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CMS: Measurements of total and differential top-production cross sections

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We present precise measurements of the top quark pair production cross section at 7 TeV, performed using CMS data collected in 2010-2011. The total cross section is measured in the lepton+jets, dilepton and fully hadronic channels, including the tau-dilepton and tau+jets modes. The results are combined and confronted with precise theory calculations. We also obtain an indirect constraint on the top quark mass through its relation to the cross section. Various differential cross sections are measured as well and compared with theoretical models. Measurements of the top pair invariant mass distribution are used to search for new particles decaying to top pairs. Further results include measurements of the top pair charge asymmetry and single top production.

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