Subject: Re: forward endcap quest goes on
Posted by Aleksandra Biegun on Thu, 02 Jul 2009 13:57:11 GMT
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Hi Irina, hi All,

the problem Irina has had with the forward endcap
with GEANT 4 is fixed now.
Somehow, the single Reflection() I have made
for Quarter number 2 and 4 caused the problem with the Z shift.

So, I have changed the macro which creates the geometry
of the forward endcap (FwEndCap) and now it is called:
createRootGeoFileFwEnd_fixed.C.
It does not have Reftection() function.
It is committed to svn to:
../trunk/macros/emc/
and creates the root file with the same name like was before,
i.e. emc_module3new.root
(also commited to svn),
so you don't need to do any changes,
just do svn update.

I also had to change a little bit
../trunk/emc/EmcTools/PndEmcStructure.cxx.

I put the same plots made twice:
for GEANT 4 and, to compare, for GEANT 3.

At the plots:
z_ene_hits_digi_clusters_g[GEANT]_fwendcap_m3changed_fixed.png

you can see that Z-position for all 4 Quarters of the FwEndCap
is in the same Z for GEANT 4. For GEANT 3 it was fine before.

The mapping is also fine, should be the straight line
in each Quarter (each copy), what you can see at plots:
xpad_x_points_m3_g4_fixed.png - for X direction
ypad_y_points_m3_g4_fixed.png - for Y direction

Quarters of the FwEndCap are placed in the clockwise direction looking downstream.

Different parameters for Points, also Z-position of all 4 Qarters, are shown at plots:

