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Heavy gauge boson and photon production for initial state constraints with ALICE

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The parton distribution functions of nuclei are not well constrained for most of the kinematic domain probed with heavy-ion collisions at the LHC. Direct photons in proton-nucleus, W and Z boson production in proton-nucleus and nucleus-nucleus collisions at the LHC can be used to constrain the nuclear parton distribution functions. In this contribution, we present recent results on W- and Z-boson production in p-Pb collisions at $\sqrt{s_{\rm NN}} = 8.16$ TeV and in Pb-Pb collisions at $\sqrt{s_{\rm NN}} = 5.02$ TeV with the ALICE forward muon spectrometer. The results will be compared to calculations obtained with or without including the nuclear modifications of the PDFs. Furthermore, we will present the latest ALICE results on the direct (isolated) photons and their correlations in pp and in p-Pb collisions at midrapidity.

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