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A Study of warm holographic inflation in the context of teleparallel based $f(T)$ gravity

In this talk, we will explore warm inflation in the early universe using two frameworks: Barrow holographic dark energy and teleparallel-based $f(T)$ gravity. Warm inflation assumes continuous interaction between radiation and the inflaton field, allowing for a sustained thermal bath during inflation and naturally solving the graceful exit problem. In our work, warm inflation is realized in a highly dissipative regime, successfully driving inflation and aligning with observational data. We construct a warm Inflationary scenario in $f(T)$ gravity, without additional scalar fields and in a holographic fluid background. We have analysed the inflationary dynamics through the reconstruction of the Hubble parameter, slow-roll parameters, and a temperature-dependent dissipative coefficient. Both models ensure a smooth transition from inflation to radiation domination and satisfy key conditions for warm inflation. The predicted scalar spectral index and tensor-to-scalar ratio are consistent with observational data, confirming the viability of both warm inflationary scenarios.

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