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Subject: Re: Module index confusion between GEM and EMC?

Posted by [Radoslaw Karabowicz](#) on Tue, 15 Apr 2014 10:45:03 GMT

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Dear Ermias,

Your simple problem helped us to find two bugs.

1. FairMCApplication was not correctly inserting volumes to the internal map.

This will have a minor effect, but still it should be done correctly.

Since the SVN for fair base is blocked, please fix it yourself. Edit

base/sim/FairMCApplication.cxx

and change line 623 from:

```
for (Int_t n=NoOfVolumesBefore; n <= NoOfVolumes; n++) {
```

to

```
for (Int_t n=NoOfVolumesBefore+1; n <= NoOfVolumes; n++) {
```

2. The MVD geometry, that you have used, and that is the most accurate

(Mvd-2.1\_FullVersion.root), have few volumes with duplicate names.

Tobias and Ralf have been contacted. I think that the problem is minor one, and imho influence only the calculation of the radiation length. Nevertheless, I would argue that it should be fixed.

For the moment, the best solution is to add MVD as the last detector, when one make RadLen map.

yours

radek

PS. One more thing. It is always got to verify your results. Your simulation is creating file sim\_complete\_20k\_upto\_emc.root.

Inside you will find the branch RadLen which stores all the points for the Radiation Length calculation.

If you plot `cbmsim->Draw("RadLen.fZ:RadLen.fY:RadLen.fX")`, you will get the picture of your detector.

The points have a unique identifier for each detector, `RadLen.fDetectorID`. For the points in MVD it should be set to 5,

for GEM points to 6, for EMC to 7 (because in your simulation macro, MVD, GEM and EMC where the 6,7 and 8 module added).

You can f.e. plot all the points left in STT (`RadLen.fDetectorID==4`):

```
root [1] cbmsim->Draw("RadLen.fZ:RadLen.fY:RadLen.fX","RadLen.fDetectorID==4", "")
```

It looks OK.

You can also draw MVD points, this time only Z coordinate:

```
root [1] cbmsim->Draw("RadLen.fZ","RadLen.fDetectorID==5", "")
```

You see three peaks where GEMs are. It shows that MVD and GEM are mixed.

Plotting the GEM,

```
root [1] cbmsim->Draw("RadLen.fZ","RadLen.fDetectorID==6", "")
```

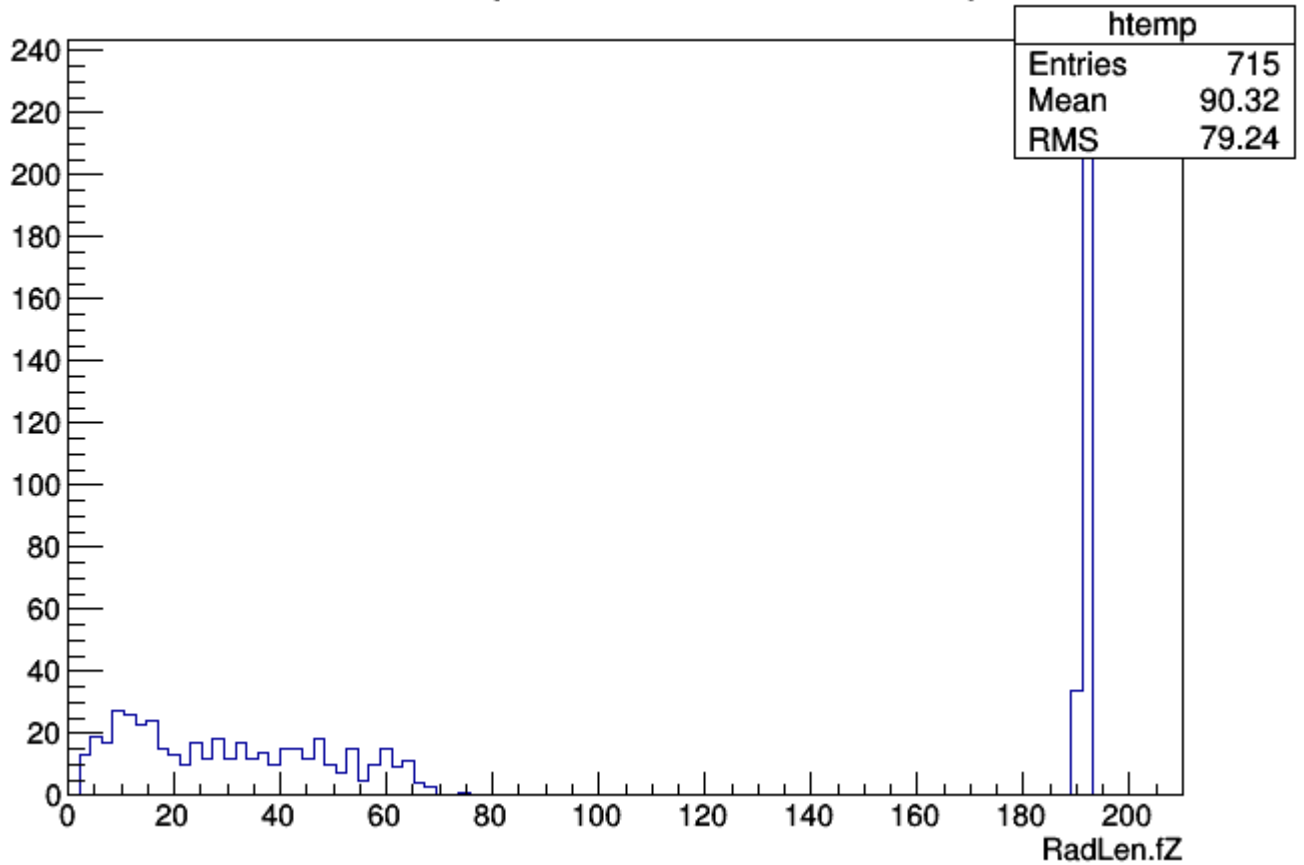
you see last GEM station and the central EMC barrel.

