

Non-perturbative evolution of the curvature perturbation during inflation.

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The statistical properties of the curvature perturbation on superhorizon scales during inflation are of significant phenomenological interest, with implications ranging from cosmic microwave background (CMB) observations to primordial black hole (PBH) formation and induced gravitational waves. In this talk, I will present and compare different techniques for computing these properties: the standard δN formalism, the stochastic δN formalism, and a novel non-perturbative equation of motion for the superhorizon curvature perturbation. I will clarify the connections between these approaches and specify the regime of validity for each.

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