28th Texas Symposium on Relativistic Astrophysics



Contribution ID: 275 Type: Talk

Probing violations of slow-roll inflation at the largest observable scales with future galaxy surveys

Saturday 5 December 2015 15:03 (21 minutes)

The predictions of the simplest inflationary models, such as a flat Universe and Gaussian adiabatic perturbations with a red tilt, provide a remarkable good fit to the most recent measurements of CMB temperature and polarization anisotropies. Nevertheless, deviations from a simple power-law spectrum provide a better fit to Planck temperature anisotropies data, in particular on the largest scales, i.e. at $k < 0.008 \ Mpc^{-1}$, although at a non-statistical significant level because of cosmic variance. We study the capability of future galaxy surveys as EUCLID and other experiments to distinguish possible deviations from a simple power-law for primordial perturbation on these large scales.

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Session Classification: 07 - Large scale structures