

Photon pair production in gluon fusion: Top quark threshold effects

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We present a calculation of the NLO QCD corrections to the loop-induced production of a photon pair through gluon fusion, including massive top quarks at two loops, where the two-loop integrals are calculated numerically. Matching the results for the virtual amplitude to a threshold expansion, we obtain accurate results around the top quark pair production threshold. We analyse how the top quark threshold corrections affect distributions of the photon pair invariant mass and comment on the possibility to determine the top quark mass from precision measurements of the diphoton invariant mass spectrum.

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