

## Exact Solution in the New Inflation Scenario with Induced Gravity

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(Received: 2001-1-19; Revised: )

Abstract: Taking the Hubble parameter directly as a function of the scalar field  $\phi$  instead of as a function of time,  $H=H(\phi)$ , we present a new exact solution in the new inflation model with induced gravity. This includes solution which is inflation for  $\phi_0 \leq \phi \leq \phi_{\text{end}}$ , and develops smoothly towards radiation-like evolution for  $\phi \geq \phi_{\text{end}}$ . The inflation is driven by the evolution of the field  $\phi$  with inflation potential,  $V(\phi)=(\lambda/4)(\phi^2-v^2)^2$ . The spectral index of the scalar density,  $n_s$ , is computed and  $n_s$  lies well inside the limits set by the cosmic background explorer (COBE) satellite. The effective cosmological constant  $\Lambda_{\text{eff}}$  tends to zero when inflation ends.

PACS: 98.80.Cq, 04.50.+h

Key words: induced gravity, new inflation, exact solution, spectral indices, effective cosmological constant

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