

EFT for new physics in multi-Higgs final states in hadron colliders

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I will show how to parametrize the Standard Model and generic new-physics contributions by an effective Lagrangian that includes higher-dimensional operators and discuss the constraints from the unitarity of scattering amplitudes for 2 to 2 and 2 to 3 processes. The selected subset of operators is motivated by composite-Higgs and Higgs-inflation models. The new physics effect can be potentially discovered in multi-Higgs final states in both 14 and future 100 TeV colliders.

We study the gluon fusion and vector boson fusion processes at the hadron colliders. The sizable contributions from new effective operators can largely increase the cross section and/or modify the kinematics of the Higgs bosons in the final state. Taking into account the projected constraints from single and double Higgs-boson production, we propose benchmark points in the new physics models for the measurement of the triple-Higgs boson final state for future collider projects.

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