



Contribution ID: 61

Type: not specified

Mr. FONSECA, José (ICG Portsmouth): Large-scale Perturbations from the Waterfall Field in Hybrid Inflation

Friday, 17 September 2010 16:45 (15 minutes)

We estimate large-scale curvature perturbations from isocurvature fluctuations in the waterfall field during hybrid inflation, in addition to the usual inflaton field perturbations. The tachyonic instability at the end of inflation leads to an explosive growth of super-Hubble scale perturbations, but they retain the steep blue spectrum characteristic of vacuum fluctuations in a massive field during inflation. The power spectrum thus peaks around the Hubble-horizon scale at the end of inflation. We extend the usual δN formalism to include the essential role of these small fluctuations when estimating the large-scale curvature perturbation. The resulting curvature perturbation due to fluctuations in the waterfall field is second-order and the spectrum is expected to be of order 10^{-5} on cosmological scales.

ArXiv number (if any)

1005.4053

Session Classification: 6 talks (Chair: Konstantinos DIMOPOULOS)