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# Axion monodromy

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Simple inflation models using a pseudo Nambu-Goldstone boson (PNGB) as the inflaton require an axion decay constant at or above the Planck scale. Models which generate potentially observable gravitational waves also require scalar fields with super-Planckian ranges. These models are hard to justify in UV-complete theories. One way around the problem is the phenomenon of "axion monodromy". I present two models which realize this phenomenon, one motivated by string theory and the other arising in a 4d large-N quantum field theory that has an M-theory dual. In the former case, we study the effective field theory of this model, show that with some caveats it is a suitable model for high-scale inflation, and discuss interesting instabilities of the model. In the latter case we study the detailed potential and potential instabilities of the model, show that it leads to a potentially viable model of PNGB-driven inflation, and argue that the model becomes unstable in the regime that would support slow-roll eternal inflation.

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