

Imaging Analog Hadron Calorimetry with Scintillators and SiPMs

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Abstract

Plastic scintillators read out with silicon photomultipliers have opened the door for new approaches to calorimetry and to event reconstruction in particle physics. Their compactness, low cost, low operating voltage and insensitivity to magnetic fields allow to construct highly granular calorimeters with analog readout for future colliders. The first large-scale application of these devices is the CALICE analog hadron calorimeter, a physics prototype for calorimetry at future linear electron-positron colliders. I will review key aspects of the technology and of the performance of this detector. In addition, I will discuss a spin-off experiment for the measurement of the time structure of hadronic showers, which uses new-generation SiPMs and scintillator tiles without wavelength shifting fibers to achieve improved time resolution.