

Abstract Submitted
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On the Optimization of Homogenous Light Output in Scintillator Panels for the sPHENIX Collaboration SEBASTIAN VAZQUEZ-CARSON, None, SPHENIX COLLABORATION — The sPHENIX detector at RHIC will contain an electromagnetic and a hadronic calorimeter used for the detection of particles ejected in jets from heavy ion collisions. The hadronic calorimeter will be composed of layers of steel plates that are alternated with plastic scintillators. Within the scintillator panels, wavelength shifting fiber optic cables are embedded and coupled to silicon photo multipliers (SiPMs). The signal from the SiPMs pass through a preamp that shapes and amplifies the signal before passing it to a analog to digital converter (ADC) from which the energy deposited in the scintillator is calculated. The scintillator panels are manufactured with a diffusive coating to improve reflection and increase sensitivity. With the test setup at the University of Colorado at Boulder, we explored the correlation between the presence and density of the diffusive coating and the uniformity of light output within the panels. We prototyped various SiPM mounting systems and characterized the performance of the preamps with the aim of optimizing light collection, panel response sensitivity, and signal clarity.

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None

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