

Jet spectra and jet structure measurements with sPHENIX

The sPHENIX proposal is for a second generation experiment at RHIC, which will take advantage of the increased luminosity due to accelerator upgrades, and allow measurements of jets and jet correlations with a kinematic reach that will overlap with measurements made at the Large Hadron Collider (LHC). Particle jets, formed when a hard scatter parton fragments and then hadronizes into a spray of particles, were proposed as a probe of the Quark Gluon Plasma formed in heavy-ion collisions. As they traverse the QGP, the hard scattered partons probe the medium at a variety of length scales, which is called jet quenching. To answer the fundamental questions of how and why partons lose energy in the QGP, we need to characterize both the medium induced modification of the jet fragmentation pattern and the correlation of the lost energy with the jet axis. Some observables that help elucidate these effects are gamma-jet correlations and jet fragmentation functions, which require the precise tracking and calorimetry that sPHENIX will have. We will show the performance of these observables as well as that for jet and hadron spectra measurements, which are necessary for a baseline understanding, based on detector simulations.

Preferred Track

Future Experimental Facilities, Upgrades, and Instrumentation

Collaboration

sPHENIX

Primary author: REED, Rosi Jan (Lehigh University)

Presenter: REED, Rosi Jan (Lehigh University)

Session Classification: Poster Session