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Primordial Black Holes and the Tail of the Primordial PDF

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Primordial Black Holes (PBHs) are interesting compact objects which might have formed due to the gravitational collapse of large density fluctuations in the early universe, which can be generated by quantum fluctuations during inflation. Since PBHs form from rare and non-linear over-densities, their abundance is highly sensitive to the non-Gaussian tail of the primordial probability distribution function (PDF) . Hence, it is important to determine the full PDF of primordial fluctuations, which can be carried out non-perturbatively using the 'Stochastic inflation' framework. A thorough development of stochastic inflation beyond slow roll has thus attracted a lot of interest in the recent years. In this talk, the speaker will discuss some of the new theoretical developments made in this direction.

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