Recent results from the DREAM Project

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High-precision jet spectroscopy will be increasingly important in future high-energy accelerator experiments, particularly at a Linear e^+e^- Collider. DREAM (Dual REAdout Method) calorimeters seem to be well suited for this task. The key aspect of DREAM detectors is the simultaneous measurement of scintillation light and Čerenkov light generated in the shower development process. By comparing these two signals, the electromagnetic shower fraction can be measured event by event, both for single hadrons and for jets, and the detrimental effects of fluctuations in this fraction can be eliminated.

After illustrating the merits of this technique with data from a calorimeter in which the two signals are provided by two different types of optical fibers, I will concentrate on recent results obtained with $PbWO_4$ and BGO crystals. I will describe the techniques used to unravel the signals from these crystals into Čerenkov and scintillation components, and show the advantages for hadron calorimetry of doing so.