

Pair production of Higgs Bosons at NLO

Saturday 4 May 2024 09:20 (20 minutes)

Higgs-boson pairs are dominantly produced via gluon fusion at hadron colliders, i.e. via a loop-induced process. This process will constitute the first direct access to the trilinear Higgs self-interaction. In recent years the NLO QCD corrections involving the full top-mass dependence became available by means of numerical integrations, since analytical methods available so far are not capable to solve the two-loop integrals with up to five energy scales. I'll discuss the method we have adopted to achieve the results with a summary of the outcome, i.e. with the particular emphasis on the scheme and scale dependence of the virtual top mass that induces the dominant theoretical uncertainties at present. This method has recently been extended to the cases of neutral Higgs-boson pair production within the 2HDM. Finally, I'll provide an outlook on the extension of the method to the full electroweak corrections to the same process within the SM.

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Session Classification: Talks