Contribution ID: **271** Type: **3c) Heavy-flavours and quarkonia (POSTER FROM TALK)**

7. PHENIX measurements of J/Psi yield and polarization in p+p collisions at RHIC

The production of heavy quarkonia in high-energy nuclear collisions is a sensitive probe of Quantum Chromo Dynamics (QCD) due to the large scale of the heavy quark mass relative to the hadronization scale. The angular distributions of the decay leptons from quarkonia bound states together with quarkonia absolute yields are key observables sensitive to their production mechanisms. PHENIX has measured the J/Psi polarization in 200 GeV p+p collisions at mid-rapidity analyzing the polar angular distribution of the decay di-electrons, and found that the polarization is consistent with zero within the uncertainties. Recently, measurements of full (polar and azimuthal) angular distributions from J/Psi decays to di-muons at 510 GeV were performed and a good agreement was seen with predictions from non-relativistic QCD at high pT but a disagreement at low pT, posing a challenge to this theoretical approach. PHENIX also conducted yield measurements in a broad rapidity range. We will present the energy and rapidity dependence of J/Psi production in p+p collisions measured down to zero pT in p+p collisions at sqrt(s) = 510 GeV.

Summary

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Session Classification: Poster Session