



Contribution ID: 109

Type: **not specified**

Oscillations in the CMB bispectrum

Tuesday, 8 September 2015 16:30 (20 minutes)

Oscillating signatures in the correlation functions of the primordial density perturbations are predicted by a variety of inflationary models. A theoretical mechanism that has attracted much attention is a periodic shift symmetry as implemented in axion monodromy inflation. This symmetry leads to resonance non-gaussianities, whose key feature are logarithmically stretched oscillations. Oscillations are also a generic consequence of excited states during inflation and of sharp features in the potential. Oscillating shapes are therefore a very interesting experimental target.

After giving an overview of these motivations, I will discuss how to search for these signatures in the CMB. Fast oscillations are difficult to search for with traditional estimation techniques, and I will demonstrate how targeted expansions, that exploit the symmetry properties of the shapes, allow to circumvent these difficulties. As a member of the Planck collaboration, I will discuss the Planck results that have been obtained using these methods in the bispectrum, as well as a joint search using bispectrum and power spectrum. Due to their low overlap with other non-gaussian shapes, oscillating bispectrum shapes are not exhaustively constrained and a potential discovery is therefore not yet ruled out.

My talk will be based in particular on [arxiv:1412.3461](https://arxiv.org/abs/1412.3461), [arxiv:1505.05882](https://arxiv.org/abs/1505.05882) and Planck publications on inflation and non-gaussianities.

Presenter: MUNCHMEYER, Moritz (Universite Pierre et Marie Curie, Institute Astrophysique de Paris, France)

Session Classification: CMB, LSS and cosmological parameters