Subject: Questions on HIts in detector and MCPoint
Posted by Raghav Kunnawalkam on Tue, 03 Jul 2012 15:04:56 GMT
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Hi All

I am having a few troubles with understanding some conceptual idea on registering hits in a detector.
I have built an example just for these questions that i want to ask.

Here i have 2 detectors, one on the left and one on the right.
Both of them have plates made of kapton sandwiching the lead glass crystals on the inside. they are all made sensitive.

On the left side, i have divided the whole detector into 4 sectors, just like 4 quadrants.
On the right side, they are not divided. they are whole blocks.

I am doing this exercise to see if i can get some sort of reconstruction from the detector on the left side so that i get readouts from the 4 blue crystals and compare it to what i get from just one red readout on the right.

So i simulated 4 electrons of the same momentum (1GeV) hitting the plates head on from the inside, in the middle of each quadrant and seeing what happens.

This one shows the hits point that my detectors measures:

The one problem that i am having is that this does not seem to register photons as hits. Do i have to specify somewhere in my definition of FairEmcaPoint (the right detector), to take photons as well.

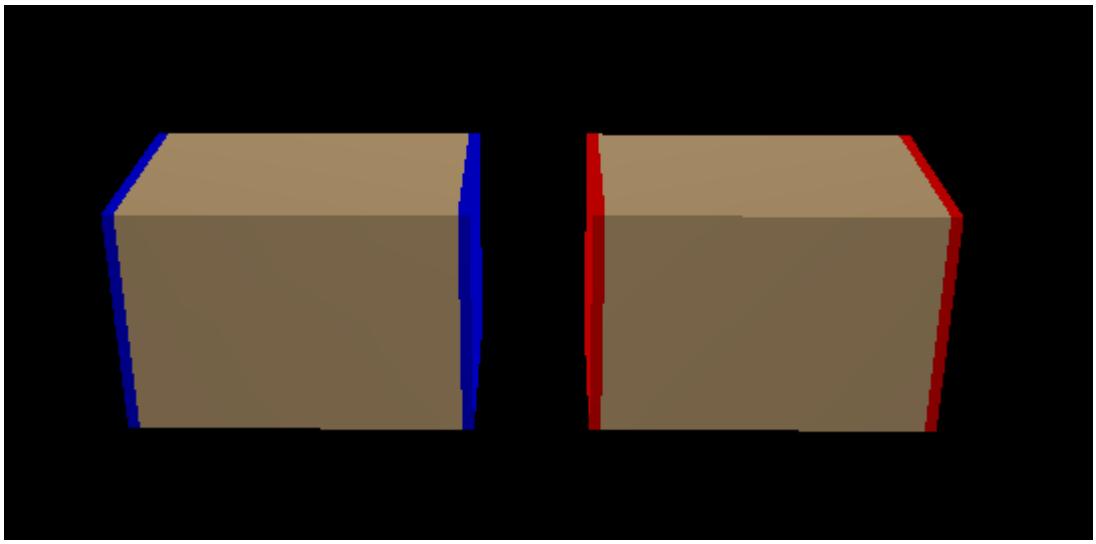
We can see clearly what i am talking about here. I can see where they are created but they do not make a hit in the red surface.

I need to count the energy of the photons as well since i want to see what happened to the electron as it progresses through the detector at the reco level.

