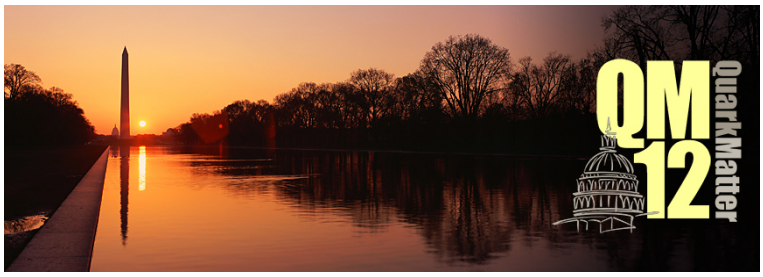

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Cold Nuclear Matter Effects in 200 GeV d+Au Collisions at PHENIX

Wednesday, August 15, 2012 9:30 AM (20 minutes)

While the study of the quark-gluon plasma has been the primary focus of the RHIC experiments, much work has also been done to understand so-called cold nuclear matter (CNM) effects through d+Au collisions where no hot plasma is produced. Effects such as nuclear shadowing, Cronin enhancement, and initial-state parton energy loss, among others, are not only interesting in their own right, but have direct implications on QGP-related measurements in $A + A$ collisions.

Recently PHENIX has measured CNM effects at midrapidity in $\sqrt{s_{NN}}$ = 200 GeV d+Au collisions. Measurements of reconstructed jets reveal the centrality dependence of both jet suppression and broadening of the away-side jet. Meanwhile, single electrons from heavy flavor decays exhibit enhancement over a broad p_T range and increasing with centrality. These results will be presented and compared to our present understanding of CNM effects to see if simultaneous constraints on nuclear shadowing, initial state energy loss, and Cronin effects can be found. The centrality dependence of the nuclear modification, for which there is no a priori model, will be examined in the context of available theoretical models of CNM effects, including the EPS09 nuclear-modified parton distribution functions.

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