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Resurrecting Quartic and Quadratic inflaton potentials in two-field inflationary model

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After the release of the PLANCK data, it is evident that inflationary paradigm has stood the test of time. Even though, it is difficult to realise inflationary paradigm in a particle physics model as the present observations have ruled out the simplest quartic and quadratic inflationary potentials, which generically arise in particle physics. We would show that such simplest inflationary potentials can evade discrepancies with observations, if the inflaton field is assisted by another scalar during inflation. Moreover, unlike other multifiled models, our model yields no isocurvature perturbations and negligible non-Gaussianity, making it more compatible with the present data. Above all, our model can also be relaised in the framework of SUGRA.

Summary

After the release of the PLANCK data, it is evident that inflationary paradigm has stood the test of time. Even though, it is difficult to realise inflationary paradigm in a particle physics model as the present observations have ruled out the simplest quartic and quadratic inflationary potentials, which generically arise in particle physics. We would show that such simplest inflationary potentials can evade discrepancies with observations, if the inflaton field is assisted by another scalar during inflation. Moreover, unlike other multifiled models, our model yields no isocurvature perturbations and negligible non-Gaussianity, making it more compatible with the present data. Above all, our model can also be relaised in the framework of SUGRA.

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