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Top quark physics results using CMS data at 7 TeV

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We give an overview of the most recent results on top quark properties and interactions, obtained using data collected with the CMS experiment during the years 2010-2011 at 7 TeV center-of-mass energy. Measurements are presented for both the inclusive top pair production cross section, using the dilepton, lepton+jets, hadronic and tau channels, as well as for various differential cross sections. The results are compared with standard model predictions and allow to search for possible presence of new physics. In particular, measurements of the top pair invariant mass distribution are used to search for new particles decaying to top pairs. We extract the mass of the top quark using various methods, including indirect constraints from the measured cross section. We measure total and differential cross sections for the electroweak production of single top quarks in both t - and tW -channels, also useful for constraining the CKM matrix element V_{tb} . Further results include measurements of the W helicity in top decays and the top pair charge asymmetry.

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