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Gravitational portals in the early Universe

jeudi 2 juin 2022 15:00 (20 minutes)

Inflation is now very well motivated to solve many issues of the Big Bang scenario. Specific models of inflation potential can be tested by observations, most notably by the anisotropy spectrum of the CMB. In this talk, I propose to present some new results on gravitational matter production in the late time evolution of this inflationary field, during its coherent oscillation regime, usually called “reheating”. We consider the production of matter and radiation during reheating after inflation, restricting our attention to gravitational interactions, including minimal and non-minimal coupling to gravity. In particular, we consider the gravitational production of dark matter and production of radiation from inflaton scattering. In the latter, we derive a lower bound on the maximal temperature reached by the thermal bath in the early Universe.

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