

J/Psi production and correlation in p+p and R_{AA} at high-pt in Au+Au collisions

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The $c\bar{c}$ bound state J/ψ provides a unique tool to probe the properties of the hot dense medium produced in heavy-ion collisions, but to date its production mechanism is not understood clearly either in heavy-ion collisions or in hadron-hadron collisions. Measurement of J/ψ production at high p_T is particularly interesting since at high p_T the various models give different predictions. Besides, high p_T particles are widely used to study the parton-medium interactions in heavy-ion collisions. The previous high- p_T J/ψ measurements in $p + p$ and Cu+Cu collisions at RHIC published by the STAR collaboration found several interesting things, though constrained by limited statistics and system size.

In this talk, we will present the new measurement of $J/\psi \rightarrow e^+e^-$ production at large p_T range ($0 < p_T < 10$ GeV/c) at mid-rapidity ($|y| < 1$) in $p + p$ and Au+Au collisions at 200 GeV. The datasets are from RHIC year 2009 $p + p$ and 2010 Au+Au runs with significantly reduced material, the newly installed full TOF, and high data acquisition rates. J/ψ p_T spectra and nuclear modification factors from low to high p_T will be discussed to understand its production mechanism and medium modifications. The J/ψ -hadron azimuthal angle correlation in $p + p$ collisions will be presented to disentangle B -mesons contributions to inclusive J/ψ and study J/ψ hadronization mechanism.

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