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Measurement of the relative fraction of the gluon-gluon fusion in top-antitop production process at 1.96 TeV proton-antiproton collisions using CDF

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We present the measurement of the relative fraction of the subprocess where the initial states are gluon-gluon pairs or quark-antiquark pairs in top-antitop production at 1.96 TeV proton-antiproton collisions. We identify and reconstruct the signal using events which include two high-momentum leptons, and we distinguish the two subprocesses by utilizing the correlated spin states of top and antitop quarks. The analysis is based on 2.0 fb^{-1} of data collected with the Collider Detector at Fermilab (CDF) at the Fermilab Tevatron between March 2002 and May 2007. We find the fraction of the gluon-gluon fusion subprocess to be $F_{gg}=0.53^{+0.36}_{-0.38}$. That is in agreement with the next-to-leading order calculations of $F_{gg}=0.15 \pm 0.05$.

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