THE QUANTUM SPACETIME SEMINAR SERIES

Department of Theoretical Physics

Symmetry Constraints in Inflation.

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Date: Nov 7, 2016
Time: 11.30 am
Venue: A-304, TIFR

Cosmological inflation gives rise to the homogeneous and isotropic universe we observe today, as well as generates quantum perturbations which lead to CMB anisotropies and the formation of large scale structure. The geometry of the universe during inflation is approximately de Sitter space. We will discuss the interesting constraints imposed on the correlation functions of inflationary perturbations by the underlying spatial reparametrization invariance of the theory in single field models of inflation. The constraints are in the form of Ward identities for scaling and special conformal transformations, which are isometries of de Sitter space. We will discuss the implications of these constraints for the scalar three point function. We will also study the constraints when the possibility for the universe to have started from a non Bunch-Davies vacuum state, in particular the de Sitter invariant alpha-vacua states, is considered.

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