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## Two-loop EW Corrections to Higgs Boson Pair Production: Yukawa and Self-coupling corrections

*Wednesday, 29 November 2023 16:00 (12 minutes)*

QCD corrections to Higgs Boson pair production are known at N<sup>3</sup>LO in the Heavy Top Limit and NLO including the top quark mass. However, the complete NLO electroweak corrections are currently missing. Given the current focus of the LHC experiments and knowing that the electroweak corrections to single Higgs production amount to around 5% and vary strongly depending on the mass of the Higgs boson, it is now interesting to examine the size of their impact on Higgs pair production. In this talk, we present exact numerical results for the Yukawa enhanced and Higgs self-coupling pieces of the electroweak corrections. This challenging 2 $\rightarrow$ 2 calculation is carried out retaining the exact symbolic dependence on all masses and scales during reduction, the resulting master integrals are then evaluated at high precision using both the series expansion of the differential equations and sector decomposition.

### You are

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