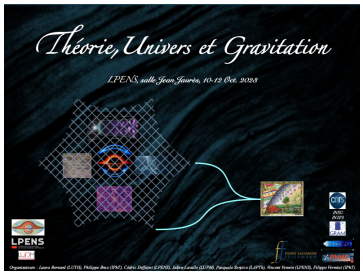

ID de Contribution: **55** Type: **Non spécifié**

Chiara Animali (LPENS): Stochastic inflation formalism and its application to primordial black holes

jeudi 12 octobre 2023 10:50 (20 minutes)

According to the inflationary paradigm, cosmological inhomogeneities originate from vacuum quantum fluctuations, which are amplified and stretched to astrophysical distances, later seeding CMB anisotropies and large scale structures.

Because of the continuous inflow of modes that cross out the Hubble radius, the inflating background gets constantly corrected by quantum fluctuations. This quantum backreaction can be described by the stochastic inflation formalism, an effective theory for the long-wavelength part of quantum fields, where amplified quantum fluctuations act as a source of stochastic noise.

This backreaction effect is particularly relevant if inflation gives rise to large enough curvature perturbations, which may eventually collapse to form primordial black holes: the stochastic-delta N formalism represents a powerful tool to assess the impact of this quantum diffusion on the properties of cosmological perturbations and on the statistics of collapsed objects.

In this framework, I will discuss how we can reconstruct important cosmological observables, such as the power spectrum and n-point functions, through the stochastic-delta N formalism, and their consequences for primordial black holes, in particular inflationary scenarios where quantum diffusion plays a major role in the inflationary dynamics.

Orateur: ANIMALI, Chiara (LPENS, Paris)