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A 125 GeV Higgs Boson in the MSSM from Strongly Coupled Spectators

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Abstract:

We propose a new mechanism for producing a Higgs boson mass near 125 GeV within MSSM. By coupling the MSSM Higgs boson to a set of strongly coupled fields, large corrections to the Higgs quartic coupling are induced. Although the Higgs doublets do not participate in the strong dynamics, they feel the effects of the strongly coupled sector via (semi-)perturbative interactions. These same strong dynamics are also capable of generating the μ -term.

Additionally, this strong sector is in the conformal window which drives the couplings to an IR fixed point and naturally generates model parameters of the appropriate size.

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