points_g4_fwendcap_m3changed_fixed.png - for GEANT 4
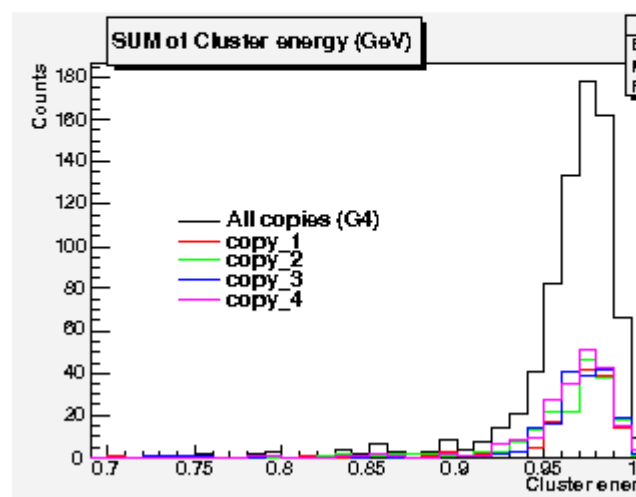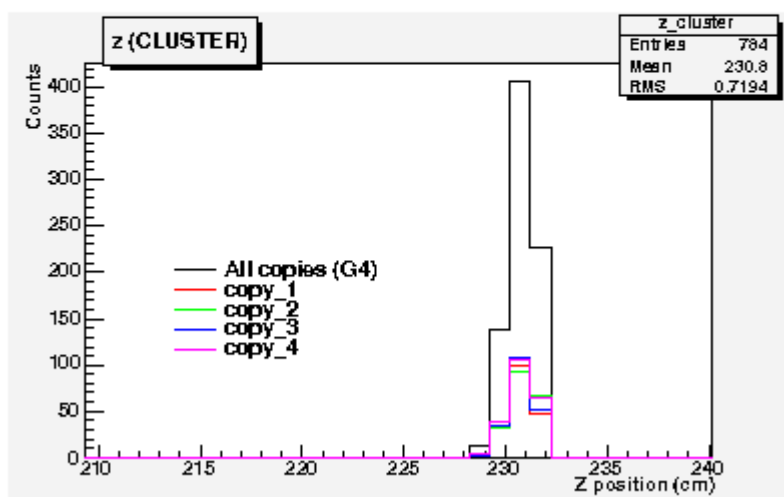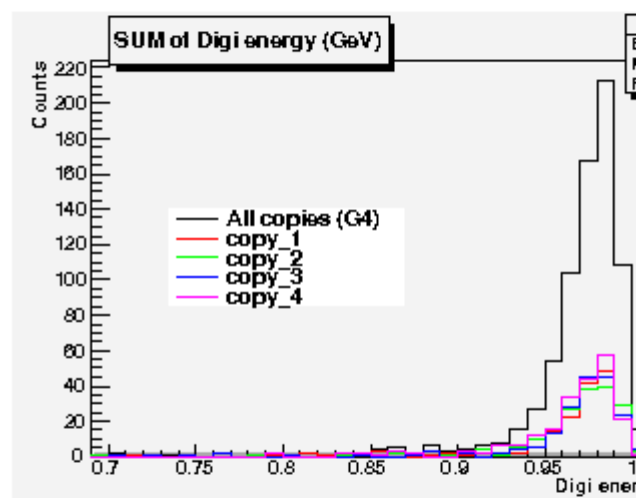