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Big Bang Nucleosynthesis constraints on $f(T, \mathcal{T})$ gravity

Big Bang Nucleosynthesis provides us with an observational insight into the very early Universe. Since this mechanism of light element synthesis comes out of the standard model of particle cosmology which follows directly from General Relativity, it is expected that any modifications to GR will result in deviations in the predicted observable parameters which are mainly, the neutron-to-proton ratio and the baryon-to-photon ratio. We use the measured neutron-to-proton ratio and compare the theoretically obtained expressions to constrain two models in the framework of $f(T, \mathcal{T})$ gravity. The theoretically constrained models are then tested against observational data from the Hubble dataset and the ΛCDM model to explain the accelerated expansion of the Universe.

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