

Composite Dilaton Inflation

This work investigates the possibility that our inflation originates from a composite theory. Taking an $SU(N_c)$ gauge theory with N_f fermions in the fundamental representation, we consider an effective chiral Lagrangian involving a dilaton and pions. The walking dynamics of the theory constrain the potential specifics. We identify the dilaton as the inflaton, which resembles a hybrid inflation with the pions acting as a waterfall field in the potential. Analyzing the inflationary dynamics, we find a parameter region supporting small-field inflation compatible with Planck 2018 inflationary observables. We further discuss possible phenomenological consequences of this theory.

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