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Scaling symmetry as the origin of small non-Gaussianities in multi-field inflation

In this talk I will discuss the generation of primordial non-Gaussianities in general multi-field inflation models where the primordial curvature perturbation is able to vigorously interact with an ultra-light isocurvature field. We identify an entire class of multi-field systems with a scaling symmetry that simultaneously acts on the fields and the spacetime coordinates. This transformation leaves the field equations of motion invariant, and allows us to deduce symmetries of the inflationary perturbations. In particular, a small mass of isocurvature perturbations is connected to small self interactions. With this knowledge we infer the squeezed limit of the bispectrum and find its amplitude to be slow-roll suppressed in the limit of small mass (but not equal to the single field consistency relation). Our findings yield a more general understanding on how primordial non-Gaussianity in multi-field inflation, as produced by an isocurvature field, can be enhanced/suppressed.

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