SUNAO SUGIYAMA

List of publications, talks, and press releases, Compiled on June 1, 2024

PUBLICATIONS

The up-to-date list of publication availabele at ADS.

* = Author list alphabetized
Major author

1. **Sugiyama, Sunao**, H. Miyatake, S. More, et al. Hyper Suprime-Cam Year 3 results: Cosmology from galaxy clustering and weak lensing with HSC and SDSS using the minimal bias model. Phys. Rev. D, 108(12):123521, December 2023:123521. doi: 10.1103/PhysRevD.108.123521

2. S. More, **Sugiyama, Sunao**, H. Miyatake, et al. Hyper Suprime-Cam Year 3 results: Measurements of clustering of SDSS-BOSS galaxies, galaxy-galaxy lensing, and cosmic shear. Phys. Rev. D, 108(12):123520, December 2023:123520. doi: 10.1103/PhysRevD.108.123520

3. R. Dalal, X. Li, A. Nicola, et al. Hyper Suprime-Cam Year 3 results: Cosmology from cosmic shear power spectra. Phys. Rev. D, 108(12):123519, December 2023:123519. doi: 10.1103/PhysRevD.108.123519

4. X. Li, T. Zhang, **Sugiyama, Sunao**, et al. Hyper Suprime-Cam Year 3 results: Cosmology from cosmic shear two-point correlation functions. Phys. Rev. D, 108(12):123518, December 2023:123518. doi: 10.1103/PhysRevD.108.123518

5. H. Miyatake, **Sugiyama, Sunao**, M. Takada, 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. Phys. Rev. D, 108(12):123517, December 2023:123517. doi: 10.1103/PhysRevD.108.123517

6. **Sugiyama, Sunao**, M. Takada, and A. Kusenko. Possible evidence of axion stars in HSC and OGLE microlensing events. *Physics Letters B*, 840:137891, May 2023:137891. doi: 10.1016/j.physletb.2023.137891

7. H. Miyatake, **Sugiyama, Sunao**, M. Takada, 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, October 2022:083520. doi: 10.1103/PhysRevD.106.083520

8. H. Miyatake, Y. Kobayashi, M. Takada, et al. Cosmological inference from an emulator based halo model. I. Validation tests with HSC and SDSS mock catalogs. Phys. Rev. D, 106(8):083519, October 2022:083519. doi: 10.1103/PhysRevD.106.083519

9. **Sugiyama, Sunao**. Fast Fourier Transformation Based Evaluation of Microlensing Magnification with Extended Source. ApJ, 937(2):63, October 2022:63. doi: 10.3847/1538-4357/ac8df1

10. **Sugiyama, Sunao**, M. Takada, H. Miyatake, et al. HSC Year 1 cosmology results with the minimal bias method: HSC ×BOSS galaxy-galaxy weak lensing and BOSS galaxy clustering. Phys. Rev. D, 105(12):123537, June 2022:123537. doi: 10.1103/PhysRevD.105.123537

11. **Sugiyama, Sunao**, V. Takhistov, E. Vitagliano, et al. Testing stochastic gravitational wave signals from primordial black holes with optical telescopes. *Physics Letters B*, 814:136097, March 2021:136097. doi: 10.1016/j.physletb.2021.136097

12. *A. Kusenko, M. Sasaki, **Sugiyama, Sunao**, et al. Exploring Primordial Black Holes from the Multiverse with Optical Telescopes. Phys. Rev. Lett., 125(18):181304, October 2020:181304. doi: 10.1103/PhysRevLett.125.181304

13. **Sugiyama, Sunao**, M. Takada, Y. Kobayashi, et al. Validating a minimal galaxy bias method for cosmological parameter inference using HSC-SDSS mock catalogs. Phys. Rev. D, 102(8):083520, October 2020:083520. doi: 10.1103/PhysRevD.102.083520

14. **Sugiyama, Sunao**, T. Kurita, and M. Takada. On the wave optics effect on primordial black hole constraints from optical microlensing search. MNRAS, 493(3):3632–3641, April 2020:3632–3641. doi: 10.1093/mnras/staa407

15. H. Niikura, M. Takada, N. Yasuda, et al. Microlensing constraints on primordial black holes with Subaru/HSC Andromeda observations. *Nature Astronomy*, 3:524–534, April 2019:524–534. doi: 10.1038/s41550-019-0723-1

Contributing author

16. R. Terasawa, X. Li, M. Takada, et al. Exploring the baryonic effect signature in the Hyper Suprime-Cam Year 3 cosmic shear two-point correlations on small scales: the S_8 tension remains present. *arXiv e-prints*, arXiv:2403.20323, March 2024:arXiv:2403.20323. doi: 10.48550/arXiv.2403.20323

17. J. Shi, T. Sunayama, T. Kurita, et al. The intrinsic alignment of galaxy clusters and impact of projection effects. MNRAS, 528(2):1487–1499, February 2024:1487–1499. doi: 10.1093/mnras/stae064

18. T. Zhang, X. Li, R. Dalal, et al. A general framework for removing point-spread function additive systematics in cosmological weak lensing analysis. MNRAS, 525(2):2441–2471, October 2023:2441–2471. doi: 10.1093/mnras/stad1801

19. T. Sunayama, H. Miyatake, **Sugiyama, Sunao**, et al. Optical Cluster Cosmology with SDSS redMaPPer clusters and HSC-Y3 lensing measurements. *arXiv e-prints*, arXiv:2309.13025, September 2023:arXiv:2309.13025. doi: 10.48550/arXiv.2309.13025

20. Y. Park, T. Sunayama, M. Takada, et al. Cluster cosmology with anisotropic boosts: validation of a novel forward modelling analysis and application on SDSS redMaPPer clusters. MNRAS, 518(4):5171–5189, February 2023:5171–5189. doi: 10.1093/mnras/stac3410

