

Results on total pp cross sections, diffractive and exclusive final states from ATLAS

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The ATLAS Collaboration has measured the t-differential elastic pp cross section in a dedicated run at 7 TeV centre-of-mass energy with the ALFA Roman Pot detector. From the extrapolation to $t=0$ the total cross section as well as the inelastic cross section are extracted. First LHC Run2 results will be presented for the measurement of the inelastic pp cross-section using minimum bias scintillators, if available. The ATLAS collaboration has carried out a study of diffractive dijet production, i.e. events with a hadronic system containing at least two jets in addition to a large region of pseudorapidity devoid of hadronic activity. The data distributions are compared with Monte Carlo models and are found to be better described by diffractive dijet production. The rapidity gap survival probability has also been estimated. The exclusive $\gamma+\gamma > \ell\ell$ production cross-section in proton-proton collisions at a centre-of-mass energy of 7 TeV has been carried out in the electron and muon channels. Results are found to be consistent with theory calculations taking into account proton absorptive effects due to finite proton size.

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