

Abstract Submitted  
for the SES17 Meeting of  
The American Physical Society

**Probing Nuclear Interactions and the Quark Gluon Plasma with sPHENIX** ANTHONY HODGES, Georgia State University, SPHENIX COLLABORATION — A hot, dense state of matter, known as the Quark Gluon Plasma, is believed to have existed at the infancy of the universe, and it is also created in heavy ion collisions at the Relativistic Heavy Ion Collider at Brookhaven National Laboratory. To analyze the QGP, a new particle detector, sPHENIX, is currently planned to begin taking data in 2022. The nuclear physics group at Georgia State University is involved in the development and construction of the Hadronic Calorimeter, which measures the energy of hadronic matter produced in the collisions. The sPHENIX hadronic calorimeter itself is composed of individual scintillator tiles embedded with wavelength shifting fibers readout to silicon photomultipliers (SiPMs). Results from the 2016 prototype test beam of the hadronic calorimeter subsystem demonstrate the hadron energy resolution satisfies the performance requirement for sPHENIX. Additionally, we are working to characterize the performance of the hadronic calorimeter tiles by exposing them to cosmic rays under different conditions. These cosmic ray tests include trigger configuration studies and discriminator threshold characterization using a CAEN DT7502 FEB. Results from these tests will allow us to establish a baseline calibration procedure for data taking with sPHENIX.

Anthony Hodges  
Georgia State Univ

Date submitted: 06 Oct 2017

Electronic form version 1.4