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Top quark pair-production cross-section measurements with the ATLAS detector

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Measurements of the inclusive and differential top-quark pair cross sections in proton-proton collisions at both 8 and 13 TeV with the ATLAS detector at the Large Hadron Collider are presented. The inclusive measurements reach high precision and are compared to the best available theoretical calculations. Differential measurements of the kinematic properties of the top quark production are also discussed. These measurements, including results using boosted top quarks, probe our understanding of top quark pair production in the TeV regime. The results, unfolded to particle and parton level, are compared to predictions of Monte Carlo generators implementing NLO matrix elements matched with parton showers and NNLO QCD theory calculations.

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