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Preheating after hilltop inflation

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During hilltop inflation, the inflaton rolls away from the maximum of its potential and towards the minimum where the universe reheats. The first stage of reheating, preheating, is non-perturbative and, in this model, localized oscillating bubbles of the inflaton field, called oscillons, are formed. Furthermore, when other fields are present, they can be produced via a parametric resonance with the non-homogeneous inflaton field. In this talk, I will discuss lattice simulations of the evolution of oscillons, how they are affected by the resonance with another field and their effect on the expansion history of the universe.

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