Abstract Submitted
for the APR10 Meeting of
The American Physical Society

ϕ meson production and cold nuclear matter effect in d+Au collisions at $\sqrt{s_{NN}}$ = 200 GeV in STAR XIAOPING ZHANG, Lawrence Berkeley National Laboratory, STAR COLLABORATION — To understand the properties of the quark-gluon plasma created in heavy ion collisions, one needs knowledge on various cold nuclear matter effects. Some of these effects might be studied by looking into p+A like collisions. Specifically, one has to distinguish the initial state effects and final state effects. Theoretical calculations have shown different rapidity and species dependence of particle production if the final state interactions are dominated by different later-stage (hadronic or partonic dominated) rescatterings. ϕ meson is a heavy meson with mass close to that of light baryons (proton and Λ) and with small cross sections with other non-strange particles. Thus its measurement is an important probe to distinguish the different later-stage interactions in $d + Au$ collisions and to provide early-time information of the collisions. Here we report preliminary results of ϕ-meson measurements in STAR, via K^+K^- and e^+e^- decays, in 200 GeV d+Au collisions. The dataset are from RHIC year 2008 runs with significantly reduced material ($\sim 1/10$) after removing the inner tracker and high statistics (~ 3) compared with previous runs of year 2003. ϕ-meson transverse momentum spectra distribution and its rapidity dependence will be presented and compared with model calculations. Implications on cold nuclear matter effect on particle productions in d+Au collisions will be discussed.

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Date submitted: 22 Oct 2009 Electronic form version 1.4