ADRIAN E. BAYER

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New York Metropolitan Area, USA

EDUCATION

University of California, Berkeley, USA — 2018–2023
Ph.D. Physics — Thesis adviser: Uroš Seljak

University of Cambridge, UK — 2017–2018
Master of Advanced Study, Mathematics

Imperial College London, UK — 2013–2017
MSci Physics with Theoretical Physics — Thesis adviser: Fay Dowker
Graduated top of the cohort (approx. 250 students)

ACADEMIC APPOINTMENTS

Flatiron Institute, Simons Foundation, USA — 2023–
Flatiron Research Fellow

Princeton University, USA — 2023–
Postdoctoral Researcher

The University of Tokyo, Japan — 2022
Visiting Researcher (3 months)

Massachusetts Institute of Technology, USA — 2016
Undergraduate Researcher (2 months) — Adviser: Lindley Winslow

Imperial College London, UK — 2015
Undergraduate Researcher (3 months) — Adviser: Henrique Araújo

HONORS AND AWARDS

Outstanding Graduate Student Instructor Award, University of California, Berkeley, 2022

Berkeley Distinguished Graduate Fellows Video Prize ($1,000 grant), University of California, Berkeley, 2019

The Berkeley Fellowship, University of California, Berkeley, 2018

Abdus Salam Undergraduate Prize, Imperial College London, 2017

Governors' MSci Prize in Physics, Imperial College London, 2017

Ken Allen Prize, Imperial College London, 2016

Winton Capital Prize for Outstanding Performance in Second Year Physics, Imperial College London, 2015

EPSRC Summer Vacation Bursary (£2,200 grant), Engineering and Physical Sciences Research Council, 2015

TEACHING

Statistical Modeling and Introduction to Machine Learning
Lecturer, AstroAI Asian Network Summer School, Seoul, Korea — 2025

Astronomy
Lecturer, East Jersey State Prison, Rahway, USA — 2024

Bayesian Data Analysis and Machine Learning for Physical Sciences
Graduate Student Instructor, UC Berkeley, USA — 2021

Python for Physics
Teaching Assistant, Imperial College London, UK — 2016

MENTORING

Carmen Émbil Villagrá (Graduate Student), University of Cambridge (2025–)
Project: Nonlinear information in the tSZ

Liam Parker (Graduate Student), UC Berkeley (2024–)
Project: Field-Level Inference using CNNs (co-supervised with Uroš Seljak)
Paper: arXiv: 2504.01092 (astro-ph.CO)

Shaunak Padhyegurjar (Undergraduate Student), IISER Bhopal, India (2024–)
Project: Primordial non-Gaussianity with Voids

Veena Krishnaraj (Undergraduate Student), Princeton University (2024–5)
Project: Beyond the Standard Model with Machine Learning
Paper: arXiv: 2510.19168 (astro-ph.CO)

James Robinson (Undergraduate Student), Princeton University (2024–)
Project: Fast Algorithms for Computing the Kinetic Sunyaev-Zeldovich Effect

Arnab Lahiry (Undergraduate Student), Indian Institute of Science Education and Research, Tirupati (2024–5)
Project: Interpreting the Information in the Cosmic Web (co-supervised with Francisco Villaescusa-Navarro)
Paper: arXiv: 2504.17839 (astro-ph.CO)

Chenze Dong (Graduate Student), University of Tokyo (2024–)
Project: Field-Level Inference for Galaxies and FRBs (co-supervised with Ben Horowitz and KG Lee)

Akira Tokiwa (Graduate Student), University of Tokyo (2023–5)
Project: Impact of Box Size for Weak Lensing (co-supervised with Jia Liu and Masahiro Takada)
Paper: arXiv: 2511.20423 (astro-ph.CO)

James Sunseri (Graduate Student), Princeton University (2023–)
Project: Information Content of the Cosmic Web (co-supervised with Jia Liu)
Paper: arXiv: 2503.11778 (astro-ph.CO)

