Masaya Yamamoto *Curriculum Vitae*

Contact Information

Department of Astrophysical Sciences
Princeton University
Peyton Hall, 4 Ivy Lane
Princeton, NJ 08540

Phone: +1 857-350-0231 (Japan: +81 90-5132-3522)
E-mail: masayamamotou@gmail.com
LinkedIn: https://www.linkedin.com/in/ymasaya
Github: https://github.com/myamamoto26

Academic Positions

Postdoctoral Research Associate **2024 - Present**
Department of Astrophysical Sciences, Princeton University

Graduate Research Assistant **2021 - 2024**
Department of Physics, Duke University

Graduate Teaching Assistant **2019 - 2021**
Department of Physics, Duke University

Research Intern **2017 - 2018 (Summer)**
Harvard-Smithsonian Center for Astrophysics
Advisor: Dr. Joseph Hora

Undergraduate Research Assistant **2016 - 2019**
Department of Astronomy, Boston University
Advisor: Professor Tereasa Brainerd

Education

Duke University

Ph.D., Physics **2019 - 2024**
- Fields: Astrophysics/Observational Cosmology
- Advisor: Professor Michael Troxel

Boston University

B.A., Astronomy and Physics **May 2019**
- Cumulative GPA: 3.78, *Magna Cum Laude*

Leaderships

Dark Energy Survey

Shear Measurement and Calibration Team Co-Lead **2021 - Present**

Cosmic Shear Analysis Team Co-Lead **2023 - Present**

Awards & Fellowships

NASA Postdoctoral Program Fellowships – *declined* **2024**

The Ohio State University Center for Cosmology and AstroParticle Physics (CCAPP) Fellowships – *declined* **2024**

DES Builder Status **2023**

Undergraduate Research Award, **2019**
Institute for Astrophysical Research, Boston University

Undergraduate Research Opportunities (UROP) Funding **2018**
Department of Astronomy, Boston University

UROP Conference Participation Travel Award **2018**
Department of Astronomy, Boston University

Smithsonian Astrophysical Observatory Fellowship Award **2017&2018**
Harvard-Smithsonian Center for Astrophysics

Scientific Collaborations

Dark Energy Survey **2020 - Present**
Builder
Weak Lensing Working Group

Nancy Grace Roman Space Telescope **2019 - Present**
NASA Science Investigation Team (SIT) and Project Infrastructure Team (PIT)

Submitted Publications

† *Lead writer of alphabetical paper*

1. Dark Energy Survey Collaboration†, Dark Energy Survey Year 6 Results: Cosmological Constraints from Cosmic Shear, *arXiv e-prints*, arXiv:2602.10065 (2026).
2. Dark Energy Survey Collaboration, Dark Energy Survey Year 6 Results: Cosmological Constraints from Galaxy Clustering and Weak Lensing, *arXiv e-prints*, arXiv:2601.14559 (2026).
3. D. Sanchez-Cid, A. Ferté, J. Blazek, S. Samuroff, A. Amon, F. Andrade-Oliveira, J. M. Coloma-Nadal, J. Muir, A. Porredon, J. Prat, N. Weaverdyck, **Masaya Yamamoto** et al., Dark Energy Survey Year 6 Results: Weak Lensing and Galaxy Clustering Cosmological Analysis Framework, *arXiv e-prints*, arXiv:2601.14859 (2026).
4. W. d'Assignies, G. M. Bernstein, B. Yin, G. Giannini, A. Alarcon, M. Manera, C. To, **Masaya Yamamoto** et al., Dark Energy Survey Year 6 Results: Clustering-redshifts and importance sampling of Self-Organised-Maps n(z) realizations for 3×2pt samples, *arXiv e-prints*, arXiv:2510.23565 (2025).
5. B. Yin, A. Amon, A. Campos, M. A. Troxel, W. d'Assignies, G. M. Bernstein, G. Camacho-Ciurana, S. Mau, M. R. Becker, G. Giannini, A. Alarcón, D. Gruen, J. McCullough, **Masaya Yamamoto** et al., Dark Energy Survey Year 6 Results: Redshift Calibration of the Weak Lensing Source Galaxies, *arXiv e-prints*, arXiv:2510.23566 (2025).
6. L. Bigwood, **Masaya Yamamoto**, J. Siegel, A. Amon, I. G. McCarthy, R. Dave, J. Salcido, M. Schaller et al., The kinetic Sunyaev Zeldovich effect as a benchmark for AGN feedback models in hydrodynamical simulations: insights from DESI + ACT, *arXiv e-prints*, arXiv:2510.15822 (2025).
7. J. Siegel, A. Amon, I. G. McCarthy, L. Bigwood, **Masaya Yamamoto** et al., Joint X-ray, kinetic Sunyaev-Zeldovich, and weak lensing measurements: toward a consensus picture of efficient gas expulsion from groups and clusters, *arXiv e-prints*, arXiv:2509.10455 (2025).

