

Exact Solution in Chaotic Inflation Model with Potential Minima

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Abstract: Taking the cosmological expansion rate directly as a function of field φ , $H=H(\varphi)$, we present a new exact solution to Einstein's equations that describe the evolution of cosmological chaotic inflation model. The inflation is driven by the evolution of scalar field with inflation potential $V(\varphi)=(\lambda/8)(\varphi^2-v^2)^2$. The spectral indices of the scalar density n_s and gravitational wave fluctuations n_g are computed. The value of n_s lies well inside the limits set by the cosmic background explorer satellite.

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Key words: chaotic inflation, exact solution, spectral indices

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