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Scalar cosmological perturbations from full quantum gravity

Saturday, June 17, 2023 4:00 PM (30 minutes)

Extracting the physics of cosmological inhomogeneities and anisotropies from full quantum gravity is a crucial step to make contact with observations. I address this problem within the group field theory (GFT) formalism for quantum gravity by studying the perturbative mean-field effective dynamics of small relational inhomogeneities of GFT condensates. I show how these perturbations give rise to local volume and matter relational inhomogeneities and compare their dynamics with that of scalar cosmological perturbations from general relativity, highlighting similarities and differences that may lead to observational consequences.

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