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Full NNLO QCD corrections to diphoton production

Tuesday 22 August 2023 08:50 (12 minutes)

We compute the NNLO massive corrections for diphoton production in quantum chromodynamics (QCD). This process is very important as a test of perturbative QCD and as a background process for the decay of a Higgs into two photons. We compute semi-analitically the master integrals via power series expansion, classifying Feynman diagrams in different topologies and finding the canonical basis for non elliptic integrals. We present a study of the maximal cut for the non-planar topology showing the elliptic curve defining the integral. We then present the matrix element computed for the first time, in terms of form factors. Finally, we study the impact of our novel massive corrections on the phenomenology of the process, for different observables.

Collaboration / Activity

No Collaboration

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