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Measurement of in-medium modification of energy-space structure of jets via γ and π^0 triggered hadrons in Au+Au collisions at RHIC

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Since the discovery of the jet quenching at RHIC, the in-medium interaction of hard scattered partons with the nuclear medium created by high-energy heavy-ion collisions has been an excellent tool to understand not only the transport properties of the medium but also its time evolution towards hadronization. The multi-differential measurement of the high momentum two-particle correlations can probe a particular space-time window as a function of energy transfer. Comparing the correlations with the prompt photon triggered hadron spectra, one can extract the property of the medium from various aspects and contribute to distinct models. The PHENIX experiment at RHIC has collected its highest statistics of the γ and π^0 triggered hadron events in Au+Au collisions at $\sqrt{s_{NN}}=200\text{GeV}$ in the RHIC Year-2014 run, and measured not only the inclusive spectra of the triggered hadrons but also the angle and energy dependent I_{AA} and D_{AA} . We will discuss the in-medium modification of the energy-space structure of the jets at the RHIC energies with the results obtained.

Category

Experiment

Collaboration (if applicable)

PHENIX

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