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Measurement of semi-inclusive jet fragmentation functions in Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV in STAR

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Jet quenching refers to interaction of the jet shower with the QCD medium (QGP) generated in relativistic heavy ion collisions, which can have multiple phenomenological consequences: jet energy loss; modification of jet substructure; and induced acoplanarity. In this poster we report a measurement of the fragmentation of jets in central and peripheral Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV by the STAR experiment at RHIC, using a semi-inclusive population of jets recoiling from a high transverse momentum trigger hadron. The fragmentation function is constructed from the fraction of the momentum of charged particles projected onto the jet axis over that of the jet. In a previous STAR publication of the semi-inclusive charged-jet spectra, the Mixed-Event technique was used along with the semi-inclusive approach to remove the uncorrelated background contributions [1]. Such techniques have proven to be an excellent tool for isolating contributions from hard-scattered partons, and are now further developed for the measurement of jet fragmentation functions. The fragmentation functions are corrected for uncorrelated background effects and instrumental effects via unfolding, and the results for central and peripheral collisions will be compared. The measurements indicate medium-induced modification of jet fragmentation in heavy ion collisions.

References:

[1] STAR Collaboration, Phys. Rev. C 96 (2017) 24905.

Collaboration (if applicable)

STAR

Track

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