Scopus

Documents

Paliathanasis, A.

Dynamical analysis and cosmological viability of varying G and Λ cosmology
(2018) *European Physical Journal C*, 78 (8), art. no. 681, . Cited 2 times.

Abstract
The cosmological viability of varying G(t) and Λ (t) cosmology is discussed by determining the cosmological eras provided by the theory. Such a study is performed with the determination of the critical points while stability analysis is performed. The application of renormalization group in the ADM formalism of general relativity provides a modified second-order theory of gravity where varying G(t) plays the role of a minimally coupled field, different from that of scalar–tensor theories, while Λ (t) = Λ (G(t)) is a potential term. We find that the theory provides two de Sitter phases and a tracking solution. In the presence of matter source, two new critical points are introduced, where the matter source contributes to the universe. One of those points describes the Λ CDM cosmology and in order for the solution at the point to be cosmologically viable, it has to be unstable. Moreover, the second point, where matter exists, describes a universe where the dark energy parameter for the equation of state has a different value from that of the cosmological constant. © 2018, The Author(s).

2-s2.0-85052289327
Document Type: Article
Publication Stage: Final
Source: Scopus
Access Type: Open Access