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sPHENIX measurement of the first full calorimeter jet spectrum in p+p collisions at RHIC

The sPHENIX experiment is a next-generation collider detector at RHIC designed for rare jet and heavy flavor probes of the Quark-Gluon Plasma. The experiment includes large-acceptance, electromagnetic (EMCal) and hadronic (HCal) calorimeter systems, along with a very high-rate data acquisition plus trigger system. In RHIC Run-24, sPHENIX sampled 107/pb of p+p collision data at 200 GeV using an efficient high-pT jet trigger. This dataset represents a major increase in the luminosity times acceptance compared to previous measurements for this collision energy, along with the first HCal at mid-rapidity at RHIC for measuring the contribution from neutral hadrons. This talk presents a measurement of the inclusive jet cross-section performed with the full sPHENIX calorimeter system. This measurement serves as the pQCD baseline for measurements of single jet suppression in future sPHENIX Au+Au data-taking at RHIC, and as a key demonstration of the sPHENIX detector capability

Category

Experiment

Collaboration (if applicable)

sPHENIX Collaboration

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