JOINT TUFTS/MIT COSMOLOGY SEMINAR

Attractors, Bifurcations and Curvature in Multi-Field inflation

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Recent years have seen the introduction of various multi-field inflationary scenarios, in which the curvature and geodesics of the scalar manifold play a crucial role. I will outline a simple description that unifies these different proposals and discuss their stability criteria. I will demonstrate how the underlying dynamics is governed by an effective potential, whose critical points and bifurcations determine the late-time behavior of the system, thus unifying hyperinflation, angular, orbital and side-tracked inflation. Interestingly, hyperinflation can be shown to be a special case of side-tracked inflation. This equivalence relies on the enhanced isometries of the hyperbolic manifold and I will show the explicit coordinate transformation that maps the two models into each other. In the case of angular inflation, the universal predictions of multi-field alpha attractors are modified, allowing us to constrain the curvature of the hyperbolic manifold and mass ratio of the two fields, for certain models.

Tuesday, December 10, 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