Yici Zhong (Graduate Student), University of Tokyo (2022–4)
Project: HalfDome Cosmological Simulations for Stage IV Surveys (co-supervised with Jia Liu)
Paper: arXiv: 2407.17462 (astro-ph.CO)

Malika Golshan (Undergraduate Student), UC Berkeley (2022–4)
Project: Interpreting what AI learns about neutrino physics in cosmological simulations
Paper: arXiv: 2410.00914 (astro-ph.CO)

Jakob Robnik (Graduate Student), UC Berkeley (2021–4)
Project: Data-Driven Noise Models and Look-Elsewhere Effect (co-supervised with Uroš Seljak)
Paper: arXiv: 2407.17565 (astro-ph.GA)

ACADEMIC SERVICES

SOC of **MOCK NYC** at New York (2026)

Organizer of **Astrophysics x ML Meeting** at Flatiron Institute (2025-)

Organizer of **Dark Cosmos Seminar** at Princeton University (2025)

Organizer of **Cosmology Lunch Meeting** at Princeton University (2024-)

Organizer of **Cosmology and ML Meeting** at Simons Foundation (2024-)

Convener of **Numerical Cosmology and Artificial Intelligence** session at COSMO'24 [Japan] (2024)

Organizer of **Debating the potential of machine learning for astronomical surveys (#2)** conference at IAP/CCA (2023)

REFEREEING

Astronomy & Astrophysics (A&A), The Astrophysical Journal (ApJ), Astrophysical Journal Letters (ApJL), International Conference on Machine Learning (ICML), Journal of Cosmology and Astroparticle Physics (JCAP), Monthly Notices of the Royal Astronomical Society (MNRAS), Neural Information Processing Systems (NeurIPS), Physical Review D (PRD), Physical Review Letters (PRL)

COLLABORATIONS

Simons Observatory (Leader of Foreground / Sky Modeling Working Group)

HalfDome (Leader)

LSST DESC

Learning the Universe

OUTREACH

Astronomy on Tap @ Jersey Shore, Organizer (Summer 2025)

Astronomy on Tap @ Trenton, Host and Organizer (2023-2025)

Presenter at City College of New York STEM Career Fair (2024)

Media Representative at the Flatiron-Nomad Partnership and Simons Foundation Public Eclipse Party (2024)

Berkeley Compass Mentor (2022)

Adopt-a-Physicist Mentor (2020)

OUTREACH TALKS

Our Learning Universe: AI Meets the Cosmos October 2025
Flatiron Institute, New York NY, USA

Neutrino Mass from Cosmology: Measuring the Mass of a Needle in a Haystack August 2024
New Jersey State Museum, Planetarium, Trenton NJ, USA

Neutrino Mass from Cosmology: Measuring the Mass of a Needle in a Haystack November 2023
Astronomy on Tap, Trenton NJ, USA

SELECTED ACADEMIC TALKS

Rutgers University, New Brunswick NJ, USA November 2025
New High Energy Theory Center Seminar
"Why a tiny neutrino particle inspired me to simulate and reconstruct the entire Universe"

University of Waterloo, Waterloo, Canada October 2025
WCA Astroseminar
"What's the Likelihood? Field-Level Cosmology x Detecting Signals in Large and Noisy Places"

Perimeter Institute, Waterloo, Canada October 2025
Cosmology Meeting
"Why a tiny neutrino particle inspired me to simulate and reconstruct the entire Universe"

ETH Zürich, Zürich, Switzerland September 2025
CosmoClub Seminar
"Why a tiny neutrino particle inspired me to simulate and reconstruct the entire Universe"

Erwin Schrödinger International Institute, Vienna, Austria September 2025
Putting the Cosmic Large-scale Structure on the Map: Theory Meets Numerics
"Field-Level BAO Reconstruction and Beyond"

Max Planck Institute for Astrophysics, Munich, Germany August 2025
Cosmology Meeting
"Field-Level BAO Reconstruction and Beyond"

University of Cambridge (Kavli Institute for Cosmology), Cambridge, UK August 2025
CMB/LSS Meeting
"Field-Level BAO Reconstruction and Beyond"

