

Generalized Higgs inflation

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Abstract content

We study Higgs inflation in the context of generalized G-inflation, i.e., the most general single-field inflation model with second-order field equations. The four variants of Higgs inflation proposed so far in the literature can be accommodated at one time in our framework. We also propose yet another class of Higgs inflation, the running Einstein inflation model, that can naturally arise from the generalized G-inflation framework. As a result, five Higgs inflation models in all should be discussed on an equal footing. Concise formulas for primordial fluctuations in these generalized Higgs inflation models are provided, which will be helpful to determine which model is favored from the future experiments and observations such as the Large Hadron Collider and the Planck satellite.

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