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Nuclear modification factor R_{CP} for ϕ meson production in $d+Au$ collisions at $\sqrt{S_{NN}}=200$ GeV measured by the PHENIX experiment at RHIC LEI GUO, Los Alamos National Laboratory, PHENIX COLLABORATION — In $d+Au$ collisions, vector mesons produced in hard scattering are sensitive to various nuclear effects such as parton shadowing/saturation in the small x region (forward rapidity) leading to suppression, and antishadowing (large x region, backward rapidity) or the Cronin effect which both can produce enhancement. Since approaches such as the Color Glass Condensate (CGC) and pQCD-based Glauber-Eikonal models do not agree on the nature of these nuclear effects on particle production at large rapidity, it is essential that they be tested with experimental data in this kinematic regime. Knowledge of the difference between the forward and backward rapidity regions, in $d+Au$ collisions, could also be used to separate the initial-state nuclear wave function modifications and final state in-medium effects in $Au+Au$ collisions. In addition, the relative ratio for the production of ρ , ω and ϕ can provide information on the production mechanisms of light vector mesons. The PHENIX collaboration at RHIC has recently collected data in $d+Au$ collisions at $\sqrt{s}=200$ GeV during the 2008 run. The latest work on the R_{CP} measurements of ϕ , through the di-muon decays at forward and backward rapidities ($1.2 < \eta < 2.2$), will be discussed.

Lei Guo
Los Alamos National Laboratory

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