Performances of an electromagnetic calorimeter prototype for the ALICE experiment VCI 2001

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Results on the performances of an electromagnetic calorimeter are presented. The detector has quartz fibres, tilted at 45^O with respect to the incoming particles, as active material and lead is used as absorber. Cerenkov light is produced in the fibres by the charged particles of the shower.

The signal is guided to a photodetector by means of an air light guide of trapezoidal section. It is made of plexiglass aluminized under vacuum to optimize the reflection process. Light transmission efficiency has been studied as a function of the light guide geometry, both with Monte Carlo simulation and performing measurements with a stable light source.

The calorimeter has been tested at the CERN SPS with positron beams of energy between 20 and 150 GeV.

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