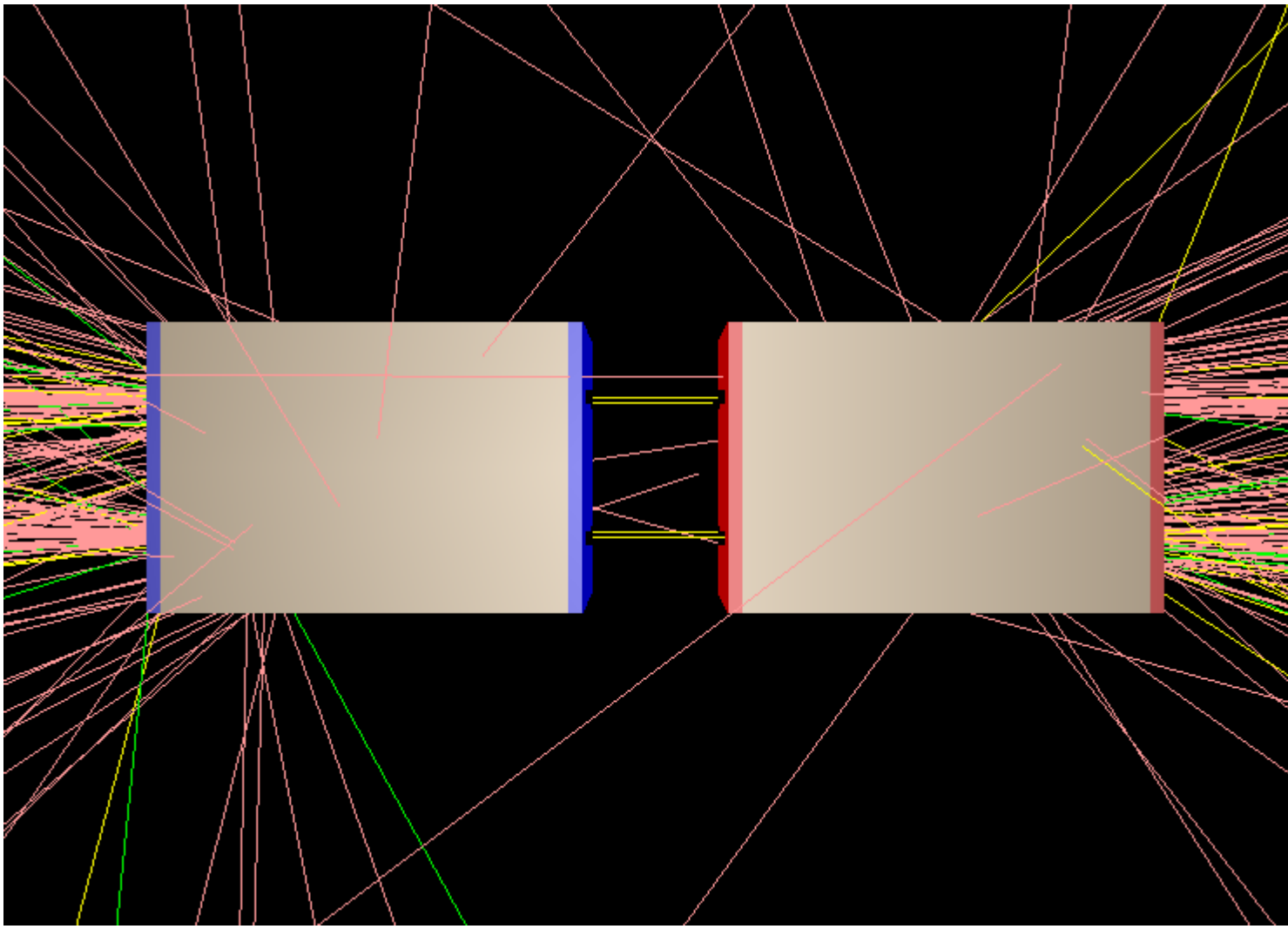
Can anyone suggest as to how i do a simple detector smearing so that i get a reco data and do something like a center of gravity curve to where the electron hit the detector in the first place.