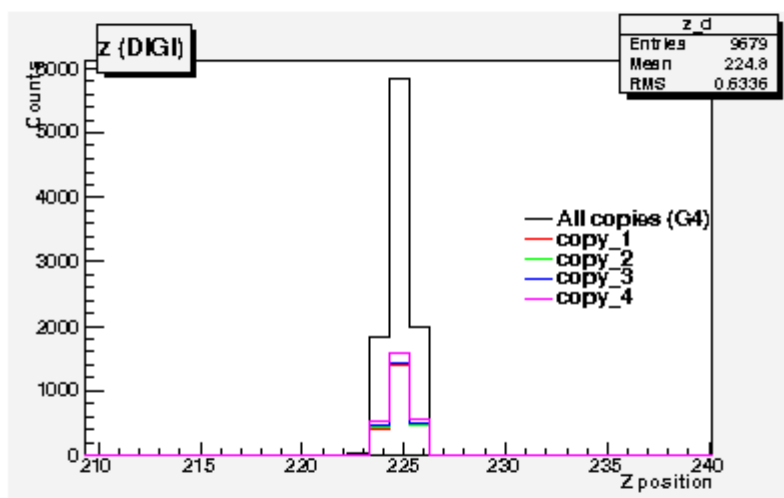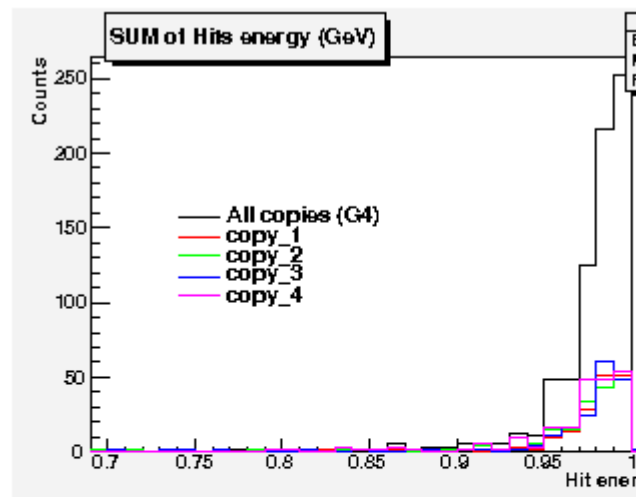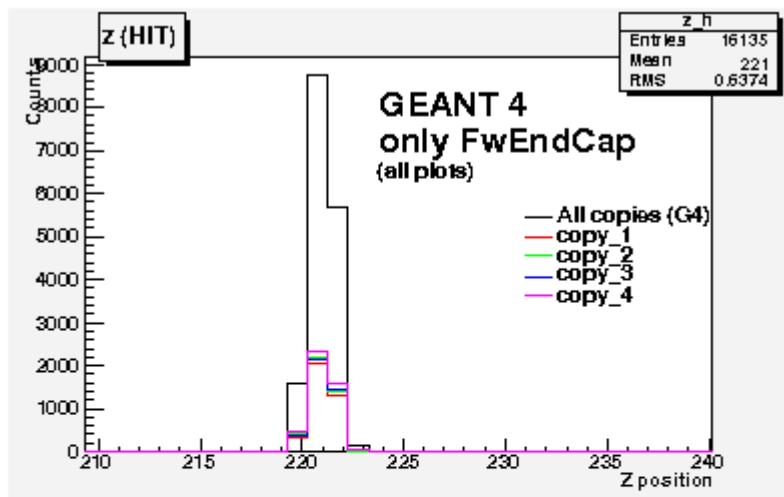points_g3_fwendcap_m3changed_fixed.png - for GEANT 3.

