

Audible curvaton: modulated phase transition as the origin of large-scale curvature perturbations and gravitational wave anisotropies

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I will discuss a new mechanism for generating primordial large-scale curvature perturbations and gravitational wave (GW) anisotropies via a first-order phase transition modulated by a light spectator field. The spectator acquires fluctuations during inflation, which come into play at a post-inflation phase transition by modulating the bubble nucleation rate. Such a modulation induces spatial variations in the transition time and characteristic bubble scale, producing the observed amplitude of primordial curvature perturbations together with sizable, correlated GW anisotropies. We identify a benchmark with GW anisotropies potentially observable by future space-based detectors and local primordial non-Gaussianity within reach of next-generation large-scale-structure surveys.

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