

Publication List Leander Thiele

December 15, 2025

G. Fabbian, F. Bianchini, A. Sabyr, J.C. Hill, C.C. Lovell, **L. Thiele**, D.N. Spergel, *A new constraint on the y -distortion with FIRAS: implications for feedback models in galaxy formation and cosmic shear measurements*, 2025, arXiv:2512.03038 [astro-ph.CO]

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

B. Barthe-Gold, N.-M. Nguyen, **L. Thiele**, *Reconstructing the local density field with combined convolutional and point cloud architecture*, 2025, arXiv:2510.08573 [astro-ph.CO], poster at ML4PS workshop NeurIPS 2025

B.Y. Wang, **L. Thiele**, *Set-based Implicit Likelihood Inference of Galaxy Cluster Mass*, 2025, arXiv:2507.20378 [cs.LG], spotlight talk at ML4Astro workshop (colocated with ICML 2025)

J.A. Cowell, J. Armijo, **L. Thiele**, G.A. Marques, C.P. Novaes, D. Grandón, S. Cheng, M. Shirasaki, D. Alonso, J. Liu, *First Constraints from Marked Angular Power Spectra with Subaru Hyper Suprime-Cam Survey First-Year Data*, 2025, arXiv:2507.12315 [astro-ph.CO]

L. Thiele, A.E. Bayer, N. Takeishi, *Simulation-Efficient Cosmological Inference with Multi-Fidelity SBI*, 2025, arXiv:2507.00514 [astro-ph.CO], poster at ML4Astro workshop (colocated with ICML 2025)

E. Calabrese, J.C. Hill, H.T. Jense, A. LaPosta, et al (incl. **L. Thiele**), *The Atacama Cosmology Telescope: DR6 Constraints on Extended Cosmological Models*, 2025, JCAP 11, 063, arXiv:2503.14454 [astro-ph.CO]

C. Jacobus, **L. Thiele**, P. Harrington, J. Liu, Z. Lukic, *Enhancing Cosmological Simulations with Efficient and Interpretable Machine Learning in the Gabor Wavelet Basis*, 2024, poster at Workshop on Machine Learning and the Physical Sciences (NeurIPS 2024)

L. Thiele, *De-baryonifying halos via optimal transport*, 2024, arXiv:2411.18399 [astro-ph.CO]

J. Armijo, G.A. Marques, C.P. Novaes, **L. Thiele**, J.A. Cowell, D. Grandón, M. Shirasaki, J. Liu, *Cosmological constraints using Minkowski functionals from the first year data of the Hyper Suprime-Cam*, 2024, arXiv:2410.00401 [astro-ph.CO]

C.P. Novaes, **L. Thiele**, J. Armijo, S. Cheng, J.A. Cowell, G.A. Marques, E.G.M. Ferreira, M. Shirasaki, K. Osato, J. Liu, *Cosmology from HSC Y1 Weak Lensing with Combined Higher-Order Statistics and Simulation-based Inference*, 2024, arXiv:2409.01301 [astro-ph.CO]

A. Kogut, E. Switzer, D. Fixsen, N. Aghanim, J. Chluba, D. Chuss, J. De-labrouille, C. Dvorkin, B. Hensley, J.C. Hill, B. Maffei, A. Pullen, A. Rotti, A. Sabyr, **L. Thiele**, E. Wollack, I. Zelko, *The Primordial Inflation Explorer (PIXIE): Mission Design and Science Goals*, 2024, arXiv:2405.20403 [astro-ph.CO]

S. Cheng, G.A. Marques, D. Grandón, **L. Thiele**, M. Shirasaki, B. Ménard, J. Liu, *Cosmological constraints from weak lensing scattering transform using HSC Y1 data*, 2024, arXiv:2404.16085 [astro-ph.CO]

