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Particle Theory Seminar of LPT Orsay

Jeudi 21 Juin 2018, 16 :00
LPT, 114
Domaines : hep-ph

Titre : *Non-thermal particle production in the early universe*

Orateur : **Marcos Garcia (Rice University)**

Résumé : *I will discuss aspects of particle production in the early universe, when neither the produced particles nor the background in which they are created are in thermal equilibrium. I will focus first on "gentle" non-thermal particle production in the context of dark matter freeze-in scenarios. Here I will show that, depending on the energy dependence of the production cross section, the present dark matter abundance may have been created right at the end of inflation, in the earliest stages of reheating, before the decay products of the inflaton have thermalized. Time permitting, I will present a statistical framework for characterizing non- adiabatic, stochastic particle production during inflation and reheating. The evolution of coarse-grained quantities, such as particle occupation numbers, can be derived from a Fokker-Planck equation. I will discuss potential implications for density perturbations from the early universe.*