8. **Masaya Yamamoto**, M. R. Becker, E. Sheldon, M. Jarvis, R. A. Gruendl, F. Menanteau, E. S. Rykoff, S. Mau et al., Dark Energy Survey Year 6 Results: Cell-based Coadds and Metadetection Weak Lensing Shape Catalogue, *arXiv e-prints*, arXiv:2501.05665 (2025).

9. OpenUniverse, The LSST Dark Energy Science Collaboration, The Roman HLIS Project Infrastructure Team, The Roman RAPID Project Infrastructure Team, The Roman Supernova Cosmology Project Infrastructure Team et al., OpenUniverse2024: A shared, simulated view of the sky for the next generation of cosmological surveys, *arXiv e-prints*, arXiv:2501.05632 (2025).

10. T. Schutt, M. Jarvis, A. Roodman, A. Amon, M. R. Becker, R. A. Gruendl, **Masaya Yamamoto**, K. Bechtol et al., Dark Energy Survey Year 6 Results: Point-Spread Function Modeling, *arXiv e-prints*, arXiv:2501.05781 (2025).

11. D. Anbajagane, M. Tabbutt, J. Beas-Gonzalez, B. Yanny, S. Everett, M. R. Becker, **Masaya Yamamoto**, E. Legnani et al., Dark Energy Survey Year 6 Results: Synthetic-source Injection Across the Full Survey Using BALROG, *arXiv e-prints*, arXiv:2501.05683 (2025).

12. K. Bechtol, I. Sevilla-Noarbe, A. Drlica-Wagner, B. Yanny, R. A. Gruendl, E. Sheldon, E. S. Rykoff, J. De Vicente et al., Dark Energy Survey Year 6 Results: Photometric Data Set for Cosmology, *arXiv e-prints*, arXiv:2501.05739 (2025).

13. K. Laliotis, E. Macbeth, C. M. Hirata, K. Cao, **Masaya Yamamoto**, M. A. Troxel, Analysis of biasing from noise from the Nancy Grace Roman Space Telescope: implications for weak lensing, *arXiv e-prints*, arXiv:2410.11088 (2024).

14. K. Cao, C. M. Hirata, K. Laliotis, **Masaya Yamamoto**, E. Macbeth, M. A. Troxel, Simulating image coaddition with the Nancy Grace Roman Space Telescope: III. Software improvements and new linear algebra strategies, *arXiv e-prints*, arXiv:2410.05442 (2024).

15. M. Gatti, N. Jeffrey, L. Whiteway, J. Williamson, B. Jain, V. Ajani, D. Anbajagane, G. Giannini, C. Zhou, A. Porredon, J. Prat, **Masaya Yamamoto** et al., Dark Energy Survey Year 3 results: Simulation-based cosmological inference with wavelet harmonics, scattering transforms, and moments of weak lensing mass maps. Validation on simulations, Phys. Rev. D, 109, 063534 (2024), *arXiv e-prints*, arXiv:2310.17557 (2023).

