

SMEFT NLO correction to Higgs decay in an events generator

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In recent years, particle physicists have actively constrained potential new physics contributions by leveraging the Large Hadron Collider (LHC) data and the SMEFT framework. Measurement of the properties of Higgs boson is central to this program. However, the robust analysis hinges on the inclusion of higher order (NLO) Electroweak (EW) and QCD corrections arising from dimension-6 SMEFT operators for a more accurate picture. While significant progress has been made in calculating NLO QCD corrections within SMEFT, and some EW corrections exist, there is a crucial gap: a lack of event generators incorporating these corrections for optimal data analysis. This talk addresses this gap by proposing the implementation of these corrections into an event generator like SHERPA. This is an important step for a more realistic framework for analysing LHC data.

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