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# Status and Performance of the Calorimeter Systems for the sPHENIX Experiment at RHIC

*Monday, May 21, 2018 5:29 PM (20 minutes)*

The sPHENIX experiment at RHIC will make high statistics measurements of jets, jet correlations, and upsilon states in heavy ion collisions in the early 2020's. High resolution tracking coupled with uniform electromagnetic and hadronic calorimetry will be used to characterize the temperature dependence of transport coefficients of the quark-gluon plasma.
In this talk we will present a brief introduction to the sPHENIX detector design with emphasis on calorimetry. The latter includes a compact tungsten/scintillating fiber electromagnetic calorimeter and a steel/scintillating tile hadronic calorimeter. The outer calorimeter steel also serves as a magnetic flux return for the central magnet. The design is optimized for jet energy measurements above the underlying event background in Au-Au collisions at RHIC energies, electron and photon identification and measurement over whole range of secondary particle momenta including those from W/Z-decays and photon/p0 separation at transverse momenta critical for precision measurements of the thermal photon emission from early stages in heavy ion collisions. Built around the preexisting BaBar superconducting magnet, we have chosen for sPHENIX a calorimetry system segmented with towers in each longitudinal section overlapping in azimuth and rapidity.
Prototypes of the sPHENIX calorimeter systems have been extensively simulated within the GEANT4 simulation framework. and repeatedly tested in particle beams in the T1044 test beam experiment at the FTBF at FNAL. Both simulation data and test beam data will be reported in this talk.

## Secondary topics

## Applications

Design concepts for future calorimeter at the intensity frontier

## Primary topic

Scintillators

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