

Measurements of W and Z boson production in association with jets in ATLAS

Tuesday, 30 July 2024 09:00 (20 minutes)

The production of W/Z bosons in association with light or heavy flavor jets or hadrons at the LHC provides an important test of perturbative QCD. In this talk, measurements by the ATLAS experiment probing the charm and beauty content of the proton are presented. Inclusive and differential cross-sections of Z boson production with at least one c-jet, or one or two b-jets are measured for events in which the Z boson decays into a pair of electrons or muons. Predictions from several Monte Carlo generators based on next-to-leading-order (NLO) matrix elements interfaced with a parton-shower simulation, with different choices of flavour schemes for initial-state partons, are compared with the measured cross sections. Moreover, measurements of inclusive, differential cross sections for the production of missing transverse momentum plus jets are presented. Auxiliary measurements of the hadronic system recoiling against isolated leptons, and photons, are also made in the same phase space, and ratios are formed. The measurements are designed both to allow comparison to Standard Model predictions, and to be sensitive to potential extensions to the Standard Model, particularly those involving the production of Dark Matter particles.

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Session Classification: QCD

Track Classification: QCD