TALKS

2024

33. **Cosmology from Subaru HSC weak lensing Year 3 data**, MIfA colloquium, 2024, May., *Oral* (**Invited Talk**)

32. **Cosmology from weak lensing three-point correlation function**, astro/cosmo seminar at CMU, 2024, Feb., *Oral*

31. **Cosmology from Subaru HSC weak lensing Year 3 data**, Subaru Users Meeting FY2023, 2024, Jan., *Oral*

2023

30. **HSC Y3 weak lensing cosmology results**, CosmoPalooza, 2023, Oct., *Oral*

29. **Hyper Suprime-Cam Year 3 Results: Cosmology from Weak Lensing with HSC**, Windows on the Universe, 2023, Aug., *Oral* (**Invited Talk**)

28. **HSC Year 3 Weak Lensing Cosmology Results**, HSC webinar, 2023, Apr., *Oral*

27. **HSC Y3 cosmology results**, CMB x LSS, 2023, Apr., *Oral* (**Invited Talk**)

26. **Collaborative coding: git and github**, CD3 Opening Symposium, 2023, Apr., *Oral*

25. **Cosmology analysis with Subaru HSC Y3 data and SDSS data: cosmological parameter inference in ΛCDM model**, 2023 Spring Annual Meeting of ASJ, 2023, Mar., *Oral*

24. **Cosmology with Subaru HSC weak lensing data**, 2023 GOPIRA Ph.D. thesis, 2023, Mar., *Oral*

2022

23. **Cosmology analysis with Subaru HSC Y3 data and SDSS data: a joint analysis of cosmic shear + galaxy-galaxt lensing + galaxy clustering**, 2022 Autumn Annual Meeting of ASJ, 2022, Sep., *Oral*
22. **Revealing the nature of dark matter with gravitational lensing: weak and microlensing**, Colloqium at Osaka theoretical astrophysics group, 2022, Jul., *Oral* (**Invited Talk**)
21. **HSC cosmology: Joint analysis of galaxy-galaxy lensing and clustering from Subaru HSC and SDSS data**, 77th Annual Meeting of JPS, 2022, Mar., *Oral*
20. **Exploring Primordial black hole with microlensing observation of Andromeda galaxy**, Subaru Users Meeting 2021, 2022, Jan., *Oral*

2021

19. **Joint analysis of galaxy-galaxy lensing and clustering at large scales from Subaru HSC and SDSS data**, 34th astro-theory Symposium, 2021, Dec., *Oral*
18. **Joint analysis of galaxy-galaxy lensing and clustering at large scales from Subaru HSC and SDSS data**, 10th workshop on observational cosmology, 2021, Nov., *Oral*
17. **Joint analysis of galaxy-galaxy lensing and clustering at large scales from Subaru HSC and SDSS data**, 2021 Autumn Annual Meeting of ASJ, 2021, Sep., *Oral*
16. **Exploring Dark Matter Candidates with Microlensing**, KEK theory seminar, 2021, Apr., *Oral*

2020

15. **Constraining PBH with HSC microlensing**, IPMU phenomenology lunch journal club, 2020, Dec., *Oral*
14. **Testing stochastic gravitational wave signals by PBH microlensing**, 4th KEK-PH + KEK-Cosmo Joint Lectures and Workshop on "Gravitational Wave", 2020, Nov., *Oral* (**Invited Talk**)
13. **Observational constraint on PBH scenarios with HSC microlensing**, 9th workshop on observational cosmology, 2020, Nov., *Oral*
12. **Developing a method of cosmological parameter inference from galaxy survey data by Subaru/HSC**, Summer school for young researchers in astronomy/astrophysics, 2020, Aug., *Oral*
11. **Validating a minimal galaxy bias method for cosmological parameter inference using HSC-SDSS mock catalog**, Seminar at Daniel Eisenstein group@CfA, 2020, Aug., *Oral*
10. **Validation of PT-based method and cosmological parameter constraint with HSC-Y1 data**, 2020 Spring Annual Meeting of ASJ, 2020, Mar.
9. **Constraints on Primordial Black Holes with Microlensing**, Informal seminar at Takahashi and Asada Labs, 2020, Feb., *Oral*
8. **Validation of PT-based method for cosmology analysis with wide field galaxy survey data**, Seminar at astro group of Hirosaki University, 2020, Feb., *Oral*
7. **Constraints on Primordial Black Holes with Microlensing: Wave & Finite Source Effects / PBH from Multiverse**, Berkeley Week at Kavli IPMU, 2020, Jan., *Oral*

2019

6. **Validation of PT-based method for cosmology analysis of wide field galaxy survey data**, 2019 Autumn Annual Meeting of ASJ, 2019, Sep., *Oral*
5. **Test and validation of PT-based cosmology : g-g lensing and clustering**, PT chat, 2019, Apr., *Poster*
4. **On the wave effect of PBH microlensing in the observation of the M31 stars**, 2019 Spring Annual Meeting of ASJ, 2019, Mar., *Oral*
3. **Wave Effect on PBH Microlensing**, Accelerating universe in the dark, 2019, Mar., *Poster*

2018

2. **Wave effect on PBH micro-lensing and constraintWave effect on PBH micro-lensing and constraint**, 7th workshop on observational cosmology, 2018, Dec., *Oral*
1. **Review of new BAO reconstruction method**, Summer school for young researchers in astronomy/astrophysics, 2018, Aug., *Oral*

PRESS RELEASES

Primordial black holes and the search for dark matter from the multiverse

How to see the invisible: Using dark matter distribution to test our cosmological model