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Seminar of the theory group of APC

Mardi 25 Avril 2017, 14 :00
APC, 646 A - Mondrian
Domaines : hep-th

Titre : *Behavior of three-point functions in inflationary and bouncing scenarios*

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Résumé : *Inflation has been widely regarded as the most promising scenario to explain our observations of the early universe. However, in view of the difficulties associated with arriving at a unique model of inflation, it seems worthwhile to investigate alternative scenarios of the early universe, specifically the so-called bouncing models. In this talk, I shall discuss the evaluation of three-point functions in a specific inflationary model and a particular class of bouncing models in order to illustrate the primary differences that can arise between these two scenarios at the level of the three-point functions. I shall consider the axion monodromy model of inflation, which involves a canonical scalar field that is governed by a linear potential with superimposed modulations. I shall discuss the evaluation of the scalar-scalar-tensor cross-correlation in this model and analytically establish the consistency relation (in the squeezed limit) for this three-point function. I shall then consider a specific class of bouncing models, namely the matter bounce scenario, and discuss the analytical evaluation of the tensor modes and the tensor bispectrum in this scenario. Further, I shall show that the consistency relation corresponding to the tensor bispectrum is violated in the matter bounce. The behavior of the non-Gaussianities, specifically the three-point functions, generated in the inflationary and bouncing scenarios can hence be used to compare and contrast between the predictions of these alternative models of the early universe.*