

Measurements of weak boson production via electrons in pp collisions at $\sqrt{s} = 13$ TeV with ALICE

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Measurements of weak bosons, W^\pm and Z^0 , are powerful tools to study quantum chromodynamics (QCD). Due to their large masses, they are predominantly produced via quark-antiquark annihilation in the early stage of pp and heavy-ion collisions. Therefore, their production can be described by the perturbative QCD (pQCD) and is sensitive to the parton distribution function in nucleon and nucleus.

In this presentation, a measurement of the p_T -differential cross section for W^\pm bosons via their leptonic decay at midrapidity ($|\eta| < 0.6$) in pp collisions at $\sqrt{s} = 13$ TeV is presented. In addition, the production cross section for Z^0 bosons reconstructed by electron-positron pairs will be shown. The production of W^\pm measured as a function of the charged-particle multiplicity in pp collisions together with the associated hadrons is also shown. The results are compared with a prediction based on pQCD calculations.

Theory / experiment

Experiment

Group or collaboration name

ALICE collaboration

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