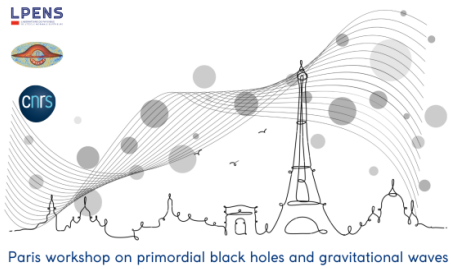

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Quantum Gravity Effects on Dark Matter and Gravitational Waves

Monday 27 November 2023 11:20 (20 minutes)

In this talk, I will discuss 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 this idea, I will propose 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. The recent gravitational wave spectrum observed by several pulsar timing array projects can help constrain such effects. In addition, I will also briefly discuss the scenario where a fermion singlet serves as the dark matter.

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