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nPDF studies with electroweak bosons in pPb at 8.16 TeV with the CMS experiment

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Yields of W and Z bosons can be used to probe the nuclear parton distribution functions of quarks and anti-quarks. Final results on W boson and Drell-Yan production in pPb collisions at a nucleon-nucleon center-of-mass energy of 8.16 TeV using the CMS detector will be presented. The muon decay channel is used to study both positive and negative W bosons as a function of muon pseudorapidity. Rapidity and charge asymmetries in the W yield are studied. The Drell-Yan cross section is extracted as functions of the dimuon mass for the first time in pPb collisions, between 15 and 600 GeV, and both as a function of dimuon transverse momentum and rapidity, in the Z boson mass region. Comparisons to theory calculations show that these data are sensitive to the presence of nuclear modifications to the parton distributions in the lead nucleus, and can help improve and constrain theoretical calculations.

Summary

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