

## Modification of Higgs Pair Production at the LHC

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The Higgs pair production in gluon fusion is a sensitive probe of Beyond-Standard Model (BSM) phenomena and its detection is a major goal for the LHC and higher energy hadron collider experiments. We reanalyze the possible modifications of the Higgs pair production cross section within low energy supersymmetry models allowed by the current LHC search bounds, where we analyze the combined effects of a modification of the Higgs trilinear and top-quark Yukawa couplings on the di-Higgs production rate in presence of stops. We also explore the implications of such modification of the cross-section in the context of discovering the deviation in the triple Higgs coupling from the SM value, which is correlated with First order phase transitions of the scalar potential in many models, e.g. NMSSM.

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