

Scalar field emulator via anisotropically deformed vacuum energy

Sunday 10 September 2023 11:30 (30 minutes)

In this talk, we introduce a generalization of the usual vacuum energy via preserving zero inertial mass density. In return for zero inertial mass density, vacuum energy yields a particular form of anisotropic pressure. This 'anisotropically deformed vacuum energy' couples to the shear scalar in a unique way, such that they together emulate the canonical scalar field with an arbitrary potential. This opens up a new avenue by reconsidering cosmologies based on canonical scalar fields, along with a bonus that the kinetic term of the scalar field is replaced by an observable, the shear scalar. There has been recent suggestions to address Hubble tension by reanalyzing the cosmological data by breaking down of the RW framework, e.g., allowing anisotropic expansion in the late universe and at the end of this talk, we will show that via deformed vacuum energy, it is possible to generate anisotropies at cosmological scales in the late universe, which in turn can pave the way for considering such approaches to address some of the cosmological discrepancies. In collaboration with $\tilde{\text{A}}$ Akarsu, A. A. Sen and J. A. Vazquez,

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