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Higgs production at NLO in the Standard Model Effective Theory

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The Effective Field Theory approach is a fruitful way of putting model independent constraints on heavy new physics. As the Higgs sector is one of the most popular candidates for deviations from the Standard Model prediction, it is particularly important that the constraints extracted from the experimental data on the Higgs boson be as meaningful as possible, which entails making accurate and precise theoretical predictions.

In this presentation, I discuss a two-loop calculation performed to improve the existing Leading Order result for the Higgs gluon-fusion cross section in the Standard Model Effective Field Theory. I will review the modern multi-loop calculation techniques employed to obtain this amplitude and I will present the first result for a two-loop form factor with an insertion of a chromomagnetic operator in the Standard Model EFT.

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