

Nonminimally Assisted Inflation: A General Analysis

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The effects of a scalar field, known as the “assistant field,” which nonminimally couples to gravity, on single-field inflationary models are studied. The analysis provides analytical expressions for inflationary observables such as the spectral index (n_s), the tensor-to-scalar ratio (r), and the local-type nonlinearity parameter (τ_{NL}). The presence of the assistant field leads to a lowering of n_s and r in most of the parameter space, compared to the original predictions. In some cases, n_s may increase due to the assistant field. This revives compatibility between ruled-out single-field models and the latest observations by Planck-BICEP/Keck. The results are demonstrated using three example models: loop inflation, power-law inflation, and hybrid inflation.

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