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Vacuum structure including higher order corrections in ALRM

Discovery of Higgs particle around 125 GeV at the LHC leads to the result that the standard model does not have a stable vacuum to Plank scale. As, for a light higgs boson, SM can be perturbative all the way to Plank scale. So, new physics or new models to be sought. In this work, we focus on a different version of left right model, called Alternative Left Right Model (ALRM), where we study the vacuum structure of this model in 1- loop level. We derive the renormalization group equations and study the behavior of the scalar quartic couplings that satisfies vacuum stability, perturbativity, unitarity up to plank scale. We also cross checked the tree level constraints on parameters in loop level.

Field of contribution

Phenomenology

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