

Publication List Leander Thiele

December 20, 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*, 2025, MNRAS 537, 4, 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*, 2025, PRD 111, 8, 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*, 2025, JCAP 004, 020, 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*, 2025, JCAP 01, 006, 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*, 2024, 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. Oppenheimer, 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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B. Maffei, M.H. Abitbol, N. Aghanim, J. Aumont, E. Battistelli, J. Chluba, X. Coulon, P. De Bernardis, M. Douspis, J. Grain, S. Gervasoni, J.C. Hill, A. Kogut, S. Masi, T. Matsumura, C. O Sullivan, L. Pagano, G. Pisano, M. Remazeilles, A. Ritacco, A. Rotti, V. Sauvage, G. Savini, S.L. Stever, A. Tartari, **L. Thiele**, N. Trappe, *BISOU: a balloon project to measure the CMB spectral distortions*, 2021, 16th Marcel Grossmann Meeting, [arXiv:2111.00246 \[astro-ph.IM\]](https://arxiv.org/abs/2111.00246)

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