Centro de Ciencias de Benasque Pedro Pascual, Benasque, Spain July 2025
Understanding Cosmological Observations Workshop
"Field-Level BAO Reconstruction"

University of Manchester, UK July 2025
Simons Observatory Collaboration Meeting
"Sky Modeling"

Sexten Center for Astrophysics, Sexten, Italy July 2025
New Strategies For Extracting Cosmology From Future Galaxy Surveys Workshop – 3rd Edition
"Field-Level BAO Reconstruction"

Center for Computational Astrophysics, Flatiron Institute, New York NY, USA June 2025
Exoplanet Meeting
"Detecting astronomical signals in large and noisy spaces"

Center for Computational Astrophysics, Flatiron Institute, New York NY, USA May 2025
Cosmology X Data Science Meeting
"What's the Likelihood? Field-Level Cosmology x Detecting Signals in Large and Noisy Places"

Center for Astrophysics, Harvard University, Cambridge MA, USA April 2025
AstroAI Seminar
"Why a tiny neutrino particle inspired me to reconstruct the initial conditions of the Universe"

Center for Astrophysics, Harvard University, Cambridge MA, USA April 2025
ITC Luncheon Talk
"Field-Level Reconstruction of the Cosmological Initial Conditions"

Massachusetts Institute of Technology, Cambridge MA, USA April 2025
TESS Science Talk
"Detecting astronomical signals in large and noisy spaces"

University of Pennsylvania, Philadelphia PA, USA April 2025
Astro Seminar
"Why a tiny neutrino particle inspired me to simulate and reconstruct the entire Universe"

Tokyo University, Tokyo, Japan November 2024
Astronomy Seminar
"Towards an Optimal Cosmological Detection of Neutrino Mass with Field-Level Inference and Joint Analyses"

Kyoto University, Kyoto, Japan October 2024
COSMO'24
"Introduction to Numerical Cosmology and Artificial Intelligence"

University of Chicago, Chicago IL, USA July 2024
Simons Observatory Collaboration Meeting
"CMB x LSS with the HalfDome Simulations"

Mediterranean Institute for Life Sciences, Split, Croatia July 2024
Cosmology in the Adriatic – From PT to AI
"Cosmology in the Adriatic with Adrian: from field-level inference to joint analyses"

Università degli Studi di Catania - Dipartimento di Fisica e Astronomia, Catania, Italy July 2024
International Conference on Machine Learning for Astrophysics – 2nd Edition
"Extracting optimal information from cosmological surveys with field-level inference and joint analyses"

Sexten Center for Astrophysics, Sexten, Italy July 2024
New Strategies For Extracting Cosmology From Future Galaxy Surveys Workshop – 2nd Edition
"The HalfDome CMB x LSS Simulations"

Aspen Center for Physics, Aspen CO, USA June 2024
Fundamental Physics in the Era of Big Data and Machine Learning
"Physics-based sampling"

Grand Arsenal, Chania, Greece May 2024
COSMO21: Statistical Challenges in 21st Century Cosmology
"Towards an Optimal Cosmological Detection of Neutrino Mass with Joint Analyses and Field-Level Inference"

Stanford University, Stanford CA, USA April 2024
Cosmology Seminar
"Towards an Optimal Cosmological Detection of Neutrino Mass with Field-Level Inference"

Yale University, New Haven CT, USA April 2024
Cosmology Seminar
"Towards an Optimal Cosmological Detection of Neutrino Mass with Field-Level Inference"

Center for Computational Astrophysics, Flatiron Institute, New York NY, USA March 2024
Cosmology X Data Science Meeting
"The HalfDome CMB x LSS Simulations"

The Center for Cosmology and Particle Physics, New York University, NY, USA March 2024
Astrophysics and Relativity Seminar
"Towards an Optimal Cosmological Detection of Neutrino Mass with Field-Level Inference"

Center for Data Driven Discovery (CD3), Kavli IPMU, University of Tokyo, Japan January 2024
The CD3 x Simons Foundation workshop: AI-driven discovery in physics and astrophysics
"Cosmological Field-Level Inference with Microcanonical Langevin Monte Carlo"

