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Single top quark production with CMS

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Measurements of single top quark production are presented, performed using CMS data collected in 2011, 2012 and 2015 at centre-of-mass energies of 7, 8 and 13 TeV respectively. The cross sections for the electroweak production of single top quarks in the t-channel and in association with W-bosons is measured and the results are used to place constraints on the CKM matrix element V_{tb} . In the t-channel the ratio of top and anti-top production cross sections is determined and compared with predictions from different parton density distribution functions. In the same channel, the inclusive cross-section in the fiducial volume is also measured. Measurements of top quark properties in single top quark production are also presented, such as the top-quark polarisation, the probe of tWb vertex through the W-helicity measurement in top quark decay and the searched for anomalous couplings to gluons, photons or Z bosons. A search for the s-channel is also performed.

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