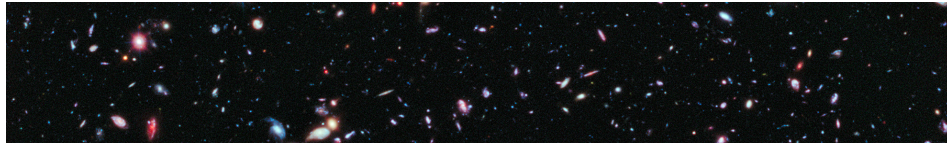


## Cosmological Correlators



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### Live Talk 1: Building a Boostless Bootstrap [Enrico Pajer]

*Monday 7 September 2020 14:00 (1 hour)*

**Abstract:** Cosmological surveys are believed to measure the future value of quantum correlators in a theory of gravity around quasi de Sitter spacetime. The goal of this talk is to develop a cosmological bootstrap, namely understand how general physical principles such as unitarity, locality and symmetries are encoded in these observables without a reference to the unobservable time evolution that generates them.

I'll show that in single-clock inflation, the only correlators of curvature perturbations that are fully de Sitter isometric are those of the free theory. This provides a strong motivation to develop a "Boostless" Bootstrap that does not assume invariance under de Sitter boosts (generally broken during inflation). I'll show how all tree-level bispectra for a massless scalar and graviton follow from a set of simple boundary Bootstrap Rules. To move beyond the bispectrum, I'll derive a Cosmological Optical Theorem (see also Goodhew's talk), which expresses the consequences of unitary time evolution for the spatial correlations dictated by the wavefunction of the universe. This provides a very useful relation between the bispectrum and the (exchange) trispectrum.