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GEANT4 Simulation Study of Light Collection Performance from Plastic Scintillating Tiles ZACHARY LANGFORD, Georgia State University — In recent years, there has been an increase in the popularity of using silicon photomultipliers (SiPM) for light collection from scintillators in particle detectors. The members of the high energy nuclear physics group at Georgia State University are testing over twelve thousands plastic scintillating tiles in 24 shapes with variable sizes and routing patterns of wavelength shifting fibers. These tiles are used for building the sPHENIX Hadronic Calorimeter for particle jet energy measurement in heavy ion collisions at the Relativistic Heavy Ion Collider at Brookhaven National Lab. In order to quantify the light collection uniformity and efficiency of these scintillating tiles with different fiber routing patterns, a GEANT4-based simulation has been developed. In this presentation, we highlight the important steps of constructing the optical components in the simulation and show the preliminary results from our studies.

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