Subject: FEEMC from ROOT file
Posted by Aleksandra Biegun on Wed, 14 Nov 2007 17:41:11 GMT
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Hi All,

I just commit to svn a macro for creating a ROOT file for
forward end-cap of emc (FEEMC) "createRootGeoFileFwEnd.C"
which is in
/pandaroot/macro/emc/
directory. This end-cap geometry is created according to
design made by Herbert Loehner and Henk Smit at KVI
(discussed and accepted by PANDA collaboration at CM in Dubna).

I also adapted the PndEmc.cxx (*.h) code for it.
This endcap is also called "module 3",
so now one should not use both inputs for this endcap
at the same time.

If someone wants to run simulation with barrel and backward endcap (from "emc_module1245.dat", without module 3) and forward endcap (from "emc_module3.root") one should called twice PndEmc class:

```
CbmDetector *Emc = new PndEmc("EMC",kTRUE);
Emc->SetGeometryFileName("emc_module1245.dat");
Emc->SetVerboseLevel(3);
fRun->AddModule(Emc);

CbmDetector *Emc = new PndEmc("EMC",kTRUE);
Emc->SetGeometryFileName("emc_module3.root");
Emc->SetVerboseLevel(3);
fRun->AddModule(Emc);
```

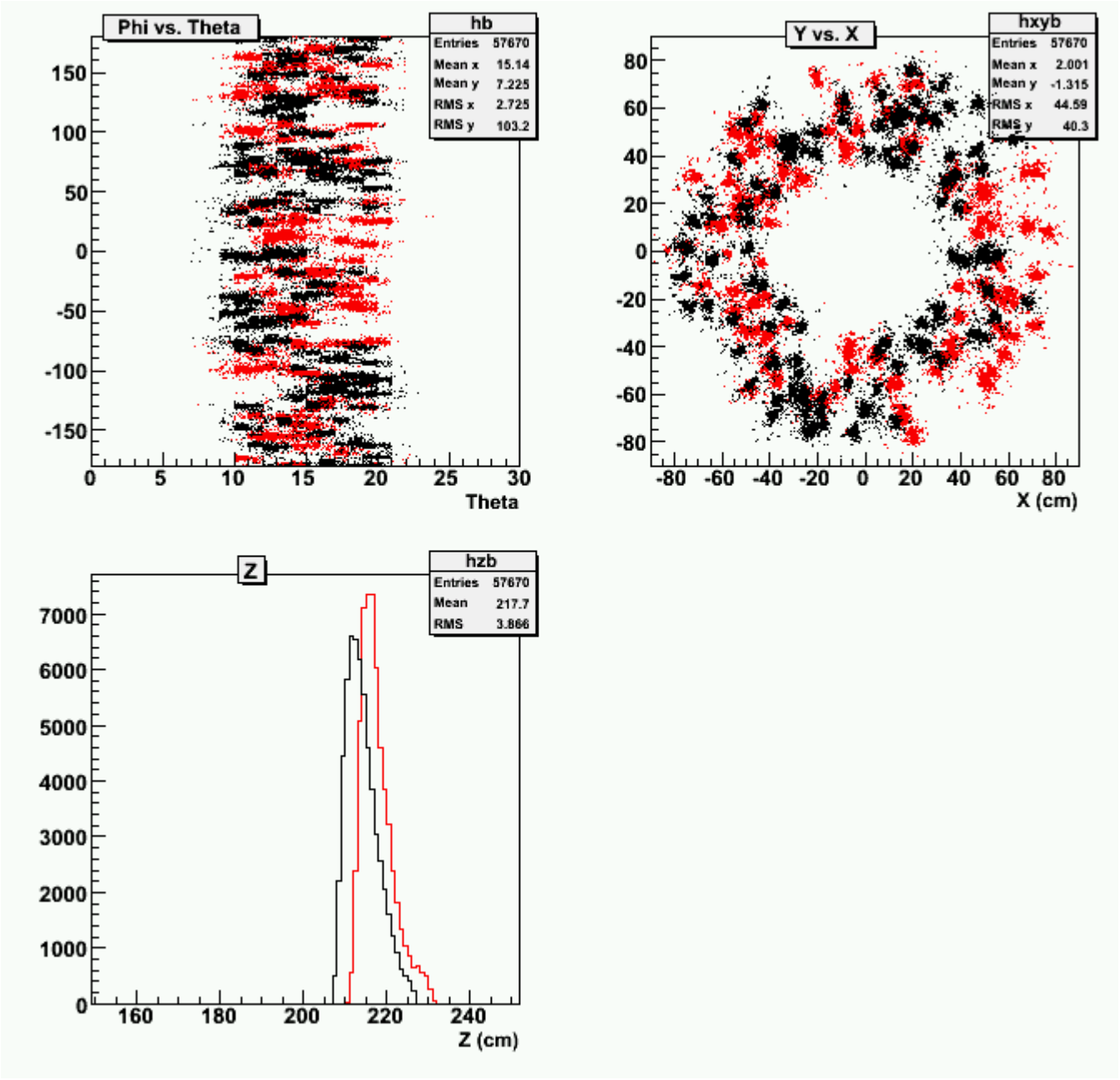
In attachment you can find plots for Points when variables,
expecially energy of points, are compared for previous
(black) and new (ROOT) version (red) of forward end-cap.

