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Comparative studies of cosmological models in alternative theory of gravity with LVDP and BVDP

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The study of cosmological models with time dependent deceleration parameter attracts researchers after the discovery of accelerating expansion of universe confirmed by two independent teams. The variable deceleration parameter has much importance to measure the expansion rate. Therefore, the investigation of various cosmological models with time dependent deceleration parameter indicates new sector in theoretical cosmology. From literature it is also noticed that Berman (1998) has been studied the cosmological models with constant DP and proposed a law for constant deceleration parameter (CDP) as $q = m-1$, here m is arbitrary constant. After this work several researchers derived and investigated cosmological models by assuming the time-varying DP. In this communication we have presented a comparative study of Friedmann-Lemaître-Robertson-Walker (FLRW) cosmological models in alternative theory of gravity with linearly varying deceleration parameter (LVDP) and bi-linearly varying deceleration parameter (BVDP) as suggested by Mishra *et al.* The role of viscosity in cosmology have been studied by several researchers in past. Under the influence of such study we have also studied bulk viscous fluid cosmological models in alternative $f(R, T)$ theory of gravity along with comparison of results by taking LVDP and BVDP. The main conclusion of the paper is that BVDP law provides better results in comparative with Berman's constant deceleration law (CDP) and LVDP law.

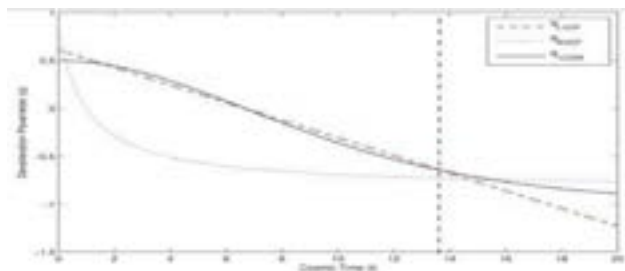


Figure shows plot of deceleration parameter (q) versus time t .
For $\alpha = 0.092, \beta = 1.613, \Lambda = 0.013, \gamma = 0.8441$.

Biography

Mishra R K has completed his PhD from DDU Gorakhpur University and joined as Lecturer at Department of Mathematics, SLIET Deemed University, Longowal, District Sangrur and Punjab in January 2000. At present, he is working as Professor, Department of Mathematics, SLIET Deemed University, Longowal, Punjab, India. One of the premier institutes established and funded by Government of India. He has published more than 50 Research papers in reputed journals and has been serving as an Editorial Board Member of repute. Apart from his teaching and active participation in Research (In area of Cosmology) he is also helping the institute in various administrative responsibilities. At present, he is also working as Head, Department of Training and Placement SLIET.

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