

Probing the Higgs trilinear self-coupling through Higgs+jet production

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We present the calculation of the next-to-leading order corrections for Higgs+jet production at the Large Hadron Collider, that arise from the Higgs trilinear self-coupling (λ_{HHH}).

We use the method of large top-quark mass expansion to tackle the challenging two-loop virtual amplitude, and apply the Pad\{e} approximation to extend the region of convergence of this expansion.

We find that the λ_{HHH} -related corrections amount to 0.66% for the total cross section. For the invariant mass distribution and Higgs boson transverse momentum distribution, the corrections are mostly in the range 0.5% \sim 0.7%. Our results can be used to set extra constraints on λ_{HHH} from the experimental data.

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