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Observational constraint on interacting Tsallis holographic dark energy in logarithmic Brans-Dicke theory

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In this paper, we investigate the dark energy phenomenon by studying the Tsallis holographic dark energy within the framework of Brans–Dicke (BD) scalar–tensor theory of gravity (Brans and Dicke in Phys. Rev. 124:925, 1961). In this context, we choose the BD scalar field ϕ as a logarithmic function of the average scale factor a(t) and Hubble horizon as the IR cutoff (L=H^{−1}). We reconstruct two cases of non-interacting and interacting fluid (dark sectors of cosmos) scenario. The physical behavior of the models are discussed with the help of graphical representation to explore the accelerated expansion of the universe. Moreover, the stability of the models are checked through squared sound speed v_s^2 . The well-known cosmological plane i.e., ω_{de}−ω′*{de} is constructed for our models. We also include comparison of our findings of these dynamical parameters with observational constraints. It is also quite interesting to mention here that the results of deceleration, equation of state parameters and* ω{de}−ω′_{de} plane coincide with the modern observational data.

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