POSTER 30: Scalar field dynamics in nonminimally coupled hybrid inflation

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work with M. Minamitsuji

Hybrid Inflation with a Non-minimally Coupled Inflaton

Hybrid inflation with a nonminimally coupled inflaton

$$\mathcal{S} = \int d^4x \sqrt{-g} \left[\frac{1}{2\kappa^2}(1 - \kappa^2 \xi \phi^2) R - \frac{1}{2}\partial^\mu \phi \partial_\mu \phi - \frac{1}{2}\partial^\mu \chi \partial_\mu \chi - V(\phi, \chi) \right]$$

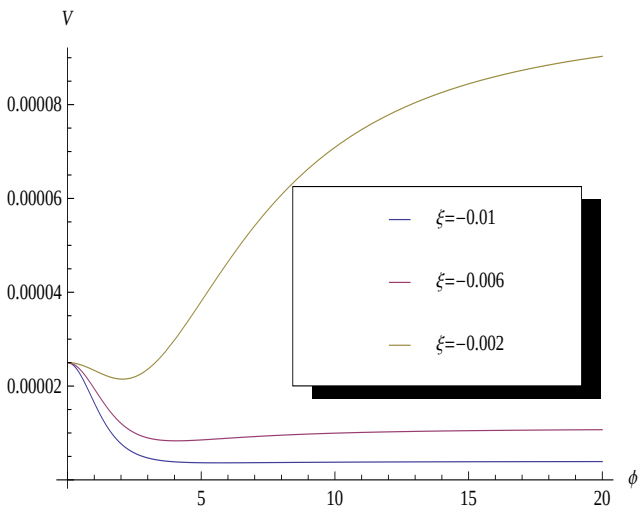
Potential of Hybrid inflation

$$V(\phi, \chi) = \frac{\lambda}{4}(\chi^2 - v^2)^2 + \frac{1}{2}m^2\chi^2 + \frac{1}{4}\mu\phi^2 + \frac{1}{2}g^2\phi^2\chi^2$$

Classification of the potential in Einstein frame

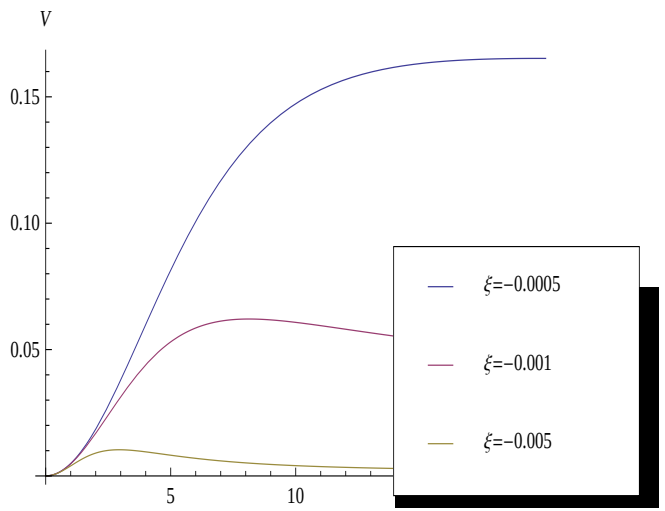
Class I

$$\frac{m^4}{\mu\lambda v^4} < 1$$



Class II

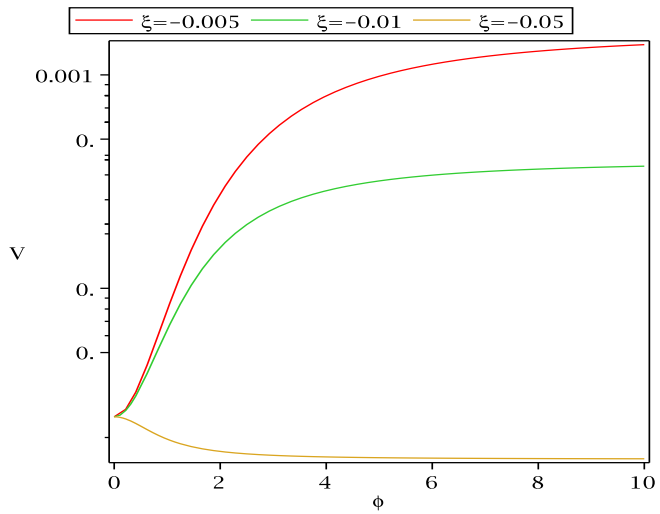
$$\frac{m^4}{\mu\lambda v^4} > 1$$



Classification of the potential in Einstein frame

Class III

$$\frac{m^4}{\mu\lambda v^4} = 1$$



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