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Oscillon formation during inflationary preheating with general relativity

Tuesday 6 February 2024 10:00 (45 minutes)

In this talk, I describe the use of numerical relativity simulations to study the non-perturbative evolution of inflationary fluctuations during preheating. We find that gravity can enhance the growth of density perturbations, which then collapse and virialize, forming long-lived stable oscillon-like stars. We quantify the compactness of these objects and find that whilst gravitational effects can play an important role in their formation, they are unlikely to collapse into primordial black holes without an additional enhancement of the initial inflationary fluctuations. This talk is based on 2304.01673.

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