High Energy Accelerator Research Organization (KEK), Tskuba, Japan January 2024
ML at HEP workshop
"Extracting optimal information from upcoming cosmological surveys"

Center for Computational Astrophysics, Flatiron Institute, New York NY, USA November 2023
Debating the potential of machine learning for astronomical surveys (#2) – IAP/CCA Conference
"Cosmological Field-Level Inference with Microcanonical Langevin Monte Carlo"

Imperial College London, London, UK November 2023
Seminar
"Towards an Optimal Cosmological Detection of Neutrino Mass"

Monte Verità, Ascona, Switzerland October 2023
Hamers & Nails, Frontiers in Machine Learning in Cosmology, Astro & Particle Physics
"Cosmological Field-Level Inference with Microcanonical Langevin Monte Carlo"

Hawaii Convention Center, Honolulu HI, USA July 2023
International Conference on Machine Learning (ICML), Workshop on Machine Learning for Astrophysics
"Field-Level Inference with Microcanonical Langevin Monte Carlo"

Sexten Center for Astrophysics, Sexten, Italy July 2023
New Strategies For Extracting Cosmology From Future Galaxy Surveys Workshop
"Field-Level Inference with Microcanonical Hamiltonian Monte Carlo"

Center for Computational Astrophysics, Flatiron Institute, New York NY, USA May 2023
Cosmic Connections Symposium
"Field-Level Inference with Microcanonical Hamiltonian Monte Carlo"

Stanford University, Stanford CA, USA (zoom) January 2023
LSST Higher-Order Statistics Meeting
"Super-Sample Covariance of Higher-Order Statistics"

Institute for Advanced Studies, Princeton NJ, USA December 2022
Cosmology Lunch
"Towards Optimal Measurement of the Neutrino Mass using Large-Scale Structure"

Center for Computational Astrophysics, Flatiron Institute, New York NY, USA December 2022
Cosmology X Data Science Meeting
"Towards Optimal Measurement of the Neutrino Mass using Large-Scale Structure"

University of Pennsylvania, Philadelphia PA, USA December 2022
CMB Meeting
"Towards Optimal Measurement of the Neutrino Mass using Large-Scale Structure"

Université de Montréal, Montréal, Canada November 2022
Astromerique Speaker Series
"Massive Neutrino Information in Large-Scale Structure and Field-Level Inference"

Vipolže, Slovenia July 2022
Berkeley Center for Cosmological Physics Summer Workshop
"Massive Neutrino Information in Large-Scale Structure and Field-Level Inference"

The University of Tokyo (Hongo Campus), Tokyo, Japan May 2022
GPU Workshop
"Cosmological simulations on GPU with tensorflow"

The University of Tokyo (Kavli IPMU), Kashiwanoha, Japan April 2022
APEC Seminar
"Towards detecting neutrino mass using non-linear cosmic structure"

Kyoto University (Yukawa Institute for Theoretical Physics), Kyoto, Japan April 2022
Cosmology with Weak Lensing: Beyond the 2-pt Statistics
"Detecting neutrino mass using nonlinear cosmic structure"

Institut d'Astrophysique de Paris, Paris, France February 2022
Journal Club – Univers
"Detecting neutrino mass using nonlinear cosmic structure"

Center for Computational Astrophysics, Flatiron Institute, New York NY, USA August 2021
Learn the Universe
"The Look-Elsewhere Effect"

Pennsylvania State University, State College PA, USA June 2021
Statistical Challenges in Modern Astronomy VII
"The Look-Elsewhere Effect from a Unified Bayesian and Frequentist Perspective"

University of Cambridge (Kavli Institute for Cosmology), Cambrigde, UK September 2019
KICC 10th Anniversary Symposium
"Look Elsewhere" (poster)

BIBLIOGRAPHY

PRIMARY AUTHOR:

1. Tokiwa, A., **A. E. Bayer**, J. Armijo, J. Liu, R. Terasawa, L. Thiele, M. Alvarez, L. Blot, and M. Takada. "Impact of Simulation Box Size for Weak Lensing: Replication and Super-Sample Effects". In: (Nov. 2025). arXiv: 2511.20423 [astro-ph.CO]

