



Contribution ID: 114

Type: **Parallel session talk**

Soft-QCD and forward proton measurements with ATLAS

Monday 21 August 2023 09:00 (15 minutes)

The elastic scattering of protons at 13 TeV is measured in the range of the protons' transverse momenta allowing the access to the Coulomb-Nuclear-Interference region. The data were collected thanks to dedicated special LHC beta* = 2.5km optics. The total cross section as well as rho-parameter, the ratio of the real to imaginary part of the forward elastic scattering amplitude, are measured and compared to various models and to results from other experiments. The measurement of exclusive production of pion pairs at the LHC using 7 TeV data is also presented. This represents the first use of proton tagging to measure an exclusive hadronic final state at the LHC. In addition, the analysis of the momentum difference between charged hadrons in pp, p-lead, and lead-lead collisions of various energies is performed in order to study the dynamics of hadron formation. The spectra of correlated hadron chains are explored and compared to the predictions based on the quantized fragmentation of a three dimensional QCD helix string. If ready, the measurement of charged particle distributions using LHC data collected at 13.6 TeV of centre-of-mass energy will also be shown.

Collaboration / Activity

ATLAS

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