

Measurement of J/Ψ elliptic flow in Au+Au collisions at $\sqrt{s_{NN}}=200$ GeV in STAR experiment

J/Ψ elliptic flow (v_2) is sensitive to both the J/Ψ production mechanism and the elliptic flow of heavy quarks. While some models predict that J/Ψ produced through direct nucleon-nucleon process have very limited v_2 , J/Ψ produced by the recombination of c and \bar{c} pairs could carry finite v_2 , depending on the interaction between charm quarks and the medium. Furthermore, due to their long relaxation time, heavy quarks are expected to thermalize much more slowly than light flavor quarks. Thus the study of J/Ψ v_2 will also shed light on the extent to which the collision system is thermalized at RHIC.

In year 2010, with the combined particle identification capability from STAR's Time Projection Chamber, Barrel Electromagnetic Calorimeter and the newly installed Time of Flight detector, STAR is able to clearly identify electrons from J/Ψ decay over a wide momentum range. To cope with the large data volume coming from collisions at high luminosity, a High Level online tracking Trigger was implemented to reconstruct J/Ψ events online and tag them for fast analysis. In addition, the low material budget in STAR setup in run 2010 allows us to dramatically improve J/Ψ identification, with unprecedented statistics. In this talk, we present J/Ψ $v_2(p_T)$ measurement from 200 GeV AuAu collisions measured by the STAR experiment. This analysis is based on 350 million minimum bias events plus high tower triggered events equivalent to about 7 billion minimum bias events in the relatively higher transverse momentum region. The results of the collision centrality dependence of the J/Ψ $v_2(p_T)$ will be presented. Comparisons to models will be made and the implications on collision dynamics at RHIC will be discussed.

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