

Thermal friction as a solution to the Hubble tension

Thursday, September 21, 2023 2:30 PM (30 minutes)

I will talk about the two most prominent tensions of the Λ CDM model of cosmology, the Hubble Tension and the Large-Scale Structure (LSS) Tension. Both emerge between early and late universe data sets, yet no new single new physics explanation is able to address both successfully. An epoch of Early Dark Energy is a promising hypothesis that can resolve the Hubble tension but has been shown to exacerbate the LSS tension. I will discuss my work on thermal friction acting upon the early dark energy field, where extra radiation is a built-in feature of the model. The extra-radiation holds promise to ease the LSS tension alongside the Hubble tension. Additionally, thermal friction by design eliminates fine-tuning present in the original proposal. I'll discuss and motivate the model and will show results for it in light cosmic microwave background (CMB), baryon acoustic oscillation and supernova data, including the SH0ES H_0 measurement and the Dark Energy Survey Y1 data release.

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