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GEANT4 Simulations for a Quartz Plate Calorimeter Prototype

UGUR AKGUN, A.S. AYAN, E.A. ALBAYRAK, F. DURU, Y. ONEL, University of Iowa, CMS COLLABORATION — Cerenkov calorimeters are effective solutions to the high radiation environments typical of future hadron colliders. The University of Iowa HEP group has designed a prototype Cerenkov calorimeter that consists of 20 layers of quartz plates separated by iron absorber. In this report we present the details of the design and a GEANT4 simulation of this prototype. The energy resolution, signal collection uniformity, and linearity of the calorimeter are simulated for electron and pion beams.

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