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Real Singlet Benchmarks for Double Higgs Production in the Multi-TeV Regime

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The simplest extension that can be added to the SM is the addition of a real singlet scalar S , which can result in a double Higgs boson production if this new singlet is sufficiently heavy. New benchmark points are found by maximizing the production rate, which will allow to compare to the experimental results while this are being searched. The maximum values are shown for different values of the mixing angle and the resulting new mass eigenstate.

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