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Testing the standard structure growth with HSC-Y3 cosmic shear data and CMB data: Implications for S8 tension

Wednesday, 4 March 2026 17:10 (20 minutes)

I will present the joint analyses of Subaru HSC Year 3 (HSC-Y3) cosmic shear 2-point correlation functions (2PCFs), the Planck CMB data, and the ACT DR6 CMB lensing data, that provide insights into history of the structure growth. In Terasawa et al. 2025d, we considered phenomenological modified gravity models in which the suppression of structure growth is triggered at lower redshifts, as dark energy begins to dominate the background expansion. We show that the modified growth factor models, especially those featuring more rapid growth suppression at lower redshifts, provide an improved fit to the combined datasets compared to the fiducial ΛCDM model. Recent full calibration of the tomographic redshift distribution of the HSC-Y3 Shape Catalog with DESI (Choppin de Janvry et al. 2025a) yields smaller shifts of the mean redshift for the third and fourth redshift bins compared to the official HSC-Y3 self-calibration with the cosmic shear 2PCFs amplitudes. I will also present our interpretation with the growth suppression found in Terasawa et al. 2025d.

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