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Inflationary Cosmology with a scalar-curvature mixing term $\xi R \phi^2$

We use the PLANCK 2018 and the WMAP data to constraint inflation models driven by a scalar field ϕ in the presence of the non-minimal scalar-curvature mixing term $\frac{1}{2}\xi R\phi^2$. We consider four distinct scalar field potentials $\phi^p e^{-\lambda\phi}$, $(1-\phi^p)e^{-\lambda\phi}$, $(1-\lambda\phi)^p$ and $\frac{\alpha\phi^2}{1+\alpha\phi^2}$ to study inflation in the non-minimal gravity theory. We calculate the potential slow-roll parameters and predict the scalar spectral index n_s, the tensor-to-scalar ratio r {\bf and the non-Gauissianity parameter f_{NL}} in the parameters (λ, p, α) space of the potentials. We have compared our results with the ones existing in the literature, and this indicates the present status of the non-minimal inflation after the release of the PLANCK 2018 data.

Email

p20190008@goa.bits-pilani.ac.in

Affiliation

BITS Pilani K K Birla Goa Campus

Author: Ms RAI, Ashmita (BITS Pilani K K Birla Goa Campus)

Presenter: Ms RAI, Ashmita (BITS Pilani K K Birla Goa Campus)

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