

Supergravity contributions in non-minimally coupled inflationary models

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We made a systematic study of supergravity contributions relevant for inflationary models in Jordan frame supergravity. In a special class of Jordan frame, the scalar potential separates into a tree-level term and a supergravity contribution term, which is potentially dangerous for sustaining inflation. If during inflation the vacuum energy is mainly due to the F-term of an auxiliary non-inflaton field, the supergravity corrections to the scalar potential are generically suppressed or may even vanish if the superpotential vanishes along the inflationary trajectory. However, if the F-term of inflaton dominates the vacuum energy, supergravity contributions are generically comparable to global supersymmetric contributions. In addition, the non-minimal coupling significantly impacts inflationary models depending on the size and sign of this coupling. In this connection the phenomenology of some representative models are discussed.

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