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Probing high-scale new physics with modulated reheating

Tuesday, June 1, 2021 3:00 PM (1 hour)

Scalar fields with spatially varying background could modulate the reheating process, thereby leaving their imprints in the density perturbations. In this talk we discuss two scenarios using this mechanism to probe physics at very high scales. First, we introduce a "cosmological Higgs collider"where the SM-Higgs-modulated reheating allows us to discover heavy particles and to measure their Higgs couplings in the squeezed primordial bispectrum. Second, we explain that the modulated reheating can act as a "cosmic microscope"that enlarges the small-scale preheating dynamics to CMB scales, providing us a chance to learn non-perturbative dynamics of the preheating.

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