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J/psi and psi(2S) production in p-Pb collisions with ALICE at the LHC

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The ALICE Collaboration has studied the inclusive J/ψ and $\psi(2S)$ production in p-Pb collisions at the nucleon-nucleon centre of mass energy $\sqrt{s_{NN}} = 5.02$ TeV at the CERN LHC. The strongly bound J/ψ and the loosely bound $\psi(2S)$ are detected through their decays to muon pairs in two configurations with inverted beam directions, with the following rapidity coverages:$-4.46 < y_{cms} < -2.96$ (Pb-going direction) at backward rapidity and $2.03 < y_{cms} < 3.53$ (p-going direction) at forward rapidity. The J/ψ production is also studied in the mid-rapidity interval $-1.37 < y_{cms} < 0.43$ in the dielectron decay channel. The J/ψ and $\psi(2S)$ nuclear modification factors, R_{pA}, will be presented as a function of transverse momentum, rapidity and collision centrality; the J/ψ forward-to-backward ratios and the average p_T^2 values will be also reported. Notably, the $\psi(2S)$ suppression is larger than the one observed for the J/ψ and is not described by theoretical models including only nuclear shadowing and coherent energy loss as cold nuclear matter effects. Moreover, results show that the relative $\psi(2S)$ suppression relative to J/ψ grows towards central collisions (especially at backward rapidity). We will also show the $\psi(2S)/J/\psi$ ratio as a function of transverse momentum, rapidity and centrality. Our measurements will be discussed together with results of recent theoretical calculations.

On behalf of collaboration:

ALICE

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