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## Cosmic inflation with fast roll initial conditions

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The aim of this talk is to give a motivation of why one should consider inhomogeneous initial condition for inflation and an account for our relevant recent work. We consider single scalar field inflation and we use Numerical Relativity simulationso study inflation with generic fast-roll, inhomogeneous initial conditions for different inflationary models. Specifically, we investigate the effects of large scalar perturbations of the inflaton field as well as large kinetic perturbations. We find that, large kinetic pertubations reduce the number of e-folds of inflation. In particular, small field inflationary models, namely those where the slow roll region is subplanckian are not robust to kinetic perturbations. This strengthens the results of previous work that suggested that small field inflation is not robust to generic inhomogeneities. In large field inflation, despite reducing the number of e-folds overall, inflation is resilient. In the cases we study, the robustness of inflation depends strongly on whether or not the scalar inflaton field is driven by scalar dynamics into the reheating phase by the inhomogeneities.

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