2. Horowitz, B. and **A. E. Bayer**. "jFoF: GPU Cluster Finding with Gradient Propagation". In: (Oct. 2025). arXiv: 2510.26851 [astro-ph.IM]

3. Krishnaraj, V., **A. E. Bayer**, C. K. Jespersen, and P. Melchior. "Transfer Learning Beyond the Standard Model". In: (Oct. 2025). arXiv: 2510.19168 [astro-ph.CO]

4. Thiele, L., **A. E. Bayer**, and N. Takeishi. "Simulation-Efficient Cosmological Inference with Multi-Fidelity SBI". in: (July 2025). arXiv: 2507.00514 [astro-ph.CO]

5. **Bayer, A. E.**, F. Villaescusa-Navarro, S. Sharief, R. Teyssier, L. H. Garrison, L. Perreault-Levasseur, G. L. Bryan, M. Gatti, and E. Visbal. "Field-level Comparison and Robustness Analysis of Cosmological N-body Simulations". In: *ApJ* 989.2 (2025), p. 207. DOI: 10.3847/1538-4357/adef4e. arXiv: 2505.13620 [astro-ph.CO]

6. Lahiry, A., **A. E. Bayer**, and F. Villaescusa-Navarro. "Interpreting Cosmological Information from Neural Networks in the Hydrodynamic Universe". In: *The Astrophysical Journal* 994.1 (Apr. 2025), p. 129. DOI: 10.3847/1538-4357/ae0b5a. arXiv: 2504.17839 [astro-ph.CO]

7. Parker, L., **A. E. Bayer**, and U. Seljak. "Initial conditions from galaxies: machine-learning subgrid correction to standard reconstruction". In: *JCAP* 09 (2025), p. 039. DOI: 10.1088/1475-7516/2025/09/039. arXiv: 2504.01092 [astro-ph.CO]

8. Sunseri, J., **A. E. Bayer**, and J. Liu. "Power of the cosmic web". In: *Phys. Rev. D* 112.6 (2025), p. 063516. DOI: 10.1103/grx3-hj7w. arXiv: 2503.11778 [astro-ph.CO]

9. Cuesta-Lazaro, C., **A. E. Bayer**, M. S. Albergo, S. Mishra-Sharma, C. Modi, and D. J. Eisenstein. "Joint cosmological parameter inference and initial condition reconstruction with Stochastic Interpolants". In: *NeurIPS 2024 Workshop: Machine Learning and the Physical Sciences*. 2024. URL: https://ml4physicalsciences.github.io/2024/files/NeurIPS_ML4PS_2024_162.pdf

10. Golshan, M. and **A. E. Bayer**. "Massive νs through the CNN lens: interpreting the field-level neutrino mass information in weak lensing". In: *JCAP* 05 (2025), p. 024. DOI: 10.1088/1475-7516/2025/05/024. arXiv: 2410.00914 [astro-ph.CO]

11. Robnik, J., **A. E. Bayer**, M. Charisi, Z. Haiman, A. Lin, and U. Seljak. "Periodicity significance testing with null-signal templates: reassessment of PTF's SMBH binary candidates". In: MNRAS 534.2 (Oct. 2024), pp. 1609–1620. DOI: 10.1093/mnras/stae2220. arXiv: 2407.17565 [astro-ph.GA]

12. **Bayer, A. E.**, Y. Zhong, Z. Li, J. DeRose, Y. Feng, and J. Liu. "The HalfDome multi-survey cosmological simulations: N-body simulations". In: *JCAP* 05 (2025), p. 016. DOI: 10.1088/1475-7516/2025/05/016. arXiv: 2407.17462 [astro-ph.CO]

13. **Bayer, A. E.**, J. Liu, C. D. Kreisch, and A. Pisani. "Significance of void shape: Neutrino mass from Voronoi void halos?" In: Phys. Rev. D 110.6, L061305 (Sept. 2024), p. L061305. DOI: 10.1103/PhysRevD.110.L061305. arXiv: 2405.12302 [astro-ph.CO]