Irina, please check it.
I do hope there will not be any problem, but in case of any,
let me know.

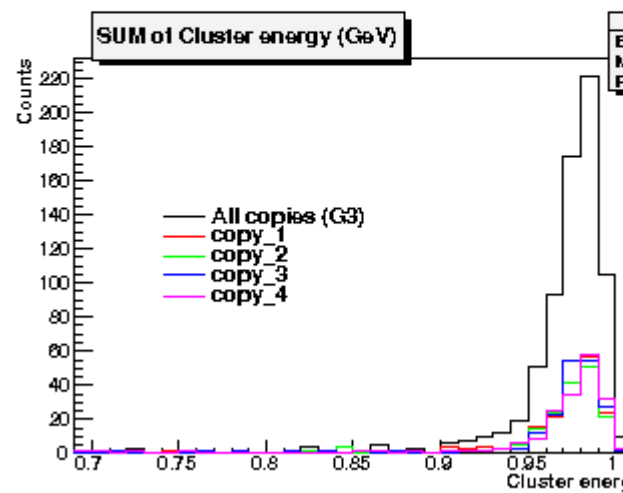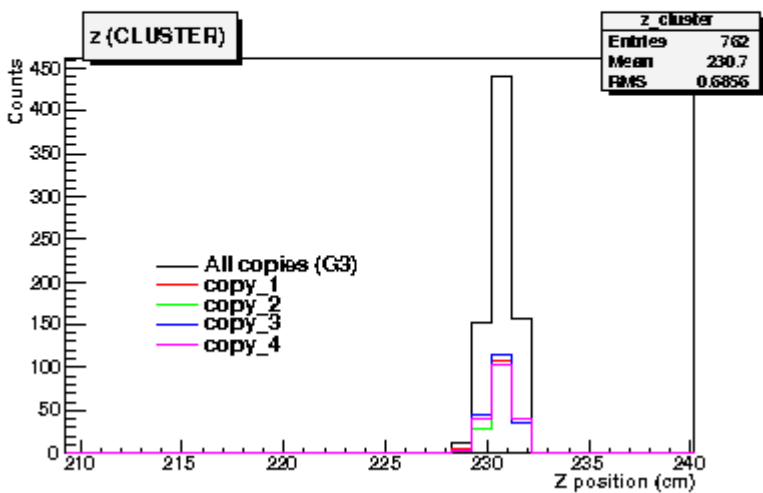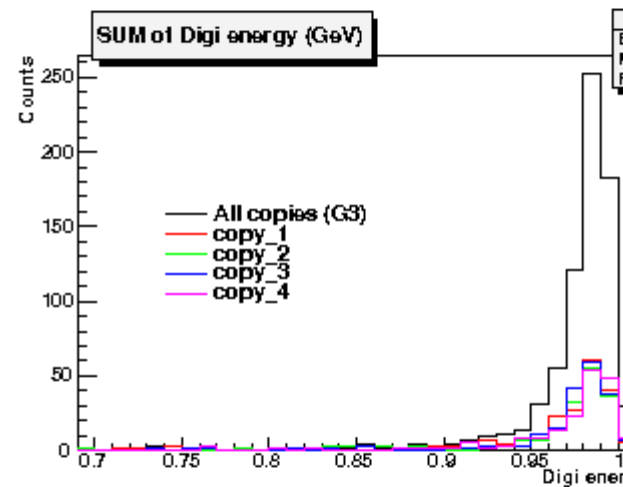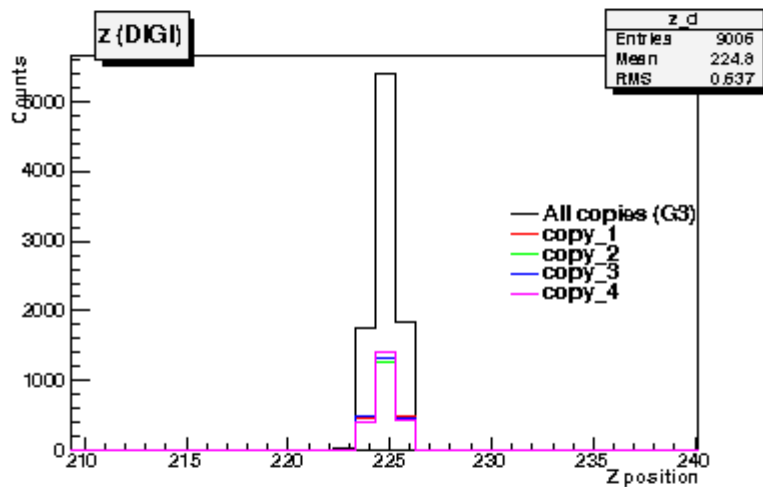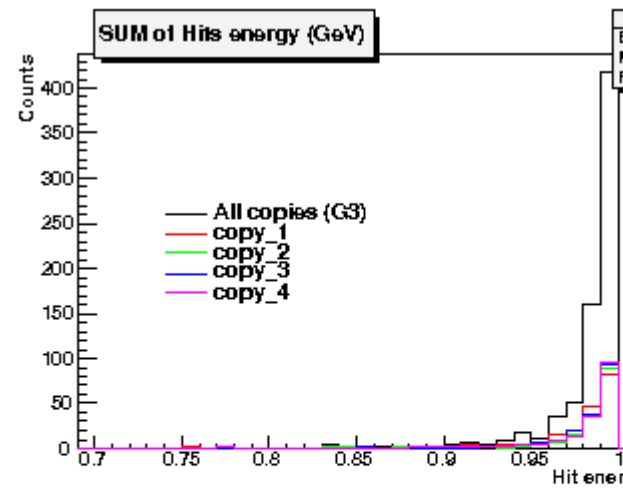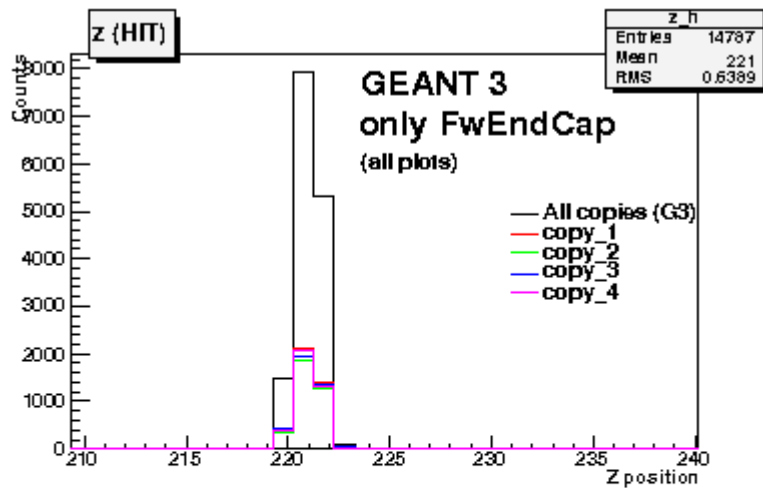If you have any question, do not hesitate to ask.

