The Relativistic Heavy Ion Collider (RHIC) is built to search for the Quark-gluon Plasma (QGP) and to study its properties in laboratory through high energy heavy-ion collisions. $J/\psi$ suppression in heavy-ion collisions due to color screening of quark and anti-quark has been proposed as a signature of QGP formation. But other mechanisms are likely to contribute to the observed $J/\psi$ suppression in heavy-ion collisions such as the cold nuclear matter effect, charm quark recombination, sequential suppression, and hot wind dissociation. Measurements of $J/\psi$ invariant yields at different collision centralities can shed new light on understanding the interplay of these mechanisms for $J/\psi$ production and medium properties.

In this presentation we report the measurements of $J/\psi$ suppression in Au+Au collisions at $\sqrt{s_{NN}} = 62.4$ GeV and 39 GeV from STAR with full Time-Of-Flight detector and Barrel ElectroMagnetic Calorimeter detector in operation. Centrality dependence of $J/\psi$ yields at 62.4 GeV and 39 GeV taken in 2010 by STAR has a large acceptance for electron identification after the full Time-Of-Flight (TOF) has been installed. Large data samples in 2010:

- 30M EMC triggered (E > 2.6 GeV) 62 GeV Au+Au events (37 $\mu$b$^{-1}$)
- 168M MB 62GeV Au+Au events (18 $\mu$b$^{-1}$)
- 34M EMC triggered (E > 2.6GeV) 39 GeV Au+Au events (62 $\mu$b$^{-1}$)
- 258M MB 39GeV Au+Au events (30 $\mu$b$^{-1}$)

### Electron ID

#### Low $p_T$ TPC + TOF is sufficient

- EMC for fast trigger of high-$p_T$ electrons
- Adc0 is the offline ad value of the most energetic tower in a TPC cluster
- $p_T$ suppresses hadrons
- further suppression from SMD
- combine with dE/dx from TPC

#### SMD: Shower Maximum Detector

$\Delta x \times \Delta p = 0.005 \times 0.005$ at $-3X_b$

Detect shower size and shower position

### J/$\psi$ signal in Au+Au 62 GeV

- Invariant mass distribution for 1+$p_T < 2$ GeV/c at centrality 0 – 60%
- Invariant mass distribution for 2+$p_T < 3$ GeV/c at centrality 0 – 60%
- Invariant mass distribution for 3+$p_T < 4$ GeV/c at centrality 0 – 60%

### J/$\psi$ signal in Au+Au 39 GeV

- Invariant mass distribution at centrality 0 – 60%

### Summary and outlook

1. We observe clear J/$\psi$ signals at different $p_T$ and centrality bins from Au+Au collisions at 62 and 39 GeV.
2. Estimation of efficiencies is ongoing.
3. Estimation of systematic uncertainty is in progress.
4. Measurement of $J/\psi$ $R_A$ for different centrality and energy will be done in the future.