

Bottomonium measurements at forward rapidity in Pb-Pb and p-Pb collisions with ALICE at LHC

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The production of heavy quarkonia is an important observable to study the properties of the nuclear matter created in high-energy heavy-ion collisions. Lattice QCD calculations predict a phase transition of the hadronic matter to a deconfined medium of quarks and gluons, the Quark Gluon Plasma (QGP), at extreme energy densities. The bottomonium bound states while passing through the deconfined medium are dissociated into quark-antiquark pair due to color screening. This is visible in data as a suppression of Υ resonances with respect to the proton-proton results scaled by the number of binary collisions. However, the cold nuclear matter effects can also lead to the suppression of Υ resonances in heavy-ion collisions. Cold nuclear effects are studied in p-Pb collisions since the QGP is not expected to be produced. ALICE measures the bottomonium down to zero transverse momentum via the dimuon decay channel at forward rapidity (2.5y4).

In this presentation, the final results on the nuclear modification factor of Υ measured in Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV will be shown as a function of centrality, transverse momentum and rapidity. The results will be compared with the existing theoretical models. In this context, the Υ measurements in p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV will be discussed as well. Finally, the ALICE results will be compared to results from other experiments.

Preferred Track

Quarkonia

Collaboration

ALICE

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