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Constraints on power law and exponential models in $f(Q)$ gravity

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In this paper, we observationally test the $f(Q)$ gravity model at both background and perturbation levels using Pantheon+, Hubble measurements, and Redshift Space Distortion Data. We obtain the best-fit parameters by solving numerically the modified Friedmann equations for two distinct cosmological models of $f(Q)$ gravity namely the Power law and Exponential models. This involves performing a Markov Chain Monte Carlo analysis for these specific forms of $f(Q)$. To evaluate the statistical significance of the $f(Q)$ gravity models, we use the Bayesian and corrected Akaike Information Criteria. Our results indicate that the Exponential model in $f(Q)$ gravity is statistically favored over both the Power-law model and the Λ CDM model.

Abstract Category

Astrophysics & Cosmology

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