16. **Masaya Yamamoto**, K. Laliotis, E. Macbeth, T. Zhang, C. M. Hirata, M. A. Troxel, A. Choi, J. Givans et al., Simulating image coaddition with the Nancy Grace Roman Space Telescope: II. Analysis of the simulated images and implications for weak lensing, MNRAS, 528, 6680 (2024), *arXiv e-prints*, arXiv:2303.08750 (2023).

17. C. M. Hirata, **Masaya Yamamoto**, K. Laliotis, E. Macbeth, M. A. Troxel, T. Zhang, A. Choi, J. Givans et al., Simulating image coaddition with the Nancy Grace Roman Space Telescope: I. Simulation methodology and

general results, MNRAS, 528, 2533 (2024), *arXiv e-prints*, arXiv:2303.08749 (2023).

18. M. A. Troxel, C. Lin, A. Park, C. M. Hirata, R. Mandelbaum, M. Jarvis, A. Choi, J. Givans et al., A Joint Roman Space Telescope and Rubin Observatory Synthetic Wide-Field Imaging Survey, MNRAS, 522, 2801 (2023), *arXiv e-prints*, arXiv:2209.06829 (2022).

19. **Masaya Yamamoto**, M. A. Troxel, M. Jarvis, R. Mandelbaum, C. Hirata, H. Long, A. Choi, T. Zhang, Weak Gravitational Lensing Shear Estimation with Metacalibration for the Roman High-Latitude Imaging Survey, MNRAS, 519, 4241 (2023), *arXiv e-prints*, arXiv:2203.08845 (2022).

20. K. X. Wang, D. Scolnic, M. A. Troxel, S. A. Rodney, B. Popovic, C. Duff, A. V. Filippenko, R. J. Foley et al., A Synthetic Roman Space Telescope High-Latitude Time-Domain Survey: Supernovae in the Deep Field, *arXiv e-prints*, arXiv:2204.13553 (2022).

21. M. A. Troxel, H. Long, C. M. Hirata, A. Choi, M. Jarvis, R. Mandelbaum, K. Wang, **Masaya Yamamoto** et al., A synthetic Roman Space Telescope High-Latitude Imaging Survey: simulation suite and the impact of wavefront errors on weak gravitational lensing, MNRAS, 501, 2044 (2021).

22. T. G. Brainerd, **Masaya Yamamoto**, Satellite galaxies in the Illustris-1 simulation: anisotropic locations around relatively isolated hosts, MNRAS, 489, 459 (2019)

Invited Talks

∗ *Future talks*

1. Seminar: *The Legacy Cosmological Constraints from Weak Lensing and Galaxy Clustering in DES* **March 2026**

   Brookhaven National Laboratory

2. Seminar: *The Legacy Cosmological Constraints from Weak Lensing and Galaxy Clustering in DES* **February 2026**

   Kavli IPMU, University of Tokyo

3. Seminar: *The Legacy Cosmological Constraints from Weak Lensing and Galaxy Clustering in DES* **February 2026**

   Nagoya University

4. Seminar: *The Legacy Cosmological Constraints from Weak Lensing and Galaxy Clustering in DES* **January 2026**

   Center for Computational Astrophysics, Flatiron Institute

5. Webinar: *Dark Energy Survey Year 6 Cosmological Constraints from Weak Lensing and Clustering* **January 2026**

   Webinar

6. Splinter Session: *The Legacy Cosmological Constraints from Weak Lensing and Galaxy Clustering in DES* **January 2026**

AAS 247th meeting Splinter Session

7. Seminar: *Towards Next-Generation Weak Lensing Surveys: Lessons from Dark Energy Survey Year-6 and New Paths Forward with Multi-Wavelength Surveys* **October 2025**