Best regards,
Ola.

File Attachments

1) z_ene_hits_digi_clusters_g4_fwendcap_m3changed_fixed.png, downloaded 565 times

2) z_ene_hits_digi_clusters_g3_fwendcap_m3changed_fixed.png,
downloaded 552 times

z (HIT)

z_h	
Entries	14787
Mean	221
RMS	0.6389

Counts

GEANT 3
only FwEndCap
(all plots)

All copies (G3)
copy_1
copy_2
copy_3
copy_4

Z position

SUM of Hits energy (GeV)

Counts

All copies (G3)
copy_1
copy_2
copy_3
copy_4

Hit ener

z (DIGI)

z_d	
Entries	9006
Mean	224.8
RMS	0.637

Counts

All copies (G3)
copy_1
copy_2
copy_3
copy_4

Z position

SUM of Digi energy (GeV)

Counts

All copies (G3)
copy_1
copy_2
copy_3
copy_4

Digi ener

z (CLUSTER)

z_cluster	
Entries	762
Mean	230.7
RMS	0.6856

Counts

All copies (G3)
copy_1
copy_2
copy_3
copy_4

Z position (cm)

SUM of Cluster energy (GeV)

Counts

All copies (G3)
copy_1
copy_2
copy_3
copy_4

Cluster energy

3) xpad_x_points_m3_g4_fixed.png, downloaded 536 times
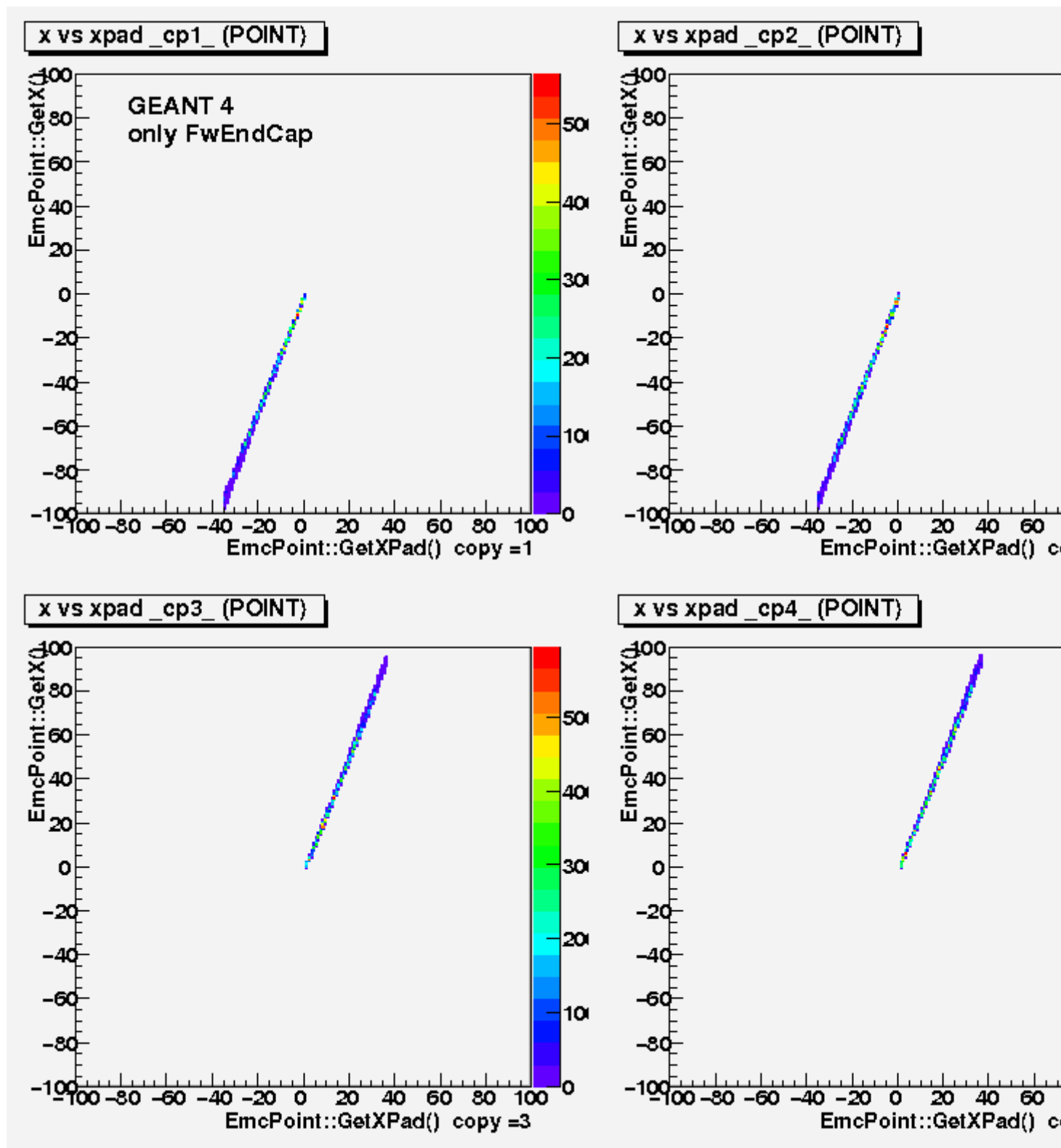
4) ypad_y_points_m3_g4_fixed.png, downloaded 513 times

y vs ypad _cp1_ (POINT)

