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Primordial magnetogenesis and non-Gaussianities

Friday, 2 November 2018, 14:30
Room A304

Primordial magnetic fields generated in the early universe are expected to have acted as seed fields for the large scale magnetic fields observed today. The origin of primordial magnetic fields has been investigated in inflationary scenarios and it has been possible to generate scale invariant magnetic fields of relevant strengths that are in accordance with observations. In this talk, after a brief review of inflationary magnetogenesis, I shall discuss how one can obtain scale invariant magnetic fields in bouncing scenarios. I shall also describe the characteristics of the cross-correlations between primordial magnetic fields and perturbations in a scalar field in bouncing universes, and how the signatures of these cross-correlations differ from those obtained in de Sitter inflation. Further, I shall discuss the evaluation of the cross-correlations between primordial helical magnetic fields and perturbations in a scalar field in de Sitter inflation.