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Top quark cross section measurements with ATLAS

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Measurements of the differential top quark pair production cross sections in proton-proton collisions with the ATLAS detector at the Large Hadron Collider are presented. The measurements are performed requiring one electron or muon in the final state and are carried out differentially in the reconstructed top transverse momentum and the invariant mass, rapidity and transverse momentum of the top pair system. This measurement probes our understanding of top pair production in the TeV regime and is compared to recent

Monte Carlo generators implementing LO and NLO matrix elements matched with parton showers and NLO QCD calculations.

The data show sensitivity to parton density functions.

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