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## Top quark production cross section in ATLAS

*Tuesday 23 April 2013 14:24 (24 minutes)*

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  $t\bar{t}$  final states, in particular, measurements that are able to constrain the modelling of

additional parton radiation. We also discuss the

production of top quark pairs in association with heavy quarks (beauty and charm).

Measurements of single top-quark production in the  $t$ - and  $Wt$ -channels are presented and

determination of the CKM matrix element  $|V_{tb}|$  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  $W\tilde{\chi}^0$  bosons in the  $s$ -channel.

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**Session Classification:** WG1: Structure Functions

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