# Backreaction of quantum scalar fields fluctuations on de Sitter geometry

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**Abstract**

Quantum fluctuations of light scalar fields in de Sitter space experience a dramatic amplification of gravitational origin on superhorizon scales. This phenomenon is a cornerstone of the inflationary theory of CMB anisotropies. However, it also implies that loop corrections to (light) scalar field dynamics suffer from severe infrared issues. Wilsonian renormalization group techniques are well-suited to control the onset of gravitational effects as one progressively integrate out superhorizon fluctuations, resulting in various nonperturbative phenomena, such as dynamical mass generation or radiative symmetry restoration. We review recent progress in this context, including a study of the backreaction of the amplified quantum fluctuations onto the background geometry.

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