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PHENIX measurements on High p_T photon-hadron and π^0-hadron Azimuthal Correlations in $\sqrt{s_{NN}} = 200$ GeV Au+Au Collisions
JIAMIN JIN, Columbia University, PHENIX COLLABORATION — PHENIX has measured direct photon production in Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV. Due to the suppression of high-p_T pion production, a large photon excess over meson decay background is seen in central AuAu collisions at $p_T > 6$GeV/c. This large direct photon signal allows us to use jets tagged by direct photons to probe the dense medium created in ultra- relativistic heavy-ion collisions at RHIC. Since photons interact with the medium much more weakly than hadrons, they will carry roughly the same amount of energy as the scattered quarks, thus providing a better measurement of the energy and direction of the away side jets. We will present the PHENIX results on the measurements of photon-hadron and π^0-hadron azimuthal correlations with the photon or π^0 momentum above 5 GeV/c. The results will be shown as a function of centrality and associated hadron p_T. By comparing the photon-hadron and π^0-hadron correlations, we will discuss the use of these two measurements to perform the first extraction of a direct photon-hardon correlation measurement at RHIC.

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