

CHARMONIUM DYNAMICS IN dA and AA AT RHIC and LHC

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Charmonium production in hadron-nucleus collisions is an important tool for understanding high-energy nuclear effects: in pA (dA) collisions effects of multiple scattering and coherence are at play, while the more involved AA collisions provide additional information about final state interaction with the created medium. Measurements at RHIC have revealed several "puzzles" that refute simple model extrapolations from lower energies.

Contrary to most predictions, the absorptive cross section in dA at RHIC is strongly reduced. However, this is in line with recent considerations in the Glauber-Gribov theory [1], and we show that the experimental data is consistent with no absorption but, nevertheless, with shadowing [2]. This has also profound implications for the final state in AA collisions, which we will treat in terms of the comovers' interaction model [3]. The model is extended to include secondary charmonium production due to recombination. The improvement allows us to properly describe the centrality dependence of nuclear suppression at mid- and forward rapidities. Predictions are made for LHC for both pA , where a novel scaling in Bjorken x is expected to appear [4], and for AA , where recombination effects dominate for a certain range of centrality.

References

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