

J/Ψ production at high p_T in p+p and A+A collisions at STAR

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The $c\bar{c}$ bound state J/Ψ production at high p_T could be due to color-singlet or color-octet processes. But the details of the production mechanism and hadronization remain open questions. Depending on the production mechanism, high-pt J/Ψ production in nucleus-nucleus collisions can be used as a probe for heavy-quark energy loss, gluon energy loss or quarkonium hot-wind dissociation in QGP.

In this talk, we will present our analysis of mid-rapidity ($|y| < 1$) $J/\Psi \rightarrow e^+e^-$ production at $p_T \gtrsim 5$ GeV/ c in p+p collisions at $\sqrt{s} = 200$ GeV. The datasets are from RHIC year 2005 and 2006 runs, sampling a few (pb) $^{-1}$ of p+p collisions in a trigger on electron energy deposited in Electromagnetic Calorimeter. The differential cross sections provide a baseline for study of J/Ψ suppression at high p_T in heavy ion collisions at RHIC. The first measurements of high p_T J/Ψ -hadron azimuthal angle correlation may shed light on the J/Ψ production mechanism and hadronization. Results from on-going analyses in Cu+Cu and Au+Au collisions at 200 GeV taken in year 2005 and 2007 from sampled equivalent luminosity of a few (pb) $^{-1}$ of underlying p+p collisions will also be presented.