations”. MNRAS 481.4 (Dec. 2018), pp. 4445–4460. DOI: [10.1093/mnras/sty2548](https://doi.org/10.1093/mnras/sty2548). arXiv: [1805.08514](https://arxiv.org/abs/1805.08514) [[astro-ph.CO](#)].

2016

- [30] Li, X., Zhang, J., “Cosmic Shear Measurement Using Auto-convolved Images”. ApJ 830.2, 116 (Oct. 2016), p. 116. DOI: [10.3847/0004-637X/830/2/116](https://doi.org/10.3847/0004-637X/830/2/116). arXiv: [1607.07545](https://arxiv.org/abs/1607.07545) [[astro-ph.CO](#)].