

J/ψ production in central U+U collisions at the STAR experiment

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Under normal conditions the basic building blocks of matter, quarks and gluons, are bound within hadrons. The theory of strong interaction predicts a phase transition at high temperature and energy density from hadronic matter to the state of deconfined quarks and gluons called quark-gluon plasma (QGP). It is expected that heavy-ion collisions at the Relativistic Heavy Ion Collider (RHIC) achieve conditions needed for the QGP formation. The suppression of production of bound states of heavy quarks (c , b) and their antiquarks, heavy quarkonia (e.g. J/ψ , Υ), due to the color screening of the quark-antiquark potential in the deconfined medium has been proposed as a signature of the QGP. However, other effects such as secondary production in the QGP or cold nuclear matter effects complicate the suppression picture. Therefore, it is important to measure heavy quarkonia in various colliding systems at different energies and centralities. We describe the analysis of J/ψ production via the di-electron decay channel in 0-5 % most central U+U collisions at $\sqrt{s_{NN}} = 193$ GeV at the STAR experiment at RHIC. Preliminary results on invariant yield and nuclear modification factor of J/ψ are presented.

Sekce

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