

Non-perturbative production of axions in string inflation

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The standard reheating process after inflation can be anticipated by a phase of preheating, where the oscillations of the inflaton field at the bottom of its potential give rise to an explosive production of particles via parametric resonance, which can potentially alter the history of the universe. In this talk, I consider an inflating modulus coupled to an axion via a typical potential coming from type IIB string theory on Calabi-Yau orientifolds. First, I will show that parametric resonance in string inflation has distinctive outcomes which depart from the usual EFT results. Then, I will study specific models and show how the production of axions via parametric resonance imposes interesting constraints to model building.

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