



Contribution ID: 452

Type: Poster

## Hadronic calorimetry R&D for future PHENIX

*Thursday, August 16, 2012 4:00 PM (2 hours)*

The PHENIX detector was designed and built at the Relativistic Heavy Ion Collider to explore matter created in collisions of heavy nuclei. PHENIX, as an infrastructure of technologically different systems, has been recording data since 2000. Research results by the PHENIX experiment have already made an impact on the broad field of

experimental nuclear physics. Being in its second decade of research, PHENIX intends to expand its physics program; thus consideration of possible upgrades has recently started. Calorimetry detectors are expected to be part of the upgraded PHENIX in forward and central regions. We consider a sampling detector that uses plastic scintillator tiles for future PHENIX hadronic calorimeters. The R&D program has commenced and, as its first phase, a reconfigurable sampling scintillator prototype calorimeter is being fabricated. With its lateral active detection area of 35 cm x 35 cm, the calorimeter will be capable of taking data with electron and hadron beams. The fabricated prototype calorimeter will allow comprehensive test beam studies to research and optimize design and technical performance parameters of the possible future hadronic calorimeter. In addition, evaluated metrological limits and production costs will be used in the technical design of PHENIX upgrades.

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**Session Classification:** Poster Session Reception

**Track Classification:** Experiment upgrades, new facilities, and instrumentation