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Jet Calibration for Year 1 Data in sPHENIX

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The sPHENIX detector at the Relativistic Heavy Ion Collider (RHIC) is designed to study the small scale structure of the quark-gluon plasma (QGP) created in collisions of heavy ions. Jets, produced in hard scatterings early in the collisions, provide an ideal probe for the full evolution of the QGP. sPHENIX is the first detector at RHIC with full coverage electromagnetic and hadronic calorimetry at mid-rapidity up to $|\eta| = 1.1$, allowing for precise measurements of jet kinematics and physics effects such as jet energy loss. The sPHENIX calorimeter system consists of three sampling calorimeters: a tungsten and scintillating fiber electromagnetic calorimeter, and an aluminum (steel) and scintillating tile inner (outer) hadronic calorimeter. These calorimeters must be calibrated to reconstruct the full electromagnetic and hadronic energy deposited by jets. The jet level calibration combines Monte Carlo-based corrections and data-driven techniques to provide fully calibrated calorimeter jets for measurements of jet quenching in sPHENIX. This poster will present the status and plans for jet calibration using Au+Au data at 200 GeV measured in sPHENIX in 2023.

Category

Experiment

Collaboration (if applicable)

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