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H_0 Tension in Torsion-based Modified Gravity

The rising concern in the Hubble constant tension (H_0 tension) of the cosmological models motivates the scientific community to search for alternative cosmological scenarios that could resolve the H_0 tension. In this regard, we aim to work on a torsion-based modified theory of gravity which is an alternative description to the coherence model. We solve numerically for the Hubble parameter using two exponential Lagrangian functions of torsion T and a trace of energy-momentum tensor $\mathcal{T}$ for the dust case. Further, we constrain the cosmological and model parameters; to do that, we use Hubble, SNe Ia, Baryon Acoustic Oscillations, Cosmic Microwave Background samples, and Markov Chain Monte Carlo (MCMC) simulation through Bayesian statistics. We obtain the values of Hubble constant H_0 for our model, and the outputs align with the recent observational measurements of H_0. In addition, we check the deviation of our results from model-independent measurements of H_0 from Planck2018, SH_0ES, and H_0LiCOW experiments. In contrast, our finding partially solved the H_0 tension but gave a new possible direction to alleviate the H_0 tension.

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