

Probing the scalar potential via double Higgs boson production at hadron colliders

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Independent Measurements of Higgs self-couplings are crucial to probe new physics effects in the Higgs sector. Gluon fusion is the dominant mode for double Higgs production at hadron colliders. At leading order it is sensitive to the trilinear Higgs self-coupling. At higher orders in electroweak theory, it also becomes sensitive to the quartic coupling. We present a sensitivity study on the cubic and quartic self couplings in double Higgs production. Considering the relevant operators in the Standard Model Effective Field Theory up to dimension eight, we calculate the dominant contributions up to two-loop level.

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