

粒子与场

J/ψ -N center of mass energy dependence of nuclear absorption effect on J/ψ production

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摘要

In this paper, the J/ψ nuclear absorption effect is studied at RHIC and LHC energies with the EKS98 shadowing parameterizations. By assuming that the J/ψ absorption cross section, σ_{abs} , increases with the charmonium-nucleon (J/ψ -N) center of mass energy, $\sqrt{s}_{J/\psi N}$, it is found that σ_{abs} should depend on x_F (or y) at a certain center of mass energy per nucleon pair, \sqrt{s} , especially at LHC energies. The theoretical results with the x_F (or y)-dependence of the absorption effect are in good agreement with the experiment data from PHENIX in d-Au collisions and the predicted results will be examined by the forthcoming experimental data from LHC in d-Pb collisions. Finally, we also present baseline calculations of cold nuclear matter effects on J/ψ production in nucleus-nucleus (A-A) collisions and find that the x_F (or y)-dependence of absorption effect is very small at both RHIC and LHC energies in A-A collisions.

关键词

[x_F \(or y\)-dependence of absorption effect, NRQCD model, shadowing](#)

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