

Forward rapidity elliptic flow measurements in PHENIX Au+Au collisions at 200 GeV

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Measurements of elliptic flow (v_2) of light and heavy flavor particles can provide key insight into the transport properties and collective behavior of the Quark Gluon Plasma (QGP). The PHENIX experiment at RHIC has a unique coverage at forward rapidity ($1.2 \leq |\eta| \leq 2.2$), and large muon datasets collected during the 2014 and 2016 runs, allowing for statistically significant heavy flavor v_2 measurements in this region at RHIC energies. For J/ψ in this region, smaller charm quark yields are observed hinting that charm quark coalescence, a potential dominating source of J/ψ v_2 , may not play a significant role given that the majority of $c\bar{c}$ pairs are produced at mid-rapidity in central collisions. In the forward rapidity region, the v_2 of light hadrons and muons from heavy flavor decays are also measured and the results are compared to measurements at mid-rapidity. Measurements at forward rapidity sample different initial and final state effects and therefore the produced particles may be subject to different pressure gradients. We present final results of J/ψ , open heavy flavor, and charged hadron v_2 measured using the PHENIX muon arms and using the combined high statistic 2014 and 2016 Au+Au datasets. This combination of elliptic flow measurements between various particle species will be the first comprehensive look at heavy flavor dynamics in forward rapidity at RHIC.

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