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Nuclear modification of J/ψ in Pb-Pb collisions at LHC energies

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The inclusive J/ψ differential production cross-sections and nuclear modification factor as a function of p_T in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV have been calculated at forward rapidity ($2.5 < y < 4$) and compared with the results reported by the ALICE Collaborations [arXiv:1506.08804v1]. The calculations have been carried out by estimating the pp cross-sections at $\sqrt{s} = 2.76$ TeV within the framework of NRQCD [J. Phys. G: Nucl. Part. Phys. 42 065101 (2015)]. The cross-sections have been scaled by the Glauber model for Pb-Pb collisions and convoluted with the survival probability fraction due to color screening [Phys. Rev. D 37, 1851 (1988)]. The feed-down contributions from $\psi(2S)$, χ_c and B mesons to J/ψ have been included to compare the inclusive results from ALICE. The comparison with experimental values shows a good agreement beyond $p_T = 4$ GeV for the three centrality bins namely, 0%–20%, 20%–40% and 40%–90%. These results indicate that the cold nuclear matter and recombination effects on J/ψ production at forward rapidities in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV is negligible for $p_T > 4$ GeV. Thus, in the high p_T domain ($p_T > 4$ GeV), the observed suppression in the J/ψ yield by ALICE Collaboration can solely be accounted by color screening. Results will also be shown for Pb-Pb collisions at higher energies.

On behalf of collaboration:

NONE

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