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PHENIX Measurements of Azimuthal Anisotropy of Light and Heavy Flavor Hadrons and J/Psi in Au+Au Collisions at Forward Rapidity

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One of the most prominent features of the quark gluon plasma is its near-perfect fluid behavior. An important outstanding question is establishing the degree to which heavy flavor particles flow with the bulk system. Measurements of the Fourier coefficient v_2 of light and heavy flavor hadrons and quarkonia can provide insight into the properties of the medium. At low transverse momentum (p_T) the mass dependence of v_2 is associated with the common flow velocity in the bulk system, whereas at higher p_T path length and mass dependencies in the energy loss play a role. Additionally for J/Psi, the equilibration and recombination of charm quarks may produce azimuthal anisotropies. We will present new results measured with the PHENIX muon arms covering $1.2 < |\eta| < 2.2$ using high statistics Au+Au dataset collected in 2014. The v_2 of light hadrons and muons from heavy flavor decays are measured in the range $0.5 < p_T < 7$ GeV/c, and v_2 of J/Psi in the range $0 < p_T < 5$ GeV/c. The results are compared to measurements at mid-rapidity. Different rapidities sample different initial and final state effects and have different densities of cc pairs, and therefore the produced particles may be subject to different pressure gradients and coalescence effects. The measurements will be compared to theoretical calculations.

Experiment/Theory

PHENIX

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