- D. Grandón, G.A. Marques, **L. Thiele**, S. Cheng, M. Shirasaki, J. Liu, *Impact of baryonic feedback on HSC Y1 weak lensing non-Gaussian statistics*, 2024, PRD 110, 103539, [arXiv:2403.03807 \[astro-ph.CO\]](#)
- G.A. Marques, J. Liu, M. Shirasaki, **L. Thiele**, D. Grandón, K.M. Huffenberger, S. Cheng, J. Harnois-Déraps, K. Osato, W.R. Coulton, *Cosmology from weak lensing peaks and minima with Subaru Hyper Suprime-Cam survey first-year data*, 2023, MNRAS 528, 3, [arXiv:2308.10866 \[astro-ph.CO\]](#)
- L. Thiele**, E. Massara, A. Pisani, C. Hahn, D.N. Spergel, S. Ho, B. Wandelt, *Neutrino mass constraint from an Implicit Likelihood Analysis of BOSS voids*, 2023, ApJ 969, 89, [arXiv:2307.07555 \[astro-ph.CO\]](#)
- L. Thiele**, G.A. Marques, J. Liu, M. Shirasaki, *Cosmological constraints from HSC Y1 lensing convergence PDF*, 2023, PRD 108, 123526, [arXiv:2304.05928 \[astro-ph.CO\]](#)
- A.M. Delgado, D. Anglés-Alcázar, **L. Thiele**, M. Ntampaka, S. Pandey, K. Lehman, R.S. Somerville, S. Genel, F. Villaescusa-Navarro, *Predicting the impact of feedback on matter clustering with machine learning in CAMELS*, 2023, MNRAS 526, 4, [arXiv:2301.02231 \[astro-ph.GA\]](#)
- D. Wadekar, **L. Thiele**, J.C. Hill, S. Pandey, F. Villaescusa-Navarro, D.N. Spergel, M. Cranmer, D. Nagai, D. Anglés-Alcázar, S. Ho, L. Hernquist, *The SZ flux-mass (Y - M) relation at low halo masses: improvements with symbolic regression and strong constraints on baryonic feedback*, 2022, MNRAS 522, 2, [arXiv:2209.02075 \[astro-ph.CO\]](#)
- B.K.K. Lee, W. Coulton, **L. Thiele**, S. Ho, *An exploration of the properties of cluster profiles for the thermal and kinetic Sunyaev-Zel'dovich effects*, 2022, MNRAS 517, 420, [arXiv:2205.01710 \[astro-ph.CO\]](#)
- L. Thiele**, M. Cranmer, W. Coulton, S. Ho, D.N. Spergel, *Predicting the Thermal Sunyaev-Zel'dovich Field using Modular and Equivariant Set-Based Neural Networks*, 2022, MLST 3, 035002, [arXiv:2203.00026 \[astro-ph.CO\]](#), poster at the Fourth Workshop on Machine Learning and the Physical Sciences (NeurIPS 2021)
- L. Thiele**, D. Wadekar, J.C. Hill, N. Battaglia, J. Chluba, F. Villaescusa-Navarro, L. Hernquist, M. Vogelsberger, D. Anglés-Alcázar, F. Marinacci, *Percent-level constraints on baryonic feedback with spectral distortion measurements*, 2022, PRD 105, 083505, [arXiv:2201.01663 \[astro-ph.CO\]](#)
- D. Wadekar, **L. Thiele**, F. Villaescusa-Navarro, J.C. Hill, D.N. Spergel, M. Cranmer, N. Battaglia, D. Anglés-Alcázar, L. Hernquist, S. Ho, *Augmenting astrophysical scaling relations with machine learning: application to reducing the SZ flux-mass scatter*, 2022, PNAS 120(12), [arXiv:2201.01305 \[astro-ph.CO\]](#)
- F. Villaescusa-Navarro, S. Genel, D. Anglés-Alcázar, L.A. Perez, P. Villanueva-Domingo, D. Wadekar, H. Shao, F.G. Mohammad, S. Hassan, E. Moser, E.T. Lau, L.F.M.P. Valle, A. Nicola, **L. Thiele**, Y. Jo, O.H.E. Philcox, B.D. Openheimer, M. Tillman, C. Hahn, N. Kaushal, A. Pisani, M. Gebhardt, A.M. Delgado, J. Caliendo, C. Kreisch, K.W.K. Wong, W.R. Coulton, M. Eickenberg, G. Parimbelli, Y. Ni, U.P. Steinwandel, V. La Torre, R. Dave, N. Battaglia, D. Nagai, D.N. Spergel, L. Hernquist, B. Burkhardt, D. Narayanan, B. Wandelt, R.S. Somerville, G.L. Bryan, M. Viel, Y. Li, V. Irsic, K. Kraljic, M. Vogelsberger, *The CAMELS project: public data release*, 2022, ApJS 265, 54,

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F. Villaescusa-Navarro, S. Genel, D. Anglés-Alcázar, **L. Thiele**, R. Dave, D. Narayanan, A. Nicola, Y. Li, P. Villanueva-Domingo, B. Wandelt, D.N. Spergel, R.S. Somerville, J.M. Zorrilla Matilla, F.G. Mohammad, S. Hassan, H. Shao, D. Wadekar, M. Eickenberg, K.W.K. Wong, G. Contardo, Y. Jo, E. Moser, E.T. Lau, L.F.M.P. Valle, L.A. Perez, D. Nagai, N. Battaglia, M. Vogelsberger, *The CAMELS Multifield Dataset: Learning the Universe's Fundamental Parameters with Artificial Intelligence*, 2021, ApJS 259, 61, [arXiv:2109.10915 \[cs.LG\]](https://arxiv.org/abs/2109.10915)

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