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Quarkonium measurements at the LHC with the ALICE detector

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Content :

ALICE detector has excellent performances to study quarkonium production in heavy-ion collisions at the LHC collider [1]. In this new energy regime, charmonium could reveal a privileged probe to study the properties of the high-density strongly interacting system formed in the early stages of high-energy heavy-ion collisions [2].
Bottomonium resonances will be abundantly produced, providing new constrains on theoretical models of quarkonium dissociation in QCD matter [1]. Additionally, ALICE will study quarkonium production in proton-proton collisions in which high particle multiplicity events could lead to the formation of high energy density matter as in heavy ions collisions [3].
In ALICE [4], quarkonium is measured down to pT = 0 via their mu+mu− decay channels in the ALICE muon spectrometer and via their e+e- in the ALICE central barrel. After a short description of the apparatus, the transverse momentum and rapidity distributions of inclusive J/Psi production cross section in proton-proton collisions at LHC energies will be presented. We will discuss the dependence on charged particle multiplicity of J/Psi yield in proton-proton collisions at sqrt(s) = 7 TeV.
The number of reconstructed tracklets (η<1.6) in the silicon pixel detector is exploited to measure the charged particle density at mid- rapidity. Finally, the analysis of the inclusive J/Psi production in Pb-Pb collisions at a centre of mass energy of sqrt(sNN) = 2.76 TeV will be described. Preliminary results on the nuclear modification factor (RAA) and the central to peripheral nuclear modification factor (RCP) will be shown.

[1] ALICE collaboration, PPR II, J. Phys. G32, 1295 (2006)
[2] P. Braun-Munzinger and J. Stachel, Phys. Lett. B490, 196 (2000); R.L. Thews, M. Schroedter and
J. Rafelski, Phys. Rev. C63, 054905 (2001); A. Andronic et al., Phys. Lett. B571, 36 (2003); L.
Grandchamp, R. Rapp and G.E. Brown, Phys. Rev. Lett., 92, 212301 (2004).
[3] K. Werner et al. arXiv:1010.0400v1 (2011); K. Werner et al., Phys. Rev. Lett. 106, 122004 (2011).
[4] ALICE collaboration, J. Instrum. 3, S08002 (2008).

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