Contribution ID: **115** Type: **not specified**

Probing String-Modified Gravity in Neutron Stars

Tuesday 27 June 2023 16:40 (20 minutes)

I will discuss ongoing work in studying how the combination of two modified gravity theories that are well motivated from string theory, Dynamical Chern-Simons (dCS) and Einstein-dilaton-Gauss-Bonnet (EdGB) gravity, will affect the gravitational waveforms emitted from a binary neutron star system, as well as observed neutron star relations such as the mass-radius relation and universal relations. The combination of these two modified gravity theories introduces a non-trivial coupling between the axion and the dilaton, and furthermore we consider a coupling between the dilaton and matter fields, as opposed to the neutron stars being in vacuum.

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Session Classification: Parallel