

Adding the inverse gravitational constant to the Higgs mechanism

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Abstract

In the context of the Higgs mechanism, a direct approach to the effective potential of the Higgs field is introduced by a simple generalisation of the previous approach of the McArthur-Higgs mechanism. We also consider the expansion and contraction of the effective potential, and determine the Higgs-charge effective action at the energy scale of the Higgs field. We find that the inverse gravitational constant (IGC) of the Higgs field is determined by the expansion and contraction of the Higgs field in the presence of the inverse gravitational constant.