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Measurements of the top quark pair production cross section at 7 TeV

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We present several measurements of the top-pair production cross section in proton-proton collisions at the LHC at a centre-of-mass energy of 7 TeV. We use data collected with the CMS experiment during the year 2011. Measurements are presented in the lepton+jets final state, where events are selected by requiring exactly one isolated and highly energetic muon or electron, and at least four jets. In addition the di-lepton final state, consisting of two electrons or muons, at least two jets, and significant missing energy in the transverse plane, is used. We use b-jet identification in order to increase the purity of the selection. We present data-driven techniques to estimate the most important backgrounds, and discuss the systematic uncertainties on the measurements. The results, superseding previous measurements based on 2010 data, are combined and compared with the theory predictions.

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