

Contribution ID: 73

Type: Oral presentation using Zoom

Measurement of particle energy with homogeneous calorimeter

Wednesday, 27 October 2021 13:24 (24 minutes)

We have fond a relation between the energy deposit and track length in a homogeneous calorimeter situation with GEANT4 at high energy. The relation holds for different materials of the calorimeter from 1 to 100GeV energy range. The energy deposit and track length have a linear relation with positive intercept for both of pions and electrons. The tilt of the straight lines for pion and electron are the same independent of the injection energy. The intercept is proportional to the injection energy linearly, therefore we are able to measure the particle energy as a calorimeter. The resolution of such calorimeter is represented by two quantities and about 20%/sqrt(E).

We discuss the relation and how to realize the calorimeter in this talk.

1st preferred time slot for your oral presentation

15:30-17:30 JST (8:30-10:30 CEST, 2:30-4:30 EDT, 23:30-1:30 PDT)

2nd preferred time slot for your oral presentation

10:00-12:00 JST (3:00-5:00 CEST, 21:00-23:00 EDT, 18:00-20:00 PDT)

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Session Classification: D-1: New technologies & ideas for collider detectors

Track Classification: Parallel sessions: Detectors: Session D: New technologies & ideas for collider detectors