Attractor effects in Preheating after multifield inflation with non-minimal couplings EVANGELOS SFAKIANAKIS, Univ of Illinois - Urbana, MATTHEW DECROSS, DAVID KAISER, ANIRUDH PRABHU, MIT, CHANDA PRESCOD-WEINSTEIN, MIT University of Washington — Multifield models of inflation with nonminimal couplings are in excellent agreement with the observational results from Planck. It is thus imperative that the preheating behavior of these models is analyzed, if one wishes to connect any viable inflationary proposal to the hot Big Bang. I will describe the strong single-field attractor behavior that exists during inflation in these models and how it generically persists after the end of inflation, thereby avoiding the "de-phasing" that can occur in multifield models. Hence there is efficient transfer of energy from the oscillating inflaton field(s) to coupled fluctuations. A doubly-covariant formalism can be used for studying such resonances and identifing several features of preheating specific to the nonminimal couplings, including effects that arise from the nontrivial field-space manifold. In particular, whereas long-wavelength fluctuations in both the adiabatic and isocurvature directions may be resonantly amplified for small or modest values of the dimensionless nonminimal couplings, one can show suppression of the growth of long-wavelength isocurvature modes in the limit of strong coupling.

Evangelos Sfakianakis
Univ of Illinois - Urbana

Electronic form version 1.4