If you have any comments or problems with running simulation
with the new file, please let me know.

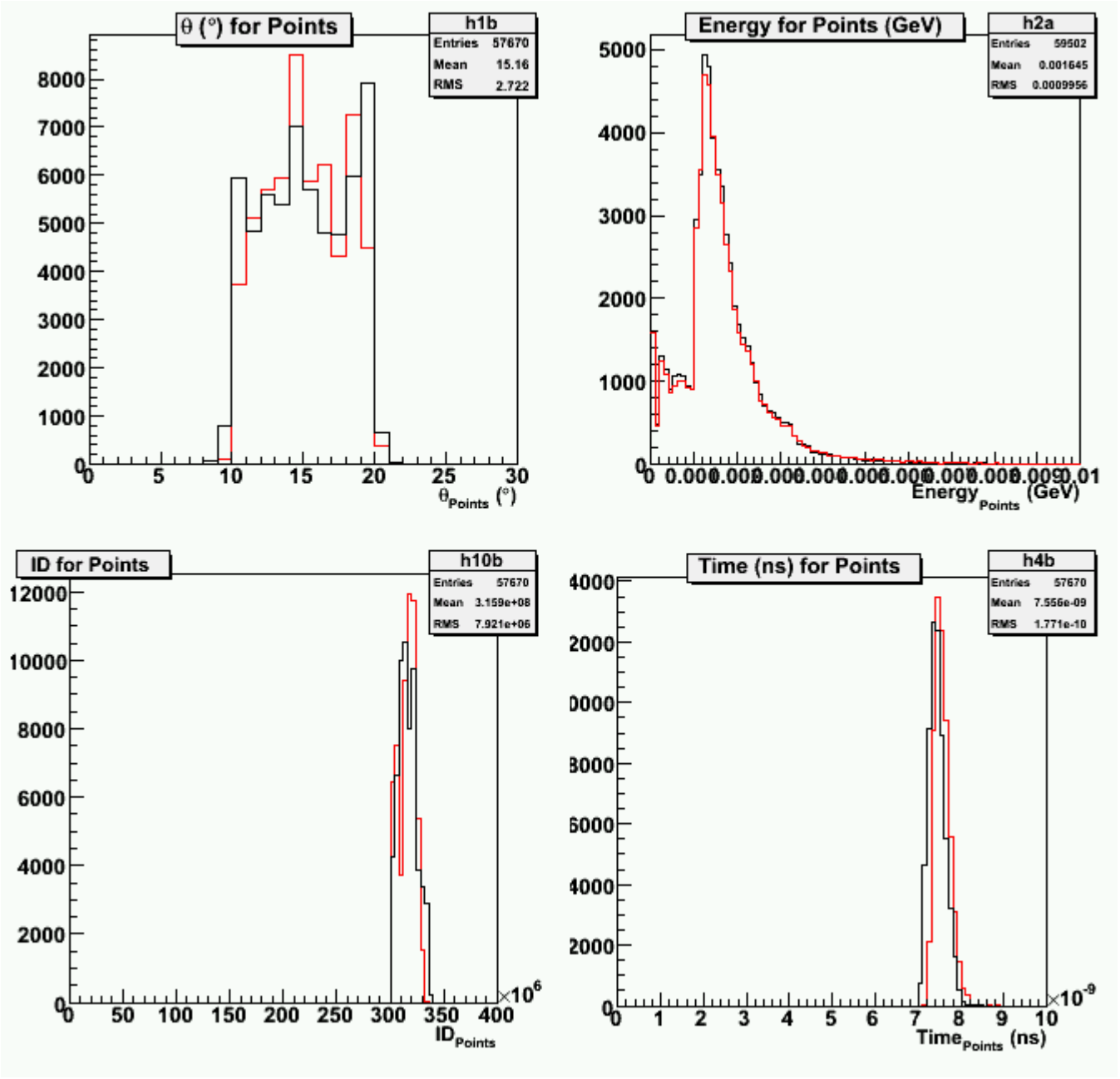
Best regards,
Aleksandra.

