

# Quark Matter 2019 - the XXVIIIth International Conference on Ultra-relativistic Nucleus-Nucleus Collisions



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## **Measurement of semi-inclusive direct photon+jet and $\pi^0$ +jet distributions in central Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV by the STAR experiment**

*Monday, 4 November 2019 17:40 (20 minutes)*

We present the semi-inclusive measurement of charged jets recoiling from direct-photon and  $\pi^0$  triggers in central Au+Au collisions at  $\sqrt{s_{NN}} = 200$  GeV, using a dataset with integrated luminosity  $13 \text{ nb}^{-1}$  recorded by the STAR experiment in 2014. The photon and  $\pi^0$  triggers have  $9 < E_T^{\text{trig}} < 20$  GeV. Charged jets are reconstructed with the anti- $k_T$  algorithm with resolution parameters  $R=0.2$  and  $0.5$ . A Mixed Event technique developed previously by STAR is used to correct the recoil jet yield for uncorrelated background, enabling recoil jet measurements over a broad  $p_{T,\text{jet}}$  range with large jet radius. We report the corrected semi-inclusive recoil jet yields for both triggers and compare them to those for p+p collisions. These measurements have different trigger bias, in terms of both the path-length distribution and quark/gluon mix of the recoil jet population, and their corrected recoil spectra are compared. We also report the recoil jet azimuthal distribution relative to the  $\pi^0$  trigger axis, and search for medium-induced modifications. Such modifications may probe the quasi-particle nature of the Quark-Gluon Plasma and help discriminate different models of it.

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