SEMPARIS – Séminaires en région parisienne

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Seminar of the theory group of APC

Mardi 2 Fevrier 2021, 14 :00
APC, https ://u-paris.zoom.us/j/87016236807?pwd=SkJNU0Q1d1lYU1BxZzlvZXpKblkzQT09
Domaines : gr-qc

Titre : *Detecting quantum entanglement in the sky*

Orateur : **Suddhasattwa Brahma (McGill University)**

Résumé : *Although inflation is broadly accepted to be the standard paradigm for early universe cosmology, many of its quantum properties remain unknown. For instance, the crowning glory of inflation lies in explaining late-time macroscopic inhomogeneities as arising from tiny quantum fluctuations ; however, most of the established literature ignores the crucial role that entanglement between the modes of the fluctuating field plays in its observable predictions. In this talk, I shall discuss how treating observable long-wavelength modes as part of an open quantum system can significantly affect the dynamics (and detectable consequences) of inflation, even when considering the nonlinearities arising solely from gravity. Since these dissipative effects are at the heart of decoherence (and how quantum fluctuations turn classical), such primordial entanglement is inescapable and provides universal upper bounds on the duration of inflation.*