File Attachments

1) points_10th20_xy_z_thphi.png, downloaded 1404 times



2) points_10th20_en_id_time.png, downloaded 1367 times



Subject: FEEMC from ROOT file
Posted by Aleksandra Biegun on Thu, 10 Jan 2008 16:24:24 GMT
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Hi "Emc Friends",

I just submitted to svn changed macro for creation geometry for forward endcap (FwEndCap) of emc at
/pandaroot/macro/emc/ called createRootGeoFileFwEnd_changed.C (rev. 1996).

The way of creation each of 4 volumes - top, QuarterVol, SubunitVol, BoxVol (except for CrystalVol) is changed from TGeoVolume(name,shape,medium) to TGeoVolumeAssembly(name). The reason was a problem with G4, which could not recognize medium (even air) always for the most outside volume (G3 also had the same problem, but it

went over the problem while G4 did not). By changing volumes into TGeoVolumeAssembly(name) we can also avoid overlaps.

There are also PndEmc.cxx (h) classes submitted (rev. 1995), where you can find solution for reading 2 types of geometry format. Changes are in:
a) ConstructGeometry(), where one can see the possibility of using "standard" geometry of FwEndCap of Emc, called module 3, and read together with other volumes of Emc from emc_module12345.dat and new version of FwEndCap of Emc read from emc_module3new.root;

b) ConstructRootGeometry() functions, where reading of the ROOT geometry is done.

Now, ROOT is exiting without any errors.

You can still use "standard" or "new" version of FwEndCap (of course not at the same moment!).

If somebody wants to use "standard" geometry, there is nothing changed, but if somebody wants to use geometry of Emc with NEW FwEndCap, in the sim_emc.C macro you should write:

```
PndEmc *Emc = new PndEmc("EMC",kTRUE);
Emc->SetGeometryFileNameDouble("emc_module1245.dat","emc_module3new.root ");
fRun->AddModule(Emc);
```

This changes were checked successfully at lxi008.gsi.de and at opteron cluster in Groningen and it works with G3, and _thanks_to_Mohammad_ with G4 as well.

If you have any problems, please let me know.

Best wishes,
Ola B.

Subject: Re: FEEMC from ROOT file
Posted by StefanoSpataro on Fri, 11 Apr 2008 10:01:49 GMT
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Hi,
I have just realized that the files emc_module1245.dat and emc_module3new.root are not present in the svn reporitory.

Could you please upload them?

Subject: Re: FEEMC from ROOT file

Posted by Aleksandra Biegun on Fri, 11 Apr 2008 11:07:08 GMT
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Hi Stefano,

now, both of these files with geometry are already at svn (emc_module3new.root you can also generate by yourself using createRootGeoFileFwEnd_changed.C, which is in the pandaroot/macro/emc/ directory).

