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Measurement of the properties of top quarks in decays (top quark and W polarization, top quark charge and couplings) with the CMS detector

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Several measurements of top quark properties are presented using data collected by the CMS experiment during the years 2011 and 2012. The top quark polarization as well as the polarization of W bosons in top quark decays are measured.

The W-boson helicity fractions and angular asymmetries are extracted and limits on anomalous contributions to the Wtb vertex are determined. Furthermore, a search for flavor changing neutral currents in top quark decays is presented using a sample of top quark pair event candidates decaying via Wb and Zq into $l\nu b$ and llq events. The flavor contents in top quark pair events are measured using the fraction of top quarks decaying into a W-boson and a b-quark relative to all top quark decays, $R = BR(t \rightarrow Wb) / \text{Sum}(BR(t \rightarrow Wq))$. The top quark charge is measured, using the charge correlations between high- p_T muons from W boson decays and soft muons from B-hadron decays in b jets. First measurements of the associate production of top quark pairs with vector bosons are also presented.

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