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## On the relation between $f(R)$ and non minimally coupled scalar field theories.

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It is well known that the scalar degrees of freedom of a generic  $f(R)$  theory could be recast in a field theory dual using a Weyl scaling of the metric. In this work, we explore how the RG-improved Higgs Inflation model could be seen as a corrected Starobinsky model, showing that the relation between this two models correspond not only to a tree level matching, but at least to a 1-loop level. We consider the running of  $\lambda$ , the Higgs coupling, and  $\xi$ , the non minimal coupling, and also we pay special attention to the corrections to the kinetic term, that at the end are shown to be exponentially damped at the inflationary regime.

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