Abstract Submitted
for the APR16 Meeting of
The American Physical Society

Resonance Structure of Preheating after multifield inflation with nonminimal couplings (Part 2) CHANDA PRESCOD-WEINSTEIN, MIT University of Washington, MATTHEW DECROSS, DAVID KAISER, ANIRUDH PRABHU, Massachusetts Inst of Tech-MIT, EVANGELOS SFAKIANAKIS, University of Illinois, Urbana-Champaign — Post-inflation reheating is a critical phase in the history of the cosmos, necessary to connect early-universe inflation to the successes of the standard hot big bang scenario. Reheating falls between two regimes that are well constrained by observations and match the latest observations remarkably well. After reheating, the energy density should include contributions from multiple species of matter, including the Standard Model particles or types of matter that decay into Standard Model particles prior to big-bang nucleosynthesis. Reheating therefore must be a multifield phenomenon. In this talk we continue our investigation of multifield inflation with nonminimal couplings, focusing on the "preheating phase after inflation during which the scalar-field condensate(s) that drove inflation decay resonantly into higher-momentum quanta. Here we present the structure of resonances in this family of models semi-analytically and numerically across wide regions of parameter space. We construct Floquet charts for a wide range of non-minimal couplings. We also compare the resonance structure with the well-known minimally coupled quartic model, showing how the introduction of nonniminal couplings affects the resonance bands.

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Date submitted: 08 Jan 2016 Electronic form version 1.4