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J/psi production measurements in p-Pb collisions with ALICE

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In heavy-ion collisions at the LHC, the ALICE experiment studies nuclear matter at very high energy densities where the formation of a Quark-Gluon Plasma (QGP) is expected. Quarkonium production is an important probe to characterize the properties of the QGP.

High precision data in pp and p-Pb collisions serve, respectively, to provide the baseline for the Pb-Pb measurement and to quantify the amount of initial and/or final state effects related to cold nuclear matter, that are largely unknown at LHC energies. Since 2010, the LHC delivered Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV, pp collisions at various energies and, in 2013, p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV.

The inclusive J/ψ production in p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV was studied by ALICE down to zero transverse momentum (p_T) in the backward ($-4.46 < y_{cms} < -2.96$) and forward ($2.03 < y_{cms} < 3.53$) center-of-mass rapidity intervals in the dimuon decay channel and in the mid-rapidity region ($-1.37 < y_{cms} < 0.43$) in the dielectron decay channel. The two former rapidity intervals correspond to the Pb-going and p-going directions, respectively. In this presentation, the J/ψ nuclear modification factors will be presented as a function of the J/ψ rapidity and p_T and of the centrality of the collision, as estimated from the energy deposited in the Zero Degree Calorimeters. The forward-to-backward ratios and the average p_T -square values will be also reported. The measurements will be compared to theoretical models and the implication of these measurements to the interpretation of the nuclear modification factor measured in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV will be discussed.

On behalf of collaboration:

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