

On γ_5 schemes and the interplay of SMEFT operators (in the Higgs-gluon coupling and beyond)

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We present a calculation of the four-top quark operator contributions to Higgs production via gluon fusion in the Standard Model Effective Field Theory. The four-top operators enter for the first time via two-loop diagrams. Due to their chiral structure they contain γ_5 , so special care needs to be taken when using dimensional regularisation for the loop integrals. We use two different schemes for the continuation of γ_5 to D space-time dimensions in our calculations and present a mapping for the parameters in the two schemes. This generically leads to an interplay of different operators, such as four-top operators, chromomagnetic operators or Yukawa-type operators at the loop level. We validate our results by examples of matching onto UV models.

We also present recent developments towards a comprehensive map between NDR and BMHV at $\mathcal{O}(g_s^2)$ for all the operators in the Warsaw basis.

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