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Stochastic constant-roll inflation and primordial black holes

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Primordial black holes can be seeded by perturbations from cosmic inflation. In the literature, these perturbations are often computed in linear order so that their statistics are Gaussian. However, non-Gaussianities can be important for the rare events of black hole formation. The leading non-Gaussianities can be computed with the non-linear formalism of stochastic inflation, which predicts an exponential tail for the perturbation probability distribution. I talk about recent progress in these stochastic computations, especially during constant-roll inflation, a phase typical for black-hole-producing inflationary models. As a new result, I show how stochastic constant-roll inflation can be solved analytically starting from the curvature power spectrum, and discuss the ensuing corrections to black hole abundance.

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