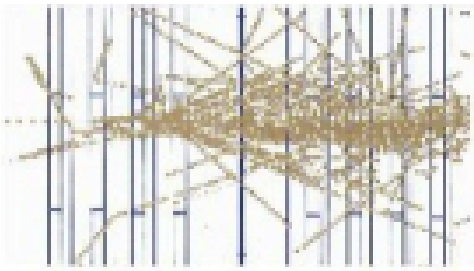

ID contributo: **69** Tipo: **oral presentation**

Recent results from the DREAM Project

martedì 27 maggio 2008 09:20 (20 minuti)

Summary

High-precision jet spectroscopy will be increasingly important in future high-energy accelerator experiments, particularly at a Linear e+e– Collider. DREAM (Dual REAd-out Method) calorimeters seem to be well suited for this task. The key aspect of DREAM
detectors is the simultaneous measurement of scintillation light and
Cherenkov 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. The merits of this technique were first illustrated with a calorimeter in which the two signals are provided by two different types of optical fibers. More recently, we have been concentrating on crystals (PbWO4 and BGO), which have the potential of eliminating (or at least reducing) the contributions of the next two important sources of fluctuations: photoelectron statistics and sampling fluctuations. I will describe the techniques used to unravel the signals from these crystals into Cherenkov and scintillation
components. The detailed time structure measurements we performed for these studies
also make it possible to measure the contributions of neutrons to the signals. This would
help to reduce the effects of fluctuations in nuclear binding energy losses, which is the last frontier in the quest for ultimate hadronic calorimetric performance.

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Classifica Sessioni: Calorimetric Techniques

Classificazione della track: Calorimetric Techniques