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Quarkonium production in Pb-Pb collisions with ALICE EDMUNDO GARCIA-SOLIS[1], Chicago State University, ALICE COLLABORATION
— The Heavy-ion collisions at the Large Hadron Collider (LHC) provide a unique opportunity to study the properties of matter at extreme energy densities where a phase transition from hadronic matter to a deconfined medium of quarks and gluons, the Quark-Gluon Plasma (QGP) is predicted. Among the probes of the QGP, heavy quarks play a crucial role since they are created during the initial stages of the collision, before the QGP formation. The sequential suppression of the quarkonium states was suggested as a signature of the QGP. Later, a regeneration of quarkonia by recombination of deconfined quarks was also predicted. The first results on quarkonium suppression in Pb-Pb collisions at the LHC seem to indicate that for charmonia both regeneration and suppression mechanisms play a role, while for bottomonia the regeneration mechanism should be small. The momentum space azimuthal anisotropy of charmonium production provides important information on the magnitude and dynamics of charmonium suppression and regeneration mechanisms. ALICE measures quarkonia at mid-rapidity in the dielectron decay channel and at forward rapidity in the dimuon channel, both down to zero transverse momentum. Single- and multi-differential measurements of quarkonium nuclear modification factor and J/psi elliptic flow in Pb-Pb collisions at 5.02 TeV as a function of centrality, transverse momentum and rapidity will be presented. Comparisons to measurements at different collision energies and theoretical calculations will be discussed.

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