

JOINT TUFTS/MIT COSMOLOGY SEMINAR

Probing inflation with large scale structure Nishant Agarwal CMU

Measuring N-point correlation functions of curvature perturbations generated in the early Universe is a promising approach for probing different models of inflation. In order to calculate these correlation functions, one needs to choose some initial conditions for the perturbations, the usual choice being a natural extension of the free vacuum of exact de Sitter space. In the first part of my talk I will discuss a path integral based approach to incorporate the effects of more general initial states into the Green's functions for the perturbations. This allows us to generalize the calculation for N-point correlation functions to include initial state effects, the motivation for this being that understanding the initial conditions might provide some clues to what may have happened before inflation.

Statistics of the curvature perturbations leave imprints in both, the cosmic microwave background and large scale structure. In the second part of my talk I will discuss the effects of a non-zero 3-point function on the clustering of dark matter halos, and in particular the effect of general initial states on large scale structure. I will also present constraints that we obtain using data of photometric luminous red galaxies and quasars in the Sloan Digital Sky Survey Data Release Eight (SDSS DR8).

Tuesday, April 29, 2014, 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