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Evolution of anisotropic cosmic models in $f(R)$ gravity

(2018) *International Journal of Modern Physics D*, 27 (12), art. no. 1850115, . Cited 1 time.

Abstract

In this paper, we will discuss cosmological models using Bianchi type I for anisotropic fluid in $f(R)$ theory of gravity which involves scalar potential. For this purpose, we consider power law assumptions of coupling function and scalar field along with the proportionality condition of expansion and shear scalars. We choose two $f(R)$ models and obtain exact solutions of field equations in both cases. For these constructed models, the behavior of different physical quantities like EoS parameter, self-interacting potential as well as deceleration and skewness parameters are explored and illustrated graphically for the feasible ranges of free parameters. It is concluded that anisotropic fluid approaches isotropy in later cosmic times for both models. © 2018 World Scientific Publishing Company.

2-s2.0-85049632074

Document Type: Article

Publication Stage: Final

Source: Scopus