

Dynamical Aspects of Anisotropic Cosmological Models in $f(R, T)$ Gravity

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Abstract In this paper, we have considered a minimally coupled geometry and matter field with a rescaled function of $f(R, T)$ substituted in place of the Ricci scalar R in the geometrical action. We choose the functional $f(R, T)$ as $f(R, T) = R + 2\Lambda_0 + 2\beta T$, where Λ_0 and β respectively denotes the cosmological constant and coupling constant. Dynamical aspects of the models are discussed by using a hybrid scale factor. From some general expressions of the physical quantities, we derived the expression of the equation of state parameter and the effective cosmological constant. The effect of anisotropy and the coupling constant β are investigated. It is observed that, with an increase in the coupling constant the equation of state parameter assumes a higher value. Anisotropy is observed to affect largely to the dynamics of the model. The equation of state parameter undergoes an increased rate of growth with an increase in the anisotropy. We anticipate, the present study will definitely put some light in the context of the uncertainty prevailing in the studies of the late time cosmic phenomena.

Keywords: Cosmological Constant; Anisotropy, Hybrid Scale Factor.