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Presentation of the Grainite calorimeter project

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GRAiNITE Studies

Presentation of a new type of sampling ECAL calorimeter. It is of the Shaslik type with WLS fibers, but instead of lead and scintillator plates, it uses a mixture of crystal scintillator grains and heavy liquid. According to Geant 4 studies, the finer sampling allows to reach a resolution $< 2\%/\sqrt{E}$. A sample of $ZnWO_4$ grains obtained by "spontaneous" flux method crystallisation has been obtained by ISMA Ukraine. Scintillation yield of the grains will be presented. A new method is proposed to correct for the e/h ratio and therefore the jet energy resolution of this ECAL part of a dual readout calorimeter, it uses the Pulse Shape Discrimination properties of crystal scintillator to evaluate the fraction of energy deposited by non relativistic particles, examples of such discrimination will be given.

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