Subject: Cut in energy for EMC hit and digi
Posted by StefanoSpataro on Wed, 17 Dec 2014 20:55:43 GMT
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Dear EMC experts,
I noticed running the standard simulation macros the following message coming from the Emc Hit producer:

-I- PndEmcHitProducer INITIALIZATION **********
-I- PndEmcHitProducer: Using nonuniform lightoutput HitProducer has EnergyHitThreshold of 0.000001 GeV and Use_nonuniformity 1
-I- PndEmcHitProducer: Intialization successful

Indeed checking the emc params:

[PndEmcDigiPar]
EnergyHitThreshold:Double_t 0.000001

The energy threshold for each EMC hit is 1 KeV... Is it maybe a too small cut? I mean, I suppose the minimum energy for emc is at the level of MeV and not KeV.
Indeed later in the param file:

EnergyDigiThreshold:Double_t 2.0e-3

Then the minimum energy is 2 MeV. This low cut for energy in the hit could have effects on the data size (but I did not try to raise the cut and see the effect). Were there maybe particular reasons to use such low cut?

Speaking about minimum digi energy, I read also in the digi params :

Incoherent_elec_noise_width_GeV_APD:Double_t 1.5e-3 ### optimized based on the results of proto60 experiment
Incoherent_elec_noise_width_GeV_VPT:Double_t 1.5e-3

If the sigma of the elec noise is 1.5MeV, I would say that a reasonable energy cut could be 3 sigma -> 4.5 MeV and not 3 MeV, maybe with 3 sigma the cut is too close to the electronic noise... but I am not expert of emc electronics, these are just thought which came into my mind.