

Recent results on dual readout in calorimetry from the DREAM Collaboration.

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The energy resolution of the hadronic calorimeters is determined by fluctuations in the development of the shower. In non compensating calorimeters the dominant contribution comes from the fluctuation of the electromagnetic shower fraction. The dual readout technique proposed by DREAM aims to correct event by event for the fluctuations of the e.m. component measuring at the same time scintillation and Cherenkov light.

In the last years the DREAM Collaboration has performed several tests to exploit the dual readout technique in calorimeters.

Many types of crystals (PbWO, BGO, BSO, etc.) have been exposed in test beams to evaluate the Cherenkov yield and how to optimize the light collection (analysis in time of the signal, filtering of the signals, polarization of the Cherenkov component). The extension of the dual readout to crystal is in fact very important when the hadronic calorimeter follows an electromagnetic calorimeter often composed by crystals.

The possibility to use tiles of absorber interleaved with tiles of quartz and scintillator for the dual readout has also been tested.

At present the DREAM Collaboration is testing a new copper calorimeter with scintillator and clear PMMA fibers.

In the presentation a report will be given on this activity of the DREAM Collaboration.

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Classification de Session: Detector R & D and Data Handling

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