

Th  
14.00  
I.T.

CALORIMETERS: COMPARISON BETWEEN GASEOUS READOUT  
TECHNIQUES AND ALTERNATIVES

C. Fabjan

Calorimetric techniques are applied to a vast range of detection problems, measuring the energy and position of particles from keV-photons to TeV-nuclei. As a consequence, many different readout methods have been developed, among which gaseous techniques occupy a prominent place. First, we explain and compare the principal features of gaseous, liquid and solid readouts and describe examples of calorimeter systems, which exploit these properties in advantageous ways. Secondly, we comment on our present understanding of the physics of the hadronic cascade, from which additional conditions on the response of the active material are derived. New avenues of investigation are suggested, where gaseous readout techniques could play an important role.

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*Development of Calorimeters Using Thin Chambers Operating in a High Gain Mode*

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*A new type of thin multiwire proportional chamber detector operating in a high gain mode has been developed. Its characteristics have been optimized for calorimetric use. Using ten such detectors with areas of 30 x 60 cm<sup>2</sup> interlaced with lead plates of 6 mm thickness and with iron plates of 8 cm thickness, the characteristics of such detectors operating as electromagnetic and hadron calorimeters have been tested and compared with the theoretical expectations.*