

JOINT TUFTS/MIT COSMOLOGY SEMINAR

Preheating after Higgs inflation: self-resonance and gauge boson production

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In many inflationary models, inflation is driven by a scalar field. Since the Higgs is the only scalar particle detected so far, it is a natural candidate for the inflaton particle. When the Higgs field is nonminimally coupled to gravity, Higgs inflation can accurately predict cosmic microwave background parameters. Since the couplings between the Higgs and the other particles of the standard model are known, the dominant decay mechanisms of the Higgs-inflaton can be determined.

We have studied resonant and perturbative particle production after Higgs inflation. We have coupled the Higgs-field to a U(1)-gauge field, in order to simulate the decay into standard model gauge bosons. We determine the dominant decay channels, reheating temperature and equation of state after inflation for a range of values of the nonminimal coupling.

Wednesday, October 16, 2019, 2:30 pm

Cosman Seminar Room

Center for Theoretical Physics

Building 6C, Room 6C-442

Massachusetts Institute of Technology

Refreshments at 2:00 in the same room