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Constraining nPDFs with Z boson and Drell-Yan measurements in pPb collisions with CMS

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Nuclear parton distribution functions (nPDFs) of quarks and antiquarks affect the production electroweak bosons in proton-lead (pPb) collision. In this presentation the measurement of Z bosons in pPb collision at center of mass energies of 5.02 TeV and 8.16 TeV with CMS is presented. The rapidity dependence is particularly sensitive to nPDFs, but further information can be gained by studying the mass dependence of DY production, measured for the first time in pPb collisions at 8.16 TeV, down to 15 GeV. In addition, differential measurements in the dimuon p_t or ϕ^* (an angular variable correlated with p_t , measured for the first time in pPb) provide insights on soft gluon emission at low p_t . Finally, prospects on Z boson production with future HL-LHC data are presented.

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