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Dark Matter from Preheating

Wednesday 28 September 2022 17:00 (15 minutes)

Dark relics may have been produced from the decay of the primordial inflaton condensate. In this talk I discuss the possibility of producing scalar dark matter during inflation and (p)reheating. I will discuss the production regimes assuming that this scalar couples to the inflaton via a direct quartic coupling and gravity: purely gravitational, weak direct coupling (perturbative), and strong direct coupling (nonperturbative), by comparing both perturbative (Botlzmann) and non-perturbative (Hartree/Lattice) methods. For each regime, I will determine the dark matter phase space distribution, the corresponding relic abundance and derive the corresponding constraints from structure formation by the Lyman-α forest measurements.

Summary

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