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Higgs properties in a stealth doublet model

I present a model with two scalar doublets and a softly broken Z_2 symmetry, where only one of the doublets gets a vacuum expectation value and couples to fermions at tree-level. The softly broken Z_2 symmetry leads to interesting phenomenology such as mixing between the two doublets and a charged scalar which can be light and dominantly decays in W gamma. The model can also naturally reproduce the enhanced gamma gamma signal of the newly observed particle at the LHC with mass 125 GeV.

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