

# 10th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions



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Type: Oral Presentation

## Measurement of fully-reconstructed inclusive jet production in Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV by the STAR experiment

Monday, June 1, 2020 11:20 AM (20 minutes)

The STAR Collaboration at RHIC reports the measurements of both charged and fully-reconstructed inclusive jet production in central (0-10%) and peripheral (60-80%) Au+Au collisions at  $\sqrt{s_{NN}} = 200$  GeV. The charged jet analysis utilizes a dataset corresponding to  $70 \mu\text{b}^{-1}$  recorded in 2011, while the new fully-reconstructed jet analysis utilizes a dataset corresponding to  $184 \mu\text{b}^{-1}$  recorded in 2014. Both datasets were recorded using a Minimum Bias trigger. Jets are reconstructed using charged-particle tracks in the Time Projection Chamber and neutral energy measured by the Barrel Electromagnetic Calorimeter with  $p_T(E_T) > 0.2$  GeV/c (GeV). Jet reconstruction is carried out using the anti- $k_T$  algorithm with resolution parameter  $R = 0.2, 0.3$  and  $0.4$ . The large background yield to the jet signal in heavy ion collisions is suppressed by requiring high- $p_T$  leading charged or neutral radiation in accepted jet candidates. The bias imposed by this requirement is assessed, and the  $p_T$ -region in which this bias is negligible is identified. Charged jet and fully-reconstructed jet inclusive distributions are reported in central and peripheral Au+Au collisions for  $p_T^{jet} > 10$  GeV/c. Yield suppression, corresponding to medium-induced parton energy loss, is observed for central Au+Au collisions relative to both peripheral Au+Au collisions and vacuum reference. Medium-induced jet broadening is measured using the  $R$ -dependence of yields. The results are compared to jet measurements at the LHC and theoretical calculations.

### Collaboration (if applicable)

STAR

### Track

Jets and High Momentum Hadrons

### Contribution type

Contributed Talk

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