

# NLO QCD effects on angular observables in single Higgs production at electron-proton collider

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Properties of the Higgs boson (H) at current and future particle colliders are crucial to explore new physics beyond the standard model. In particular, experimental and theoretical outlooks at future colliders drive interest in Higgs to gauge boson couplings. Single Higgs production via vector-boson fusion allows probing Higgs couplings with massive vector bosons ( $V = W, Z$ ). We consider electron-proton (eP) collider to study these couplings due to the low background. In a recent study, we considered the most general anomalous Higgs-vector boson (HVV) couplings and explored the potential of eP collider in constraining the parameters of HVV couplings. Our results were based on leading order predictions in perturbation theory. We include further Next to Leading Order (NLO) corrections of Quantum Chromodynamic (QCD) in Standard Model signal to make precise predictions. In this talk, I will present the effect of NLO QCD corrections on the standard model and anomalous HVV couplings.

## Alternate track

1. Higgs Physics

## I read the instructions above

Yes

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