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Attractor solutions and features in the power spectrum from turns in multi-field inflation

Friday, 26 August 2022 14:00 (20 minutes)

We explore observational signatures from multi-field inflationary models with more than two fields. We first revisit the two-field case where the attractor solution with either small or large turn rate can be found analytically and investigate under what conditions the same procedure can be generalised for more fields. For three fields in the slow-roll, slow-twist and extreme turning regime we provide elegant expressions for the attractor solution for generic field-space geometries and potentials and study the behaviour of first order perturbations. In addition, we find that multiple (sharp) turns can significantly enhance the power spectrum and can therefore lead to efficient primordial black holes production. Finally, we apply our discussion to concrete supergravity models.

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