

Measurement of the inclusive J/ψ production in Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV with ALICE

Heavy quarks are an excellent probe to study the strongly interacting quark-gluon plasma (QGP) created in high-energy heavy-ion collisions. They are mainly produced via initial hard partonic scattering processes and thus experience the entire evolution of the QGP medium. For J/ψ , a bound state of charm quarks, a strong suppression was seen in central collisions at the SPS and RHIC energies whereas at LHC energies (re-)generation is found to be the dominant production mechanism at low transverse momentum (p_T) and in central collisions. As both suppression and (re-)generation are caused by the presence of a colored medium, J/ψ yields are indeed a sensitive probe of deconfinement of the charm quarks in the QGP.

In this talk, the nuclear modification factor R_{AA} of inclusive J/ψ will be shown as a function of centrality and p_T , and the elliptic flow coefficient v_2 p_T dependent in Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV. This analysis performed on data which were taken in 2018 by ALICE will be presented. The sample provides significantly increased statistics with the central and semi-central triggers compared to the previous runs, in a kinematic region down to $p_T = 0$ at midrapidity. The measurement will be compared with the previous ALICE results and several model calculations. The status of the analysis aiming at disentangling prompt and non-prompt J/ψ will also be discussed.

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