14. **Bayer, A. E.**, U. Seljak, and C. Modi. "Field-Level Inference with Microcanonical Langevin Monte Carlo". In: *40th International Conference on Machine Learning*. July 2023. arXiv: 2307.09504 [astro-ph.CO]

15. **Bayer, A. E.**, C. Modi, and S. Ferraro. "Joint velocity and density reconstruction of the Universe with nonlinear differentiable forward modeling". In: J. Cosmology Astropart. Phys. 2023.6, 046 (June 2023), p. 046. DOI: 10.1088/1475-7516/2023/06/046. arXiv: 2210.15649 [astro-ph.CO]

16. **Bayer, A. E.**, J. Liu, R. Terasawa, A. Barreira, Y. Zhong, and Y. Feng. "Super-sample covariance of the power spectrum, bispectrum, halos, voids, and their cross covariances". In: Phys. Rev. D 108.4 (2023), p. 043521. DOI: 10.1103/PhysRevD.108.043521. arXiv: 2210.15647 [astro-ph.CO]

17. **Bayer, A. E.**, A. Banerjee, and U. Seljak. "Beware of fake ν 's: The effect of massive neutrinos on the nonlinear evolution of cosmic structure". In: Phys. Rev. D 105.12, 123510 (June 2022), p. 123510. DOI: 10.1103/PhysRevD.105.123510. arXiv: 2108.04215 [astro-ph.CO]

18. **Bayer, A. E.**, U. Seljak, and J. Robnik. "Self-calibrating the look-elsewhere effect: fast evaluation of the statistical significance using peak heights". In: MNRAS 508.1 (Nov. 2021), pp. 1346–1357. DOI: 10.1093/mnras/stab2331. arXiv: 2108.06333 [astro-ph.IM]

19. **Bayer, A. E.**, F. Villaescusa-Navarro, E. Massara, J. Liu, D. N. Spergel, L. Verde, B. D. Wandelt, M. Viel, and S. Ho. "Detecting Neutrino Mass by Combining Matter Clustering, Halos, and Voids". In: ApJ 919.1, 24 (Sept. 2021), p. 24. DOI: 10.3847/1538-4357/ac0e91. arXiv: 2102.05049 [astro-ph.CO]

20. **Bayer, A. E.**, A. Banerjee, and Y. Feng. "A fast particle-mesh simulation of non-linear cosmological structure formation with massive neutrinos". In: J. Cosmology Astropart. Phys. 2021.1, 016 (Jan. 2021), p. 016. DOI: 10.1088/1475-7516/2021/01/016. arXiv: 2007.13394 [astro-ph.CO]

21. **Bayer, A. E.** and U. Seljak. "The look-elsewhere effect from a unified Bayesian and frequentist perspective". In: J. Cosmology Astropart. Phys. 2020.10, 009 (Oct. 2020), p. 009. DOI: 10.1088/1475-7516/2020/10/009. arXiv: 2007.13821 [physics.data-an]

CONTRIBUTING AUTHOR:

1. Villaescusa-Navarro, F., B. Bolliet, P. Villanueva-Domingo, **A. E. Bayer**, A. Acquah, C. Amancharla, A. Barzilay-Siegal, P. Bermejo, C. Bilodeau, P. C. Ramírez, M. Cranmer, U. L. França, C. Hahn, Y.-F. Jiang, R. Jimenez, J.-Y. Lee, A. Lerario, O. Mamun, T. Meier, A. A. Ojha, P. Protopapas, S. Roy, D. N. Spergel, P. Tarancón-Álvarez, U. Tiwari, M. Viel, D. Wadekar, C. Wang, B. Y. Wang, L. Xu, Y. Yovel, S. Yue, W.-H. Zhou, Q. Zhu, J. Zou, and Í. Zubeldia. "The Denario project: Deep knowledge AI agents for scientific discovery". In: (Oct. 2025). arXiv: 2510.26887 [cs.AI]