If one wants to do simulation with both of the emc geometry, in the sim_emc.C macro one should use:

PndEmc *Emc = new PndEmc("EMC",kTRUE);
Emc->SetGeometryFileNameDouble("emc_module1245.dat","emc_module3new.root ");
fRun->AddModule(Emc);

With full_sim.C everything works fine for me, when I generated 1000 gammas with 1GeV or 10GeV energy, but when I tried to use each of the script separately (hit_emc.C, digi_emc.C and reco_emc.C), it crashed at digi level (there is still some strange detector ID produced in PndEmc.cxx, I am checking it).
Please run it to check if for you it works.

Cheers,
Ola.

Subject: Re: FEEMC from ROOT file
Posted by StefanoSpataro on Fri, 11 Apr 2008 12:02:41 GMT
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I have tried to do what you suggest in sim_emc.C,
but I got the following message:

```
 ====== EMC::  ConstructASCIIGeometry() ======
 ============================================
PndEmcReader: EMC geometry file ==
/home/spataro/dev/pandaroot/geometry/emc_module1245.dat
Emc module = 1
********
Emc module = 2
********
Emc module = 3
********
Emc module = 4
********
Emc module = 5
********
You do not provide a ROOT file
```

and the geometry for module3 is not constructed.

Subject: Re: FEEMC from ROOT file
Posted by Aleksandra Biegun on Fri, 11 Apr 2008 12:20:03 GMT
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Hi,

have you used PndEmc:
PndEmc *Emc = new PndEmc("EMC",kTRUE);

instead of:
CbmDetector *Emc = new PndEmc("EMC",kTRUE);

?

Ola.

Subject: Re: FEEMC from ROOT file
Posted by StefanoSpataro on Fri, 11 Apr 2008 12:21:37 GMT
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I did cut&paste from your code snip.

Subject: Re: FEEMC from ROOT file
Posted by Aleksandra Biegun on Fri, 11 Apr 2008 12:36:35 GMT
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Well...
It seams you do not have a ROOT file (emc_module3new.root)
in pandaroot/geometry/ directory, but I sent it and it's there (rev. 2475)

Have you downloaded it?

(for me it works!)

Subject: Re: FEEMC from ROOT file
Posted by StefanoSpataro on Fri, 11 Apr 2008 12:38:59 GMT
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Ok,
in your code snip there was an additional space after .root that I have removed. Now it works.

Subject: Re: FEEMC from ROOT file
Posted by Aleksandra Biegun on Fri, 11 Apr 2008 12:40:41 GMT
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ohhh... yes, sorry
(copying 'bug')

Subject: Re: FEEMC from ROOT file
Posted by StefanoSpataro on Fri, 11 Apr 2008 12:58:17 GMT
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Which release of external packages have you used to produce that root file?

Because I have strange warnings. I have recreated it with your macro and the last ROOT then I got no warnings.

Subject: Re: FEEMC from ROOT file
Posted by Aleksandra Biegun on Fri, 11 Apr 2008 13:14:05 GMT
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I've done my sims at lxi009.gsi.de
with the new external package located at
/misc/cbmsoft/Debian3.1/mar08/fairsoft/

So, you do not have any warning when you use all macra, one by one, i.e.
sim_emc.C
hit_emc.C
digi_emc.C
reco_emc.C

or when you use

sim_emc.C + full_emc.C ?

Ola.

Subject: Re: FEEMC from ROOT file
Posted by StefanoSpataro on Thu, 24 Apr 2008 17:17:07 GMT
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[EDIT] removed

Subject: Re: FEEMC from ROOT file
Posted by StefanoSpataro on Tue, 29 Apr 2008 10:33:21 GMT
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Is there a way to have the FWEEMC volumes with a different shape than TGeoArb8 ?

TGeoArb8 shape is not existing on Geant4, so if one tries to use Geant4 native navigation, the FWEEMC volumes are not recognised.
Is there a way to convert and to have them in the root file with a different shape, then?

Subject: Re: FEEMC from ROOT file
Posted by asanchez on Tue, 29 Apr 2008 10:45:44 GMT
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You can try with pgon
which is a general polygon.

Subject: Re: FEEMC from ROOT file
Posted by Aleksandra Biegun on Tue, 29 Apr 2008 10:54:55 GMT
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Hi,

I will try to change the shape and let you know...

Ola.