

Publication list

Luca Teodori

I. MOST IMPORTANT PUBLICATIONS

- Luca Teodori, “The approximate gravitational lensing multiple plane mass sheet degeneracy”, [arXiv:2602.02802](#), published in: JCAP 05 (2026) 046
Single author paper.
- Luca Teodori, Andrea Caputo, Kfir Blum, “Ultra-Light Dark Matter Simulations and Stellar Dynamics: Tension in Dwarf Galaxies for $m < 5 \times 10^{-21}$ eV”, [arXiv:2501.07631](#), Published in: Phys.Rev.D 113 (2026) 2, 023055
Major contribution, I developed, designed and performed the ultralight dark matter simulations out of which the main result of the paper is based on. Major contribution on the writing of the paper, including writing the first draft.
- Luca Teodori, Kfir Blum, Emanuele Castorina, Marko Simonović and Yotam Soreq, “Comments on the mass sheet degeneracy in cosmography analyses”, [arXiv:2201.05111](#), published in: JCAP 07 (2022) 07, 027
Major contribution, I worked out the weak lensing effects and the observable in multiple source systems; I used CAMB to compute the differential external convergence expectations. Major contribution on the writing of the paper.
- Kfir Blum, Marco Gorghetto, Edward Hardy and Luca Teodori, “Bracketing the soliton-halo relation of ultralight dark matter”, [arXiv:2504.16202](#), published in: JCAP 06 (2025) 050
Major contribution, I designed and performed the numerical simulations and made all the plots. Major contribution on the writing of the paper, including writing the first draft.
- Kfir Blum and Luca Teodori, “Gravitational lensing H_0 tension from ultralight axion galactic cores”, [arXiv:2105.10873](#), published in: Phys.Rev.D 104 (2021) 12, 123011
Major contribution, I did most of the calculations and estimates; I contributed to the Python package `lenstronomy` and did the lens mock analysis.

II. REMAINING PUBLICATIONS

- Andrea Caputo and Luca Teodori, “Influence of tides and self-gravity on Ultra-Light Dark Matter Bounds from Dwarf Galaxies”, [arXiv:2604.01278](#), published in: Phys.Rev.D 114 (2026) 6, 063013
Major contribution, I performed the numerical simulations and contributed to the development of the Schrödinger-Poisson solver code. Major contribution on the writing of the paper.
- Kfir Blum and Luca Teodori, “AxionH0graphy: hunting for ultralight dark matter with cosmographic H_0 bias”, [arXiv:2409.04134](#), published in: Phys.Rev.D 111 (2025) 4, 043509
Major contribution, I did the ultralight dark matter simulations and most of the plots. Major contribution on the writing of the paper.
- Luca Teodori and Kfir Blum, “Host group degeneracy in gravitational lensing time delay determination of H_0 ”, [arXiv:2305.19151](#), published in: JCAP 08 (2023) 065
Major contribution, I did all the MCMC inferences and found the discrete degeneracy discussed in the paper. Major contribution on the writing of the paper, including writing the first draft.
- Simon Birrer, Anowar J. Shajib et al, “lenstronomy II: A gravitational lensing software ecosystem”, [arXiv:2106.05976](#), published in: J.Open Source Softw. 6 (2021) 62, 3283, J.Open Source Softw. 6 (2021) 3283
Minor contribution, successfully submitted pull requests to `lenstronomy`.

III. SUBMITTED

- Luca Teodori, Kfir Blum, Zhaouy Bai, “Gravitational lensing time delay beyond the Shapiro/geometry split”, [arXiv:2605.18182](#), submitted to A&A.

Major contribution, I completed the main calculations of the work (credit of setting up the calculation goes to K. Blum). Major contribution on the writing of the paper, including writing the first draft.