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Non-prompt J/ψ measurements at midrapidity in pp, p-Pb and Pb-Pb collisions with ALICE

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The J/ψ production is sensitive to the presence of the deconfined state of quarks and gluons, quark-gluon plasma (QGP), which is expected to form in the nuclear collisions. Measurements of J/ψ meson originating from the weak decay of b-hadrons, non-prompt J/ψ , can provide an estimate of beauty quark production in the nuclear collisions. It is observed that production of non-prompt J/ψ is modified in Pb-Pb collisions in comparison to that in pp collisions, as quantified by nuclear modification factors (R_{AA}). It is related to several effects governed by the QGP in the Pb-Pb collisions. The measurement of nuclear modification factors for p-Pb collisions is used to assess various Cold Nuclear Matter (CNM) effects which can modify the production yields of non-prompt J/ψ . ALICE has excellent capabilities to reconstruct J/ψ in e^+e^- decay channel down to zero transverse momentum (p_T). In addition, it allows the statistical separation of the non-prompt J/ψ component for p_T larger than 1 GeV/c.

In this contribution, ALICE results on $b\bar{b}$ production cross-sections (extrapolated from non-prompt J/ψ cross-sections) in pp collisions will be presented and compared with the theoretical models. Moreover, R_{AA} of non-prompt J/ψ as a function of transverse momentum (p_T) in p-Pb collisions at the center-of-mass energy per nucleon pair $\sqrt{s_{NN}} = 5.02$ TeV will be presented and further compared with R_{AA} of non-prompt J/ψ in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV. The obtained results will be compared with theoretical predictions.

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