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Resonant Features in Inflation Beyond Perturbation Theory

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Inflationary perturbations are mostly Gaussian, with non-Gaussian features usually calculated using in-in perturbation theory. However, for unlikely fluctuations, non-Gaussianities can be important and the probability distribution is then better characterized in a semi-classical approximation, which takes into account classical non-linearities at the non-perturbative level.

I will apply this method to resonant inflationary models, where the inflaton potential features tiny oscillatory modulations. In the limit where these modulations are very small and for a given curvature-perturbation profile at late times, the probability distribution can be studied analytically using a saddle-point approximation. I will describe the peculiar non-perturbative features we uncover, such as the oscillations as a function of the late-times field value.

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