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Top Quark production

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Measurements of the top quark production cross sections in proton-proton collisions with the ATLAS detector at the Large Hadron Collider are presented. The measurement require no, one or two electrons or muons in the final state (single lepton, dilepton, hadronic channel). In addition, the decay modes with tau leptons are tested (channels with tau leptons). The main focus are measurements of differential spectra of ttbar final states, in particular, measurements that are able to constrain the modelling of additional parton radiation. Measurements of single top-quark production in the t- and Wt-channels are presented and determination of the CKM matrix element |Vtb| is discussed. 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 flavor changing neutral currents and the search for additional W' bosons in the s-channel.

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