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The Cosmological Flow : a Systematic Approach to Primordial Correlators

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Correlation functions of primordial density fluctuations provide an exciting probe of the physics governing the earliest moments of our Universe. However, the standard approach to compute them is technically challenging. Theoretical predictions are therefore available only in restricted classes of theories, which can completely bias the interpretation of data.

In this talk, I will present the cosmological flow: a complete method to systematically compute tree-level primordial correlators in any theory, bypassing the intricacies of Feynman diagram computations. This framework enables one to capture all effects—including e.g. the imprints of additional particles and breaking scale-invariance—for the reason that it relies on following the time evolution of these correlators from the initial quantum vacuum state to the end of inflation. I will then demonstrate the power of this approach by exposing 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.

Would you be interested in presenting a poster? (this will not impact the decision on your talk)

yes

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