

# Single top quark production cross section at LHC in ATLAS and CMS

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Measurements of the single top quark production cross sections in proton-proton collisions with the ATLAS and CMS detectors at the Large Hadron Collider are presented. Measurements of single top-quark production in the  $t$ - and  $Wt$ -channels are shown and determination of the CKM matrix element  $|V_{tb}|$  is discussed. We also discuss the separate measurement of the top and anti-top quark and the ratio. These measurements are sensitive to the parton distribution function in the proton. In addition, the  $s$ -channel production is explored and limits on exotic production in single top quark processes are discussed. This also includes the search for flavour changing neutral currents and the search for additional  $W$ - $F\phi$  bosons in the  $s$ -channel.-A

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