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Highly Granular Calorimeters: Technologies and Results

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Content

The CALICE collaboration is developing highly granular calorimeters for experiments at a future lepton collider primarily to establish technologies for particle flow event reconstruction. These technologies are now also finding applications elsewhere, such as upgrades for the LHC. At the same time, the large data sets collected in an extensive series of beam tests have enabled detailed studies of the properties of hadronic showers in calorimeter systems, resulting in improved simulation models and development of sophisticated reconstruction techniques. In this presentation, we will discuss current R&D activities within CALICE, focusing on technological prototypes that address system issues relevant for full detector systems and production techniques amenable to mass production for silicon, scintillator, and gas detector based electromagnetic and hadronic calorimeters. We will also present highlights from studies of the structure of hadronic showers and selected results on reconstruction techniques for imaging calorimeters.

Summary

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