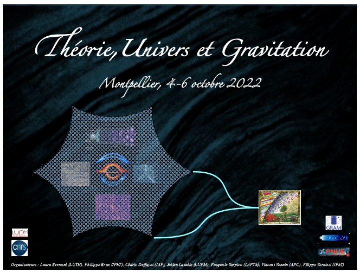

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Inflationary Correlators Beyond Weak Mixing: a Numerical Approach

mercredi 5 octobre 2022 11:15 (25 minutes)

Inflation is a widely accepted paradigm explaining the origin of the observed spatial correlation in cosmological structures. However, the physics of inflation remains elusive, and a key challenge of primordial cosmology is to decipher it through the study of cosmological correlators, which notably encode high-energy physics effects during inflation. Both on theoretical and practical grounds, as we enter in a precision physics era, it is vital to develop new computational tools to probe fine features of realistic models of inflation that are analytically intractable.

In this talk, I will present the transport approach directly implemented at the level of effective field theories of inflationary fluctuations, bypassing the intricacies of Feynman diagram computations. This framework enables one to capture all effects —including a large hierarchy of scales, breaking scale-invariance, and imprints of additional degrees of freedom —for the reason that it relies on following the time evolution of these inflationary correlators from the initial quantum vacuum state to the end of inflation boundary. I will present new results in various classes of inflationary models that are difficult to track analytically, such as the strongly mixed regime of the cosmological collider —a robust probe of the field content of inflation —that requires a non-perturbative treatment of quadratic mixings.

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