



Contribution ID: 46

Type: not specified

Design and optimization of a MPDG-based hadronic calorimeter for a future colliders

The Particle Flow calorimetry is a leading approach towards the 4D jet reconstruction and combines precise space and time information with unprecedented jet energy resolution. It is the most suitable approach for experiments at future high energy colliders. Particle-flow calorimeters, designed to combine the information from all the detector subsystems, requires high transverse and longitudinal granularity

A proposal for an innovative MPDG-based hadronic calorimeter is currently under investigation and its design is carried out with the aim to maximize the efficiency of the Particle-flow reconstruction of charged and neutral hadrons and jets. The detector consists of a sampling calorimeter exploiting MPDGs as active layers: the MPDGs offer a fast and robust technology for high radiation environments, and a high granularity for precise spatial measurements. The detector design and preliminary layout optimization performed with Geant4 will be presented.

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Session Classification: Calorimetri