Contribution ID: **16** Type: **not specified**

PT phases and Dark Energy

Wednesday 11 September 2024 16:30 (30 minutes)

We consider a string inspired effective axion anomalously coupled to Abelian gauge fields and gravity via Chern-Simons couplings. By considering the renormalisation group flows in the flat space limit it is observed that a Hermitian parity symmetric phase of the theory can flow into a non-Hermitian parity-time symmetric phase.
This behavior has implications for Chern-Simons gravity. The repulsive nature of gravity, usually attributed to the existence of a positive cosmological constant, is reinterpreted at large scales as a flow from a Hermitian (attractive) gravitational theory, to a
cPT-symmetric (repulsive) gravity in the infrared. The discussion here is presented in the context of a Chern-Simons gravitational theory but it may be valid more generally in gravity with torsion.
The validity of such a scenario in realistic theories might alleviate the need for de Sitter phases in the current epoch of the cosmological evolution, thus avoiding their associated conceptual and technical complications.

Presenter: SARKAR, Sarben