

Top quark pair production measurements using the ATLAS detector at the LHC

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Measurements of the inclusive top quark pair production cross sections in proton-proton collisions with the ATLAS detector at the Large Hadron Collider are presented. The most precise result requires opposite sign electrons and muons and uses the full data-set at a centre-of-mass energy of 7 and 8 TeV. In addition, differential measurements of the top transverse momentum and kinematic properties of the top-anti-top pair are discussed. These measurements, including results using boosted tops, probe our understanding of top pair production in the TeV regime. The results, unfolded to particle and parton level, are compared to recent Monte Carlo generators implementing LO and NLO matrix elements matched with parton showers and NLO QCD calculations. In addition, measurements of the production of top quark pairs in association with gauge bosons or jets are presented.

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