Institute of Space Sciences

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Constraining fundamental physics with the Euclid-CMB cross-correlation

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The cross-correlation between the cosmic microwave background (CMB) anisotropies and matter tracers encodes important cosmological information. With Euclid, an unprecedented sensitivity and depth will be reached in the era of galaxy surveys. We forecast by a Fisher matrix approach the capabilities of the cross-correlation between the CMB and the main Euclid probes (galaxy clustering and weak lensing) for constraining extensions of the standard LCDM cosmological model. In particular, cross-correlating the CMB lensing with Euclid will be useful for measuring parameters with implications on inflation and fundamental physics such as the local primordial non-Gaussianity parameter fNL. Just by using two-point statistics in a 2D tomographic approach, with Euclid we will be able to measure fNL through the scale-dependent galaxy bias with an uncertainty ~5, of the same order of the current constraints by the Planck bispectrum.

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