

Large Field Inflation, Ignobly

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We explore in detail inflationary models where the inflaton is an axion whose potential is generated by the mixing with topological 4-forms. The mixing-generated inflaton mass term is radiatively protected by a shift symmetry, that is only broken weakly by nonperturbative effects and/or background flux values. Such mechanisms are very similar to monodromy inflation, and may naturally emerge from dimensional reductions of supergravity theories with form fields and Chern-Simons couplings. So it is very interesting to seek a precise embedding of such dynamics in string theory. We perform a detailed analysis of various possible sources of quantum corrections to the leading order inflationary potential, and find the conditions that the model constructions must obey to yield phenomenologically viable scenarios. They may be possible to realize in some corners of the string landscape. Finally we outline possible signatures, which can be accessible to future cosmological observations.

Presenter: Prof. KALOPEr, Nemanja (University of California, Davis, USA)

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