Contribution ID: **254** Type: **Poster**

Centrality dependence of the Υ Nuclear Modification Factor at $\sqrt{s_{NN}} = 200$ GeV measured with STAR

Suppression of quarkonia in heavy ion collisions with respect to proton-proton collisions was hypothesized to be a signature of the Quark Gluon Plasma (QGP). However, effects such as the statistical recombination of heavy flavor quark-antiquark pairs or co-mover absorption can also affect quarkonia production. For the bottomonium states these competing effects are expected to be smaller than for the charmonium states. Lattice calculations show that quantifying the suppression of an entire family of quarkonium mesons can give us a model dependent measurement of the temperature of the matter produced in heavy ion collisions. For the Υ family, calculations indicate that the $\Upsilon(1S)$ state should not be suppressed at $\sqrt(s) = 200$ GeV, which would give a standard candle that the $\Upsilon(2S)$ and $\Upsilon(3S)$ states can be compared to. The suppression of quarkonia can be quantified by calculating the nuclear modification factor R_{AA}, which is the ratio of production in p+p scaled by the number of binary collisions to the production in Au+Au collisions.

We will present results for mid-rapidity $\Upsilon(1S + 2S + 3S)$ production in p+p, d+Au and Au+Au collisions at $\sqrt{s_{NN}}$ = 200 GeV. These results will be combined into R_{dA} and R_{AA} and compared to theoretical QCD calculations. The centrality dependence of R_{AA} will be shown for the combined $\Upsilon(1S + 2S + 3S)$ yield as well as for the $/Upsilon(1S)$ yield. The invariant yield versus transverse momentum in Au+Au collisions will also be discussed.

Author: REED, Rosi (STAR)

Presenter: REED, Rosi (STAR)

Track Classification: Heavy flavor and quarkonia production