GEANT 4
only FwEndCap

EmcPoint::GetY()

EmcPoint::GetYPad() copy =1

y vs ypad _cp2_ (POINT)

EmcPoint::GetY()

EmcPoint::GetYPad()

y vs ypad _cp3_ (POINT)

EmcPoint::GetY()
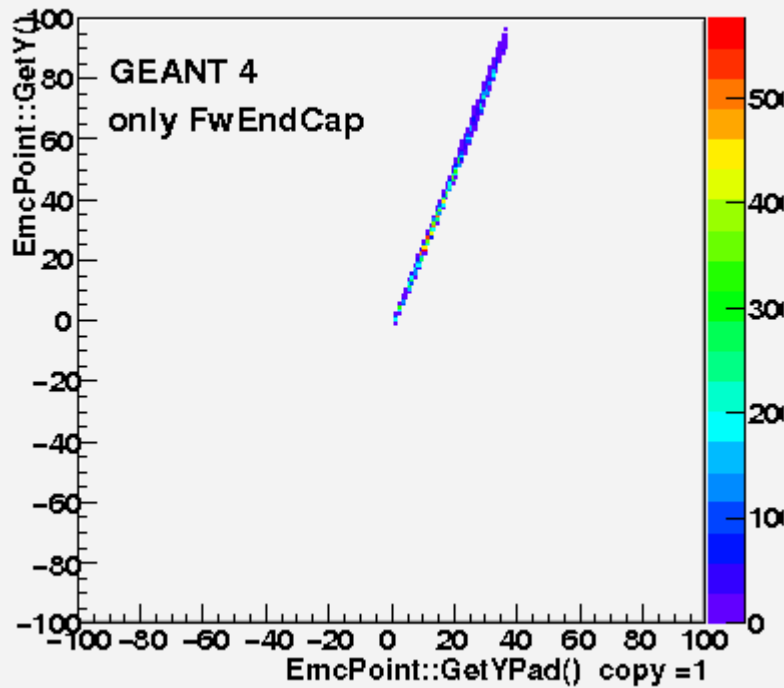
EmcPoint::GetYPad() copy =3

y vs ypad _cp4_ (POINT)

EmcPoint::GetY()

