

Abstract Submitted
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Charmonium production and absorption in proton-nucleus collisions¹ CARLOS LOURENCO, CERN, RAMONA VOGT, LLNL, HERMINE WOHR, LIP — The J/ψ , ψ' and χ_c yields are expected to be considerably suppressed if a deconfined medium is formed in high-energy heavy-ion collisions. However, already in pA collisions the charmonium production cross sections scale less than linearly with the number of binary NN collisions. This “normal nuclear absorption” must be accounted for before signals of the QCD medium can be identified in the AA measurements. We compare the J/ψ and ψ' production in fixed-target pA interactions ($200 < E_{\text{lab}} < 920$ GeV) and in d+Au collisions at RHIC ($\sqrt{s} = 200$ GeV) with Glauber calculations using several sets of *nuclear* parton densities. We find a significant energy dependence of the mid-rapidity charmonium “absorption cross sections”, indicating stronger nuclear absorption than previously assumed at $E_{\text{lab}} = 158$ GeV, the CERN SPS lead beam energy. We also show that the absorption depends on the charmonium rapidity, even close to mid-rapidity. These new findings indicate stronger nuclear absorption than previously estimated from the SPS heavy-ion data.

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Ramona Vogt
Lawrence Livermore National Laboratory

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