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Measurement of the $t\bar{t}$ cross section and spin correlation in the dilepton channel with the D0 detector JENS-PETER KONRATH, Freiburg University, D0 COLLABORATION — One remarkable property of top quarks is their short lifetime. Therefore the spin correlation between the top and anti-top produced in $p\bar{p}$ collisions is not degraded by hadronization. We determine the production cross section and spin correlation of $t\bar{t}$ quark pairs decaying in the dilepton mode. In this decay channel, both leptons can be used to analyze the spin correlation. Moreover, physics and instrumental background can be suppressed to a great extent. This analysis is based on data taken with the D0 Detector at the Fermilab Tevatron $p\bar{p}$ -collider at a center-of-mass energy of 1.96 TeV. The data corresponding to an integrated luminosity of about 1.1 fb^{-1} were recorded in the years 2002 to 2006.

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