

Abstract

In standard hybrid inflation model the waterfall field is assumed to have no effects on curvature perturbations during inflation and during the waterfall field phase transition. We study the induced curvature perturbation from the entropic perturbations during waterfall field phase transition. We show that the highly blue-tilted entropic perturbations induce large blue-tilted curvature perturbations during the waterfall field evolution which can completely dominate over the original adiabatic curvature perturbations for the super-horizon modes. This invalidates the standard single-field inflation predictions of hybrid inflation.