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PHENIX measurements of J/ψ and $\psi(2S)$ production at forward and backward rapidity in $p/d/{}^3\text{He}+\text{Au}$ and $p+\text{Al}$ collisions at 200 GeV

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Bound states of heavy quarks produced in collisions of large nuclei have been the object of intense experimental and theoretical interest for decades, but precise quantification of the various mechanisms affecting their production from p+A collisions to A+A collisions is still not totally understood. One advantage of the RHIC accelerator complex is the flexibility of beam species available for collisions, and the PHENIX Collaboration has collected data from small reaction volumes produced in $p/d/{}^3\text{He}+\text{Au}$ collisions and $p+\text{Al}$ collisions. Based on these various data sets, we can study the evolution of nuclear effects on charmonia production as the size of collision system changes. Measurements at forward and backward rapidity ($1.2 < |y| < 2.2$) also allow us to study different regions of the nuclear PDF, the effects of nuclear crossing time, and various regions of final state charged particle multiplicity which may influence bound state formation. In this presentation, we will discuss these effects in the context of our results on J/ψ and $\psi(2S)$ production at forward and backward rapidity in $p/d/{}^3\text{He}+\text{Au}$ and $p+\text{Al}$ collisions.

Content type

Experiment

Collaboration

PHENIX

Centralised submission by Collaboration

Presenter name already specified

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