   University of Pennsylvania

8. Seminar: *Dark Energy Survey Year-6: Pixel-to-Cosmology with Weak Lensing* **July 2025**

   Kavli Institute for the Physics and Mathematics of the Universe

9. Contributed talk: *Dark Energy Survey Year-6: Pixel-to-Cosmology with Weak Lensing* **July 2025**

   Roman Cosmic Cartography Symposium

10. Plenary: *Wrangling with Dark Energy Survey Data: Towards Measuring 2pt Functions* **May 2025**

    DES collaboration meeting: DES Fest

11. Seminar: *Dark Energy Survey Year 6: PSF Modeling and Shear Catalog* **February 2025**

    LSST DESC Pixels-to-Object WG

12. Seminar: *Dark Energy Survey Year-6: Shape Catalog with Metadetection* **November 2024**

    Princeton University

13. Special Session: *Dark Energy Survey Year 6 Weak Lensing* **January 2024**

    AAS 243rd meeting Special Session

14. Splinter Session: *From Pixels to Cosmology: The Role of Roman's Synthetic Imaging in Understanding the Universe* **January 2024**

    AAS 243rd meeting Splinter Session

15. Seminar: *Cosmic Shear with Roman: Challenges and Lookouts on How to Deliver Cosmology with Space-Based Data* **November 2023**

    KICP Survey Science Discussion at the University of Chicago

16. Seminar: *Cosmic Shear with Roman: Challenges and Lookouts on How to Deliver Cosmology with Space-Based Data* **November 2023**

    University of Pennsylvania

17. Seminar: *DES Y6: Systematic characterization and control of PSFs, cosmic shear, and galaxy clustering* **November 2023**

    Survey Science Discussion at Princeton University

18. Plenary: *overview of DES Y6 Metadetection shape catalog* **October 2023**

    Dark Energy Survey Collaboration Meeting at NCSA

19. Seminar: *Characterizing weak lensing shear systematics for the* Roman *Space Telescope* **November 2022**

    Argonne National Laboratory

20. Seminar: *Characterizing weak lensing shear systematics for the Stage-III and Stage-IV surveys* **September 2022**

    The Ohio State University

21. Seminar: *Development of the Realistic Image Simulations for the Nancy Grace Roman Space Telescope* **July 2022**

    Kavli Institute for the Physics and Mathematics of the Universe

22. Plenary: *DES Year-6 Shear Catalog Development* **May 2022**

    Dark Energy Survey Collaboration Meeting at Duke University

Technical Skills

Languages & Computing Frameworks

- Programming & Scripting Languages: Python (*NumPy* & *SciPy*), SQL (Oracle & Standard), GQL (Cypher), Mathematica, Bash, LaTeX
- Machine Learning Frameworks: scikit-learn
- High-Performance Computing environments: Cori at National Energy Research Scientific Computing Center (NERSC), Duke Compute Cluster
- Distributed & Parallel Programming Methodologies: MPI

Systems & Platforms

- Operating Systems: Linux, Unix
- Cloud Platforms: GCP (Big Query), AWS (Neptune), Neo4j

Other Skills

Languages

Japanese (native)

English (native)

French (conversational)

References

Michael A. Troxel

Associate Professor, Department of Physics, Duke University

PhD Supervisor

Email: michael.troxel@duke.edu; Phone: 919-660-6773

Alexandra Amon

Assistant Professor, Department of Astrophysical Sciences, Princeton University

Postdoc Advisor

Email: alexandra.amon@princeton.edu; Phone: 609-258-3806

Matthew R. Becker

Physicist, Argonne National Laboratory

Collaborator in the Dark Energy Survey

Email: mrbecker@anl.gov; Phone: 630-252-4212

Christopher M. Hirata

Professor, Physics Department, The Ohio State University

Collaborator in Weak Lensing Survey for *Roman* Space Telescope

Email: hirata.10@osu.edu; Phone: 614-292-8016