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Energy dependence of J/ψ production in Au+Au collisions at $\sqrt{s_{NN}}$ = 14.6, 19.6 and 27 GeV at STAR

In relativistic heavy-ion collisions, the dissociation of charmonium is considered an important evidence for the formation of the quark-gluon plasma (QGP). However, charmonia also experience the regeneration effect in the QGP, which acts against the dissociation process. With decreasing collision energy, the regeneration effect decreases quickly, providing leverage to disentangle the two competing effects.

In this talk, we present the nuclear modification factor (R_{AA}) of J/ψ as a function of centrality and transverse momentum in Au+Au collisions at $\sqrt{s_{NN}}$ = 14.6, 17.3, 19.6 and 27 GeV using the Beam Energy Scan Phase II data. Additionally, we investigate the energy dependence of J/ψ R_{AA} from RHIC to LHC energies in central heavy-ion collisions, including a comparison to model calculations.

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