

Quantum Gravity Effects on Dark Matter and Gravitational Waves

Wednesday 6 November 2024 15:40 (20 minutes)

We explore how quantum gravity effects, manifested through the breaking of discrete symmetry responsible for both Dark Matter and Domain Walls, can have observational effects through CMB observations and gravitational waves. To illustrate the idea we consider a simple model with two scalar fields and two Z_2 symmetries, one being responsible for Dark Matter stability, and the other spontaneously broken and responsible for Domain Walls, where both symmetries are assumed to be explicitly broken by quantum gravity effects. We show the recent gravitational wave spectrum observed by several pulsar timing array projects can help constrain such effects.

Primary track

BSM Higgs physics

Is the speaker a PhD student or post-doc?

Yes - I need some financial support (fee reduction) to attend Higgs 2024

Primary author: Dr ROSHAN, Rishav (University of Southampton)

Presenter: Dr ROSHAN, Rishav (University of Southampton)

Session Classification: Common session: HH & future colliders 2 - sal IV

Track Classification: Higgs boson pairs and Higgs potential (including electroweak phase transitions and connections to cosmology)