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# Elastic and Inelastic Cross Section Measurements with the ATLAS Detector

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The total pp cross section is a fundamental property of the strong interaction which can not be calculated in perturbative QCD but only described based on phenomenological models.
The ATLAS collaboration has measured the total inelastic proton-proton cross section and the diffractive part of the inelastic cross section at 13 TeV in special data sets taken with low beam currents and using forward scintillators. More precise measurements of the total pp cross section and the elastic and inelastic contributions have been extracted from measurements of the differential elastic cross section using the optical theorem. The ATLAS Collaboration has performed this measurement in elastic data collected with high beta* optics at 8 TeV centre-of-mass energy with the ALFA Roman Pot detector.

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