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Photon-Hadron Azimuthal Correlation Measurement in 200GeV d+Au Collisions at RHIC

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Deuteron-gold collisions are essential to measure the cold nuclear matter effects, as well as help to interpret the heavy ion collision results to study the quark gluon plasma. Direct photons are less affected by the nuclear medium, thus, they can be used to infer the momentum of the scattered partons. Also, because of the prevalence of the Compton scattering in the direct photon events, the away-side jets are predominantly produced by quark jets. We analyze the azimuthal correlation between high p_T direct photons and hadrons and look for the modification of the away-side jet portion of this correlation. The current status of this gamma-jet correlation analysis in d+Au collisions is presented in this poster. This includes analysis of the x_E distribution which is related to the fragmentation function $D(z)$. We will also present the status of a new analysis in d+Au of the asymmetry between positive and negative charged hadrons in the away-side quark jets due to the cross-section dominance of up vs down quarks, which can be compared to Au+Au.

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