

D-branes, Dark Energy and Pulsar Timing Arrays

In this talk I will discuss modifications of the post-inflationary evolution due to an epoch of DBI-kinetic domination, where longitudinal fluctuations of a D-brane (matter) couple disformally to its transverse fluctuations. For suitable initial conditions, such epoch can rise the primordial gravitational wave spectrum at frequencies accessible to pulsar timing array (PTA) experiments, contributing to the recent observed signal. For a brane moving along a single angular direction, the scalar potential can trigger an early epoch of dark energy (EDE) around the recombination epoch, which may help relaxing the Hubble parameter H_0 -tension today. More speculative, if a subsequent potential contribution arises from non-perturbative effects, the same field can act as late time quintessence to explain today's acceleration.

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