

Measurement of the Cross Section for Prompt Isolated Diphoton Production in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV.

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We report a measurement of the cross section of prompt isolated photon pair production in $p\bar{p}$ collisions at a total CM energy of 1.96 TeV using data of 5.4/fb integrated luminosity collected with the CDF II detector at the Fermilab Tevatron.

The measured differential cross section is compared with three perturbative QCD predictions, a Leading Order (LO) parton shower Monte Carlo and two Next-to-Leading Order (NLO) calculations. The NLO calculations reproduce most aspects of the data. By including photon radiation from quarks before and after hard scattering, the parton shower Monte Carlo becomes competitive with the NLO predictions.

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