MAGIC

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Impact of Teleparallelism on Addressing Current Tensions and Exploring the GW Cosmology

The H_0 and S_8 tensions highlight critical discrepancies in modern cosmology, challenging the standard Lambda cold dark matter model. The H_0 tension arises from conflicting measurements between local probes and early-Universe predictions. Similarly, the S_8 tension, related to the amplitude of matter clustering, exposes inconsistencies between cosmic microwave background data and weak gravitational lensing surveys. The primary goal of this work is to address these tensions by modifying the underlying geometric framework. Specifically, we test two $f(T)$ gravity models using cosmic chronometers, baryonic acoustic oscillations, gamma-ray bursts, and Pantheon+SH0ES data sets and compare the results with gravitational-wave data for validation. Both teleparallel models demonstrate promising performance in simultaneously alleviating the H_0 and S_8 tensions.

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