

Form Factor Effects in Higgs Couplings

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The unaddressed origin of Electroweak Symmetry Breaking (EWSB) in the Standard Model (SM) motivates a closer inspection of the Higgs EW couplings. In models such as the composite Higgs, the Higgs couplings are generated by the interactions with a new heavier sector that triggers EWSB. These couplings of the Higgs have an associated momentum dependence that can be parameterized by form factors. The momentum dependence is assumed to decouple as the heavy states are integrated out. However, these effects can be important when there is significant off-shellness at collider experiments. In this presentation, we show several form factors induced by different beyond the SM physics, like mixings with vector-like fermions, gauge bosons, scalars and states of a new conformal sector. We present the most promising channels at the LHC to probe such momentum effects. Finally, we discuss the signal modifications induced in our models.

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