

Scalars 2015

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An elementary Goldstone Higgs

Content :

We show, via a careful analytical and numerical analysis, that a pseudo Goldstone nature of the Higgs is naturally embodied by an elementary realization that also serves as ultraviolet completion. Renormalizability married to perturbation theory allows to precisely determine the quantum corrections of the theory while permitting to explore the underlying parameter space. By characterising the available parameter space of the extended Higgs sector we discover that the preferred electroweak alignment angle is centred around $\theta \approx 0.02$, corresponding to the Higgs chiral symmetry breaking scale $f \approx 14$ TeV. The latter is almost 60 times higher than the Standard Model electroweak scale. However, due to the perturbative nature of the theory, the spectrum of the enlarged Higgs sector remains in the few TeV energy range. We also analyse precision constraints and the relevant phenomenological aspects of the theory.

Summary :

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