2. Crespi, A., M. Bonici, A. Loureiro, J. Ruiz-Zapatero, I. Sladoljev, Z. Li, **A. Bayer**, M. Millea, and U. Seljak. "Flinch: A Differentiable Framework for Field-Level Inference of Cosmological parameters from curved sky data". In: (Oct. 2025). arXiv: 2510.26691 [astro-ph.CO]

3. Xu, L., M. Sarkar, A. I. Lonappan, Í. Zubeldia, P. Villanueva-Domingo, S. Casas, C. Fidler, C. Amancharla, U. Tiwari, **A. Bayer**, C. A. Ekiou, M. Cranmer, A. Dimitrov, J. Fergusson, K. Gandhi, S. Krippendorf, A. Laverick, J. Lesgourgues, A. Lewis, T. Meier, B. Sherwin, K. Surrao, F. Villaescusa-Navarro, C. Wang, X. Xu, and B. Bolliet. "Open Source Planning Control System with Language Agents for Autonomous Scientific Discovery". In: (2025). arXiv: 2507.07257 [cs.AI]. URL: https://arxiv.org/abs/2507.07257

4. Huang, N., R. Stiskalek, J.-Y. Lee, **A. E. Bayer**, C. C. Margossian, C. K. Jespersen, L. A. Perez, L. K. Saul, and F. Villaescusa-Navarro. "CosmoBench: A Multiscale, Multiview, Multitask Cosmology Benchmark for Geometric Deep Learning". In: (2025). arXiv: 2507.03707 [cs.LG]. URL: https://arxiv.org/abs/2507.03707

5. Zeghal, J., D. Lanzieri, F. Lanusse, A. Boucaud, G. Louppe, E. Aubourg, **A. E. Bayer**, and The LSST Dark Energy Science Collaboration. "Simulation-Based Inference Benchmark for LSST Weak Lensing Cosmology". In: (2024). arXiv: 2409.17975 [astro-ph.CO]. URL: https://arxiv.org/abs/2409.17975

6. Pandey, S., C. Modi, B. D. Wandelt, D. J. Bartlett, **A. E. Bayer**, G. L. Bryan, M. Ho, G. Lavaux, T. L. Makinen, and F. Villaescusa-Navarro. "Creating halos with autoregressive multistage networks". In: *Phys. Rev. D* 112.10 (2025), p. 103503. DOI: 10.1103/vlm2-tm6k

7. Ding, Z., C.-H. Chuang, Y. Yu, L. H. Garrison, **A. E. Bayer**, Y. Feng, C. Modi, D. J. Eisenstein, M. White, A. Variu, C. Zhao, H. Zhang, J. Meneses Rizo, D. Brooks, K. Dawson, P. Doel, E. Gaztanaga, R. Kehoe, A. Krolewski, M. Landriau, N. Palanque-Delabrouille, and C. Poppett. "The DESI N-body Simulation Project -

II. Suppressing sample variance with fast simulations". In: MNRAS 514.3 (Aug. 2022), pp. 3308–3328. DOI: 10.1093/mnras/stac1501. arXiv: 2202.06074 [astro-ph.CO]

8. Kreisch, C. D., A. Pisani, F. Villaescusa-Navarro, D. N. Spergel, B. D. Wandelt, N. Hamaus, and **A. E. Bayer**. "The GIGANTES Data Set: Precision Cosmology from Voids in the Machine-learning Era". In: ApJ 935.2, 100 (Aug. 2022), p. 100. DOI: 10.3847/1538-4357/ac7d4b. arXiv: 2107.02304 [astro-ph.CO]

9. Tomás, A., H. M. Araújo, A. J. Bailey, **A. Bayer**, E. Chen, B. López Paredes, and T. J. Sumner. "Study and mitigation of spurious electron emission from cathodic wires in noble liquid time projection chambers". In: *Astroparticle Physics* 103 (Dec. 2018), pp. 49–61. DOI: 10.1016/j.astropartphys.2018.07.001. arXiv: 1801.07231 [physics.ins-det]

REFERENCES

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