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Single top cross section measurements in the t-channel at CMS

We present the t-channel production cross section measurements in proton-proton collisions at the LHC at centre-of-mass energies of 7 and 8 TeV, using data collected with the CMS experiment during the years 2011 and 2012. Three analyses are performed to extract the inclusive t-channel production cross section at 7 TeV: a robust analysis making use of data driven techniques to extract the main backgrounds contributions and exploiting the characteristic pseudorapidity distribution of the recoil jet in signal events, and two multivariate analysis which take advantage of the full knowledge of the t-channel topology to increase the precision of the measurement. The data-driven analysis is extended to 8 TeV, measuring the inclusive cross section as well as the cross section for t-channel separate top and anti-top production. The Cabibbo-Kobayashi-Maskawa matrix element $|V_{tb}|$ and of the top/antitop cross section ratio are measured as well.

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