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PHENIX Results on Excited Charmonia Production at Forward and Backward Rapidity

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Recent measurements from RHIC and the LHC have shown that the excited charmonium state $\psi(2s)$ is preferentially suppressed over the more tightly bound J/ψ in ultrarelativistic $p(d)$ + A collisions. The exact mechanism behind this difference in suppression is not immediately clear. Since all primordial charm quark production is subject to similar initial state effects inside the nucleus, and the time the $c\bar{c}$ pair spends in the nucleus is so short, it may be that interactions outside the nucleus with co-moving particles are partially responsible for the disruption of the charmonium wavefunction. Therefore it is interesting to study charmonium production at forward and backward rapidity, where the co-moving particle density varies considerably between the Au-going and p-going directions. The introduction of the Forward Silicon Vertex Tracker (FVTX) in front of the PHENIX muons arms has improved the dimuon mass resolution such that the $\psi(2s)$ peak can now be distinguished from the J/ψ peak and measured at forward and backward rapidity. Here, we present the status of measurements of forward and backward $\psi(2s)$ production in $p+p$ and p+Au collisions at 200 GeV/n, from the 2015 PHENIX dataset.

On behalf of collaboration:

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