Progresses on DRC pre-shower corrections

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A Reminder...

Two samples of single gamma events have been generated:

- **sample 1**: \(0 < E_{\gamma} \leq 0.500 \text{ GeV}\) (12K events)
- **sample 2**: \(0.500 < E_{\gamma} \leq 6 \text{ GeV}\) (6K events)
DRC hits increase as the $\gamma$ path in the quartz bars increase.

Sample 1: $0 < E_\gamma \leq 500$ MeV

DRC hits associated to $\gamma$ track: sample 1
DRC hits associated to $\gamma$ track: sample 2

Sample 2:
$500 \text{ MeV} < E_\gamma \leq 6 \text{ GeV}$

The dependency of the DRC hits to the $\gamma$ path is less evident here
Rec energy vs Gen energy:

Sample 1

Sample 2

Difference between Rec and Gen increases with N_{DRC}

Almost no difference between Rec and Gen as N_{DRC} increase
In more detail...

**sample 1**

$0 < n_g < 5$

$5 < n_g < 10$

$10 < n_g < 15$

$15 < n_g < 20$

**sample 2**

$0 < n_g < 5$

$5 < n_g < 10$

$10 < n_g < 15$

$15 < n_g < 20$
How can we define the energy in the DRC?

- A suggestion from Sven:

\[
E_{DRC} = E_{e1}@V_1 - E_{e1}@V_2 + E_{e2}@V_1 - E_{e2}@V_3 + E_{e3}@V_3 - E_{e3}@V_4
\]

Energy released in the DRC = Energy at creation point - Energy at destruction point

Unfortunately, doesn’t work!

part of the energy lost by the electrons in the shower goes into the Emc and is found in the Emc Cluster