



Contribution ID: 824

Type: Poster

Test Stand and performance studies of scintillator tiles for the sPHENIX Hadronic Calorimeter

Tuesday, 15 May 2018 19:10 (30 minutes)

The sPHENIX experiment will collect high statistics proton-proton, proton-nucleus and nucleus-nucleus data at the Relativistic Heavy Ion Collider (RHIC) from the early 2020's. sPHENIX will investigate jet modification, upilon suppression and open heavy flavor production to probe the nature of Quark Gluon Plasma, and will perform a broad range of cold QCD studies. A key component to the detector design and the ability to accurately measure jets is the hadronic calorimeter (HCal). The sPHENIX HCal is located outside of the solenoid magnet and is composed of alternating layers of tapered steel plates and scintillator tiles. These layers are tilted in azimuth such that a particle coming directly from the interaction point will traverse 4 tiles. The extruded plastic tiles are embedded with a wavelength shifting fiber which directs the light produced by the energy deposited in the tile to SiPMs. This design has been shown to yield the energy resolution required by the sPHENIX physics program.

It is crucial that the tiles behave uniformly, therefore, in preparation of the production phase of sPHENIX, a test stand for the tiles and a quality test has been developed to ensure the performance of the tiles prior to assembly. This poster will present the design of the tile test stand, the plans for production and testing of the tiles, in addition to showing studies of the tiles' response to cosmic rays using the test stand setup and their connection to the calibration of the detector.

Collaboration

sPHENIX

Content type

Experiment

Centralised submission by Collaboration

Presenter name already specified

Primary author: SPHENIX COLLABORATION

Presenter: CONNORS, Megan Elizabeth (GSU)

Session Classification: Poster Session

Track Classification: Future facilities, upgrades and instrumentation