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Measurements of jet v_2 in medium-sized systems at STAR

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Hard partonic scatterings, occurring at the early stages of heavy-ion collisions, produce jets, which experience the full evolution of the quark-gluon plasma (QGP). As they traverse through the QGP, jets lose energy through collisional and radiative processes, collectively known as the jet quenching. In semi-central heavy-ion events, the QGP takes an approximately elliptical shape in the transverse plane whose mean in-plane and out-of-plane distances differ. This fact can be used to vary the average path length for jets traversing the QGP, and those traveling in-plane should experience less quenching effects than those traveling out-of-plane. This differential quenching manifests as a suppression of jet yield out-of-plane relative to in-plane, quantified by jet v_2, the second order Fourier coefficient. In this poster, jet v_2 will be presented from Ru+Ru, Zr+Zr, and O+O collisions at $\sqrt{s_{\mathrm{NN}}} = 200$ GeV with multiple jet resolution parameters. Studying jet v_2 in collision systems of varying sizes may help disentangle path-length dependent quenching effects and other effects which could give rise to anisotropies in systems even smaller than O+O collisions.

Category

Experiment

Collaboration (if applicable)

STAR Collaboration

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