

Efficient NLO computation for $gg \rightarrow HH/ZH$ with top quark mass dependence

Friday, 30 October 2020 05:00 (1 hour)

Recently, we present a precise and efficient computation of the two-loop amplitudes entering $gg \rightarrow HH/ZH$ and present for the first time a calculation of the complete NLO corrections to the $gg \rightarrow ZH$ process. We use the method of small mass expansion to tackle the most challenging two-loop virtual amplitude, in which the top quark mass dependence is retained throughout the calculations. Our results are necessary ingredients towards reducing the theoretical uncertainties of the $pp \rightarrow ZH$ cross sections down to the percent-level, and provide important theoretical inputs for future precision experimental collider programs. In this talk, I will start with a brief introduction to the HH/ZH production and method of the small mass expansion and then show our new results for the ZH production at the LHC.

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Session Classification: 解析计算