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[colloquium] Large density perturbations from stochastic inflation

Thursday, April 20, 2023 3:00 PM (1h 20m)

There has been renewed interest recently in the possibility of producing primordial black holes from large density perturbations after a period of inflation in the very early universe. Such large fluctuations would be the result of very rare, extreme excursions in the fields driving inflation which may not be well described by standard perturbation theory techniques. I will discuss a nonperturbative approach using the stochastic approach to study inflationary dynamics. I will present recent analytical and numerical work to reconstruct the non-Gaussian tail of the probability distribution function of density fluctuations from inflation, and discuss its application to the abundance of primordial black holes.

Presenter: WANDS, David (ICG, University of Portsmouth)