## File Attachments

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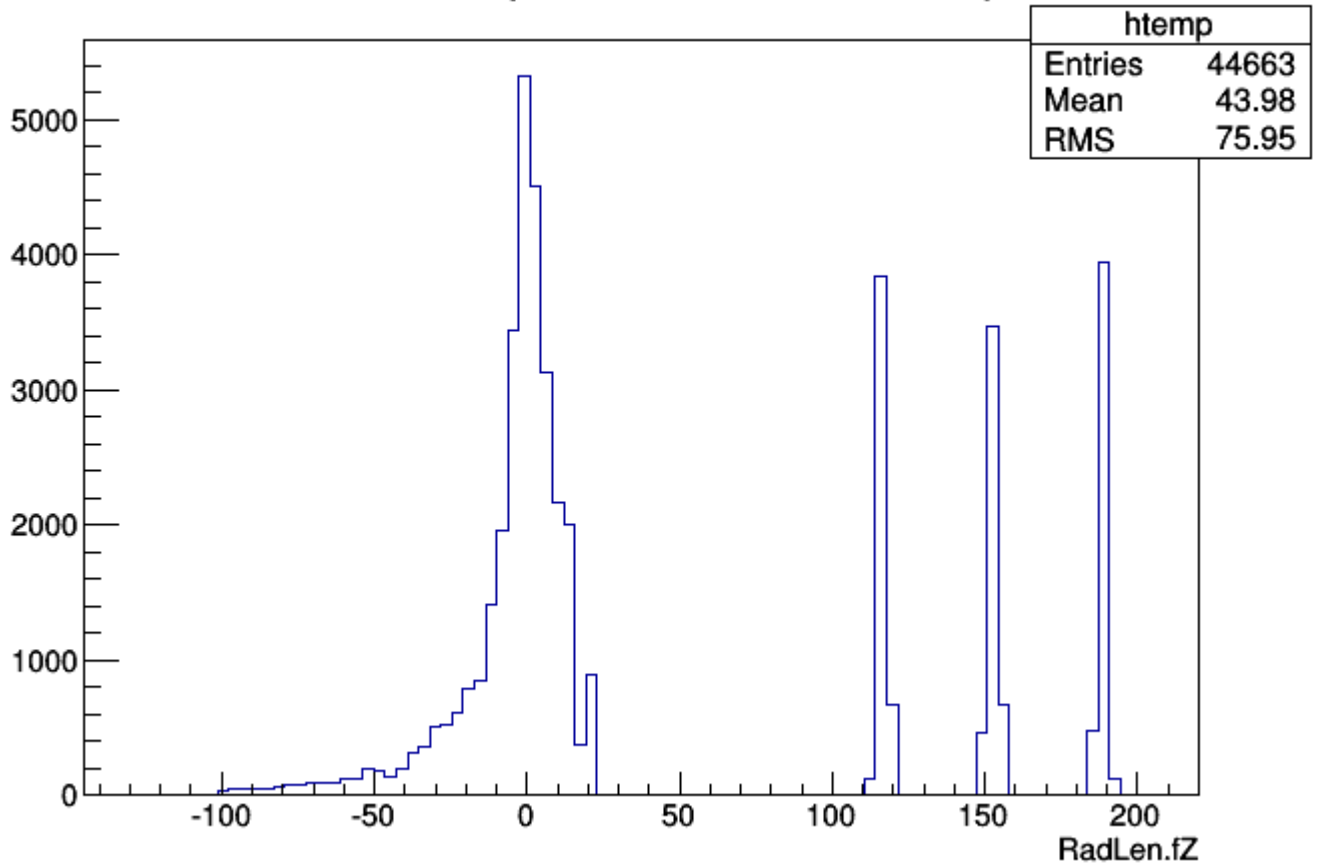
1) [gem.gif](#), downloaded 1218 times

RadLen.fZ {RadLen.fDetectorID==6}



2) [mvd.gif](#), downloaded 1291 times

RadLen.fZ {RadLen.fDetectorID==5}



3) [stt.gif](#), downloaded 1299 times

RadLen.fZ:RadLen.fY:RadLen.fX {RadLen.fDetectorID==4}

