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## Consistency conditions and primordial black holes in single field inflation

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In single field inflationary models that are capable of generating primordial black hole (PBH) populations, the power spectrum of curvature perturbation has interesting universal features such as the presence of a pronounced dip, occurring at scales much larger than the peak responsible for PBH formation. Focusing on the analytic framework of gradient expansion formalism, I will first discuss the soft-limits of three and four point function of the curvature perturbation around the dip feature to show that they satisfy consistency conditions, connecting their amplitudes and scale dependence to the global enhancement in the power spectrum and to its slope, respectively. Utilizing these robust consistency relations, I will then discuss how the scale dependence of the non-Gaussianities leads to characteristic features in  $\mu$  distortions anisotropies, providing a distinctive window of PBH forming inflationary scenarios that can be tested using well understood CMB physics.

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