

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. Delabrouille, 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. Huf-fenberger, 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](#)]
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arXiv:2201.01300 [astro-ph.CO]

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. Matsumara, 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]

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F. Dinc, M. Medvidovic, **L. Thiele**, *Effective Geometry Monte Carlo: A Fast and Reliable Simulation Framework for Molecular Communication*, 2019, IEEE Access 7, 28635

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