

Abstract Submitted  
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**Nuclear modification factors for low mass vector meson production in  $d+Au$  collisions at 200 GeV over the forward and backward rapidity**<sup>1</sup> 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 distribution modifications of the nucleons in nucleus, including shadowing/saturation leading to a gluon suppression at forward rapidity (small  $x$ ), and anti-shadowing that enhances the number of partons at backward rapidity (large  $x$ ), as well as the Cronin effect. 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 forward rapidity, it is essential that they be tested with experimental data in this kinematic regime. Knowledge of the difference between the particle production in the forward and backward rapidity, 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. The PHENIX collaboration at RHIC has recently collected data in  $d+Au$  collisions at  $\sqrt{s}=200$  GeV during the 2008 run. Preliminary results of the nuclear modification factor measurements of  $\phi$ ,  $\rho$ , and  $\omega$ , through the di-muon decays at forward ( $1.2 < \eta < 2.4$ ) and backward ( $-2.4 < \eta < -1.2$ ) rapidity will be shown.

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