

Particle Cosmology after Planck



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**Particle Cosmology
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Infrared physics of inflationary correlation functions

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A naive perturbation theory predicts that loop corrections generated during inflation suffer from various infrared (IR) divergences. We discuss the origin of the IR divergences and explore the regularity conditions, which will restrict the possible initial states of inflationary universe. This talk is based on our recent works, summarized in the review article, *Class.Quant.Grav.* 30 (2013) 233001 [arXiv:1306.4461].

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