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Non-local self-healing of Higgs inflation

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Higgs inflation is known to be a minimal extension of the Standard Model allowing for the description of the early Universe inflation. This model is considered as an effective field theory since it has a relatively low cutoff scale, thus requiring further extensions to be a valid description of the reheating phase. We present a novel unified approach to the problem of unitarization and UV completion of the Higgs inflation model without introducing new massive degrees of freedom. This approach is based on an analytic infinite derivative modification of the Higgs field kinetic term. We construct a unitary non-local UV completion of the original Higgs inflation model while the inflationary stage is kept stable with respect to quantum corrections.

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Track Classification: Alternative Theories: Ghost-free models of modified gravity: massive gravity, Horndeski and DHOST theories, other related models; their properties and solutions.