EmcPoint::GetYPad()
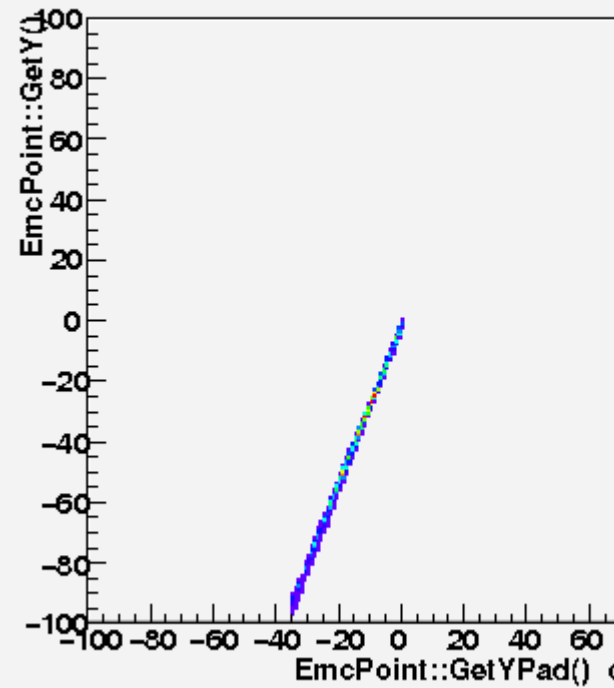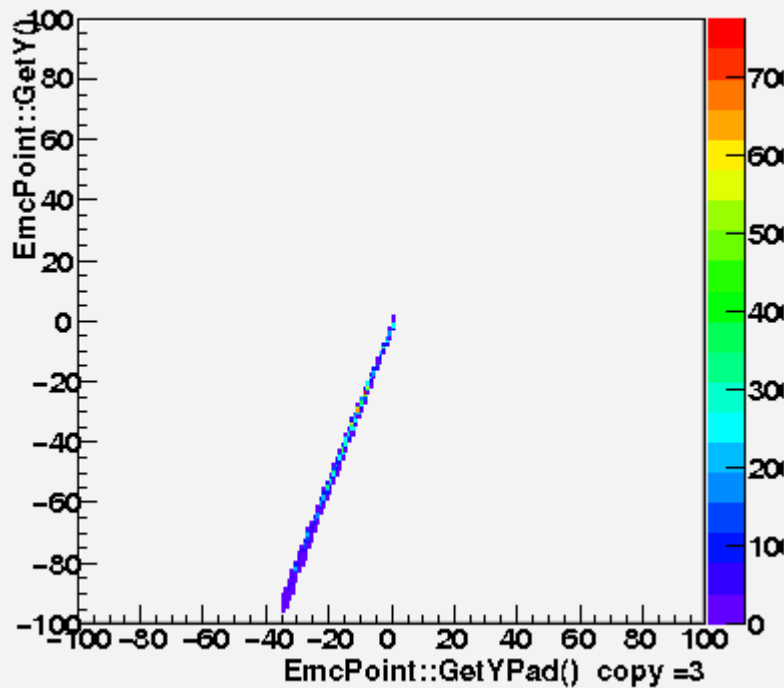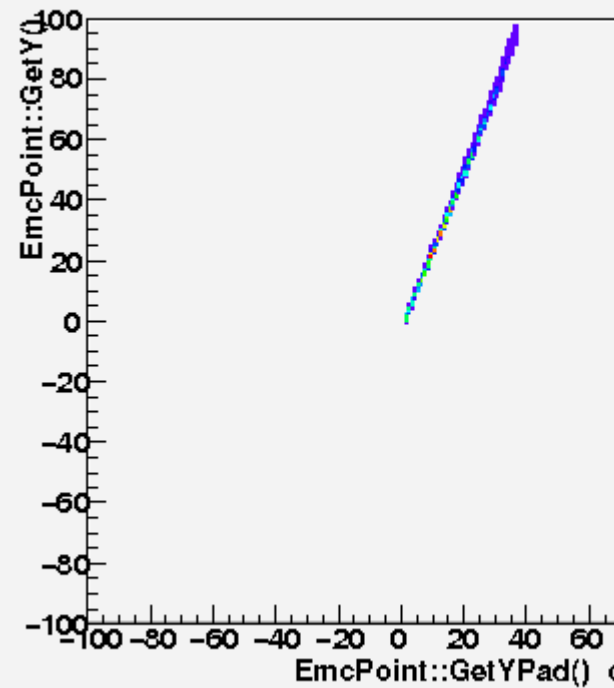
5) points_g4_fwendcap_m3changed_fixed.png, downloaded 540 times
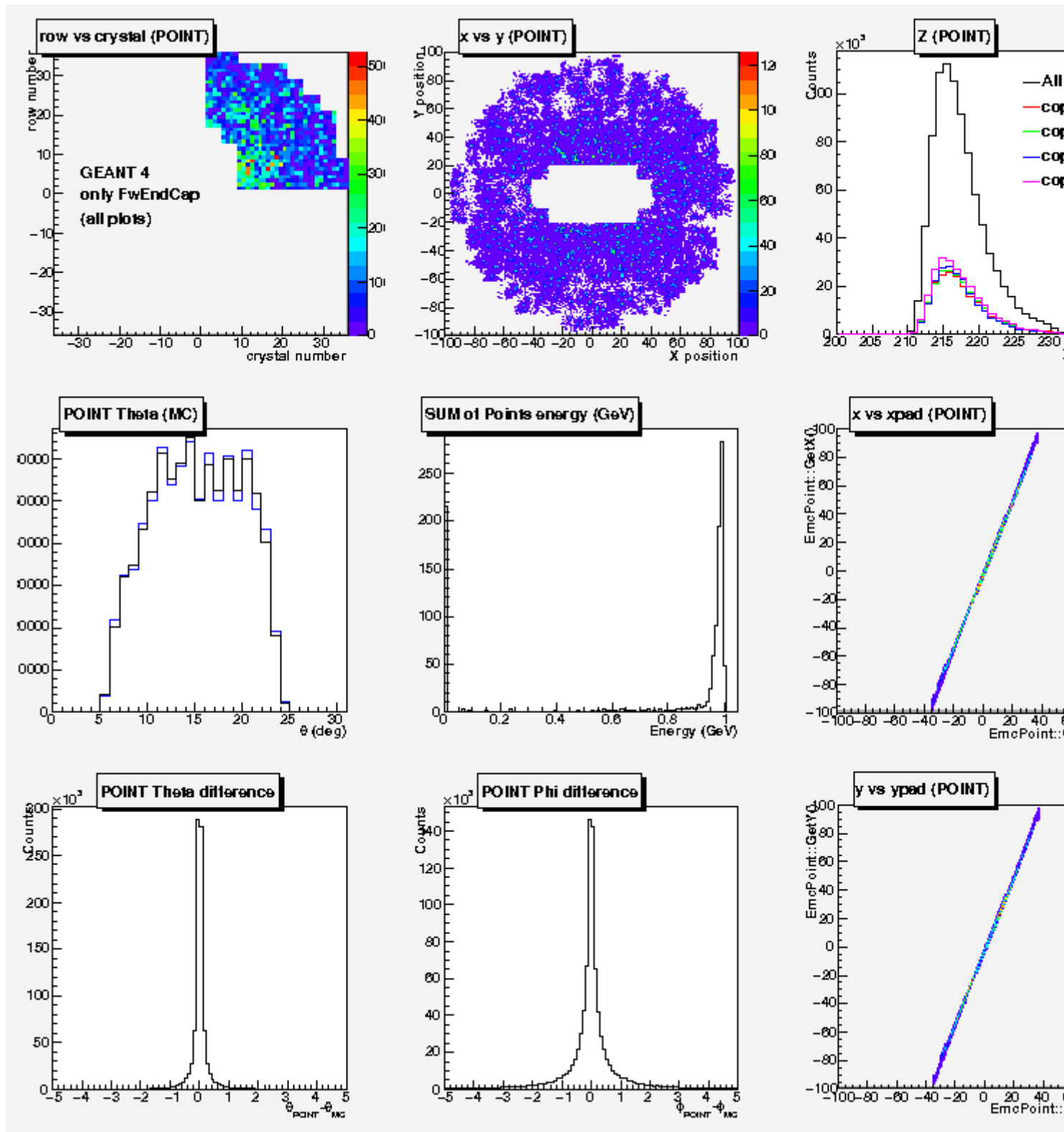
6) points_g3_fwendcap_m3changed_fixed.png, downloaded 506 times

row vs crystal (POINT) — row_crystal — Entries 443009, Mean x 15.51, Mean y 14.84, RMS x 8.394, RMS y 9.273

GEANT 3
only FwEndCap
(all plots)

row number / crystal number

x vs y (POINT) — x_y_p — Entries 443009, Mean x 0.7019, Mean y 1.011, RMS x 44.69, RMS y 44.82

Y position / X position

Z (POINT) — Counts

POINT Thetas (MC) — h10 — Entries 443009, Mean 15.58, RMS 4.728

θ (deg)

SUM of Points energy (GeV) — hpoi_ene — Entries 1000, Mean 0.7391, RMS 0.4226

Energy (GeV)

x vs xpad (POINT) — EmcPoint::GetX() / EmcPoint

POINT Theta difference — h1 — Entries 443009, Mean -0.01298, RMS 0.3627

Counts / $\theta_{POINT} - \theta_{MC}$

POINT Phi difference — h2 — Entries 443009, Mean 0.003586, RMS 0.9907

Counts / $\phi_{POINT} - \phi_{MC}$

y vs ypad (POINT) — EmcPoint::GetY() / EmcPoint