

Primordial black holes from non-Gaussian tails

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Primordial black holes (PBHs), formed from the collapse of primordial fluctuations during the radiation-dominated era, provide a unique probe of small-scale primordial perturbations. The statistical properties of these fluctuations are crucial for determining the PBH abundance and spatial distribution. We show that even in relatively simple single-field inflation models, deviations from slow-roll can lead to significant non-Gaussian effects. Using the δN formalism, we identify a class of models that generate non-Gaussian tails, for which the usual Taylor expansion of non-Gaussianity parameters fails to capture the full behavior. I will focus on the origin of such non-Gaussian tails in single-field models and discuss their implications for PBH abundance.

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