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## Measurement of single top quark production with CMS

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Several measurements of single top quark production in proton-proton collisions at the LHC at centre-of-mass energies of 7, 8 and 13 TeV, using data collected with the CMS experiment, are presented. The analyses investigate separately the productions of top via t-channel exchange, in association with a W boson (tW) or via the s-channel. Final states with at least one charged lepton and one b-jet are explored to measure inclusive production cross sections. Fiducial and differential cross section measurements in the t-channel are also reported. The measurements can be used to constrain directly the  $V_{tb}$  CKM matrix element by comparing with the most precise standard model theory predictions. Measurements of rare processes involving a top quark and a neutral EWK boson (Z or photon) are also discussed.

### Experimental Collaboration

CMS

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