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Decoding and bootstrapping cosmological fluctuations

Thursday, March 25, 2021 2:00 PM (1 hour)

I will review our current understanding of the initial conditions of the universe, and describe what information is available from current and future measurements of cosmological correlation functions. Then I will describe a new method to compute and constrain the possible shapes of those correlation functions, assuming they were generated during inflation. This “cosmological bootstrap” draws inspiration from the modern scattering amplitudes program in flat space, as well as the conformal bootstrap of phase transitions. After discussing primordial scalar fluctuations, I will also explain how the consistent propagation of gravitational waves imposes further constraints on the structure of spinning primordial correlators.

Presenter: Prof. PIMENTEL, Guilherme L. (Leiden U.)