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A reconstruction scheme for f(T) gravity based on QCD ghost dark energy

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Accelerated expansion of our universe, as evidenced by Supernovae Ia (SNeIa), Cosmic Microwave Background (CMB) radiation anisotropies, Large Scale Structure (LSS) and X-ray experiments, is well documented in literature. A missing energy component, also known as Dark Energy (DE) with negative pressure, is widely considered by scientists as the responsible of this accelerated expansion. DE model, so-called Veneziano ghost DE (GDE), has been proposed in [1]. The key ingredient of this new model is that the Veneziano ghost, which is unphysical in the usual Minkowski spacetime quantum field theory (QFT), exhibits important physical effects in dynamical spacetime or spacetime with non-trivial topology. Veneziano ghost is supposed to exist for solving the U(1) problem in the low-energy effective theory of QCD [2]. The present paper reports a reconstruction scheme for f(T) gravity based on QCD ghost dark energy. Two models of f(T) have been generated and the pressure and density contributions due to torsion have been reconstructed. Two realistic models have been obtained and the effective equations of state have been studied. Also, the squared speed of sound has been studied to examine the stability of the models.

References:
[1] F.R. Urban, A.R. Zhitnitsky, Phys. Lett. B 688, 9 (2010).
[2] R.-G. Cai, Z.-L. Tuo, H.-B. Zhang, Q. Su, Phys. Rev. D 84, 123501 (2011).

Primary author: Dr CHATTOPADHYAY, Surajit (Pailan College of Management and Technology, Kolkata)

Presenter: Dr CHATTOPADHYAY, Surajit (Pailan College of Management and Technology, Kolkata)

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