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Performance Characterization Studies of sPHENIX Hadronic Calorimeter Scintillating Tiles JACOB TUTTEROW, Georgia State University — At Georgia State University, we are studying the performance characterization of sPHENIX Hadronic Calorimeter (HCal) scintillating tiles. These tiles are shipped to Brookhaven National Lab to be installed in a next-generation jet detector at the Relativistic Heavy Ion Collider (RHIC). The tiles are placed in steel absorber plates in groups of five, called towers. To improve the energy resolution, sPHENIX requires HCal towers to be composed of scintillating tiles of similar light yield. These tiles scintillate when struck by an incoming particle, which is then collected by a wavelength shifting fiber that sends the light to a silicon photomultiplier (SiPM). Our quality assurance requires testing each tile using cosmic rays to determine performance characteristics. A performance ratio is determined for each tile based on the most probable value extracted from the ADC distribution. To compare tiles across tests, two reference tiles are used in every test and are used to normalize the performance ratio. This poster will present the status of the HCal tile testing and assembly.

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