File Attachments

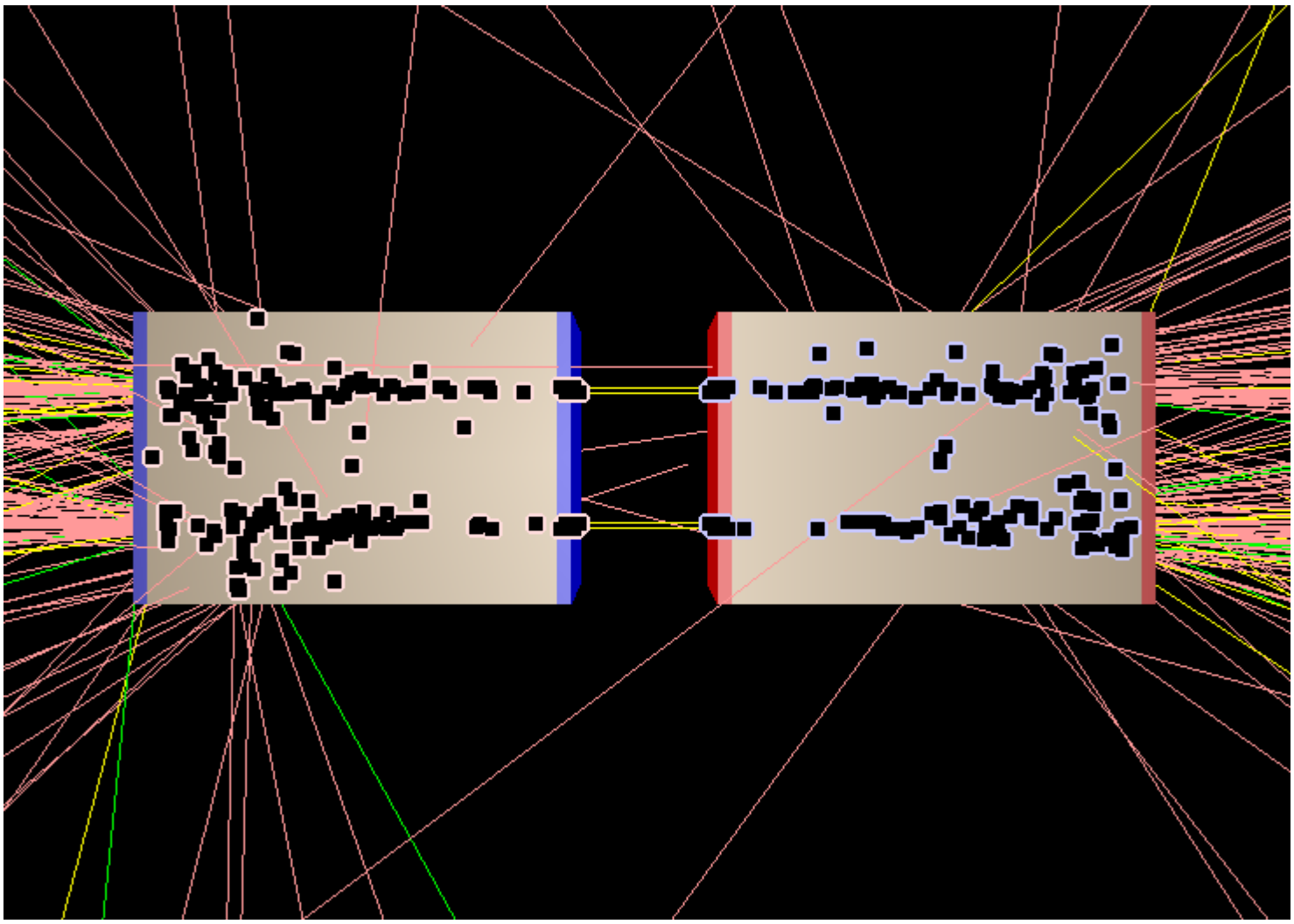
1) Screen Shot 2012-07-03 at 10.47.00 AM.png, downloaded 1118 times



2) Screen Shot 2012-07-03 at 10.58.17 AM.png, downloaded 1218 times



3) Screen Shot 2012-07-03 at 10.59.31 AM.png, downloaded 1202 times



4) Screen Shot 2012-07-03 at 11.07.48 AM.png, downloaded 1115 times