



Contribution ID: 11

Type: not specified

## Direct photon-hadron correlation measurement at RHIC

Monday 12 September 2016 09:35 (20 minutes)

The study of direct-photon-triggered away-side jets was proposed [1] as a good probe of parton energy loss because the direct photon transverse momentum ( $p_T$ ) approximates that of recoil parton before traversing the medium created in heavy-ion collisions. On the other hand, comparison between the suppression of direct photon- and  $\pi^0$ -triggered away-side hadron yields can give information about the path-length and color-factor dependence of parton energy loss. We report the results of direct photon-hadron and  $\pi^0$ -hadron azimuthal correlations as a measure of the away-side jet-like correlated yields in central Au+Au and p+p collisions at  $\sqrt{s_{NN}}$  200 GeV in the STAR experiment. The charged-hadron per-trigger yields at mid-rapidity ( $|\eta| < 1$ ) and for transverse momenta  $p_T^{assoc} > 1.2$  GeV/c associated with direct photon and  $\pi^0$  (for  $12 < p_T^{trig} < 20$  GeV/c) in central Au+Au collisions are compared with p+p collisions. The same  $z_T$  ( $\sim \frac{p_T^{assoc}}{p_T^{trig}}$ ) dependence of the suppression is observed for direct photon and  $\pi^0$  triggers, within uncertainties. The results are compared with energy-loss-inspired theoretical model predictions.

[1] X.-N. Wang, Z. Huang, and I. Sarcevic, Phys. Rev. Lett. 77, 231 (1996).

### Summary

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**Session Classification:** Monday Morning