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Azimuthal anisotropy measurements of heavy flavor probes at large rapidities at RHIC energies measured by the PHENIX experiment

RHIC data taken over two decades showed that even charm quarks thermalize in the hot system formed in Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV. These measurements were constrained to the mid-rapidity region, where charm production peaks. The question is what is the longitudinal extension of the charm thermalization and how that would impact the quantification of charm diffusion in the quark-gluon plasma. It also raises the question on how the charm flow can affect bound state charmonium production by charm recombination. The PHENIX collaboration measured muons from open heavy flavor and J/ψ decays at rapidity range $1.2 < |y| < 2.2$ in Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV. Their second Fourier component v_2 of azimuthal distribution relative to the reaction plane of the collision were measured for the first time at these large rapidities at RHIC. This presentation will summarize these results and discuss them along with different theoretical scenarios.

Category

Experiment

Collaboration (if applicable)

PHENIX

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