Subject: radiation length study or G3 vs G4
Posted by Dmitry Khaneft on Wed, 23 Jun 2010 14:02:11 GMT
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Dear all,

After analysis of the simulations data I noticed that data isn't consistent with the result of my radiation length study. Points with a high X0>2 have the same statiscis as other. What is impossible.

remark: simulation was performed with G3 but radiation length study with G4.

After repeating of radiation length study with G3 I got absolutely different picture.

Can someone explain why results obtained with G3 and G4 are so different?

Best regards,
Dmitry

File Attachments
1) g3radlen.eps, downloaded 562 times
2) g4radlen.eps, downloaded 497 times

Subject: Re: radiation legth study or G3 vs G4
Posted by Mohammad Al-Turany on Wed, 23 Jun 2010 14:10:04 GMT
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Hi Dmitry,

How did you produce the radiation length values? can you post or tell which macro you use?

regards

Mohammad

Subject: Re: radiation legth study or G3 vs G4
Posted by Dmitry Khaneft on Wed, 23 Jun 2010 14:25:39 GMT
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Here it is. In both cases it is the same. The only thing I changed is Genat4<->Geant3 in sim macro.

File Attachments
1) radlen_analys.C, downloaded 463 times

Subject: Re: radiation legth study or G3 vs G4
Posted by Mohammad Al-Turany on Wed, 23 Jun 2010 15:04:47 GMT

Hi Dmitry,

This macro is doing the analysis of the output tree, what I meant was which macro you use to produce the radiation length data. And as you wrote it is the sim macro! but with which generator? To study the radiation length one take a particle or box generator, shot GIANTINO (OR ROOTINO) in the directions he want to study and then analyze the data.

So how did you do it?

Mohammad

Subject: Re: radiation legth study or G3 vs G4
Posted by Dmitry Khaneft on Wed, 23 Jun 2010 16:46:34 GMT

Dear Mohammad,

I attached sim macro.

Actually I just added a line:

fRun->SetRadLenReg(kTRUE)

and for BoxGenerator I set the particle id to 0. It is geantion isn´t it?).

I supposed that to get radiation length information ONE geantino is enough and energy doesn matter. So I shoot one geantion for each combintion of phi and theta with energy = 0.25GeV.

Best regards,
Dmitry

File Attachments
1) sim_emc_farm.C, downloaded 469 times

Subject: Re: radiation length study or G3 vs G4
Posted by Mohammad Al-Turany on Wed, 23 Jun 2010 18:50:45 GMT

Dear Dmitry,

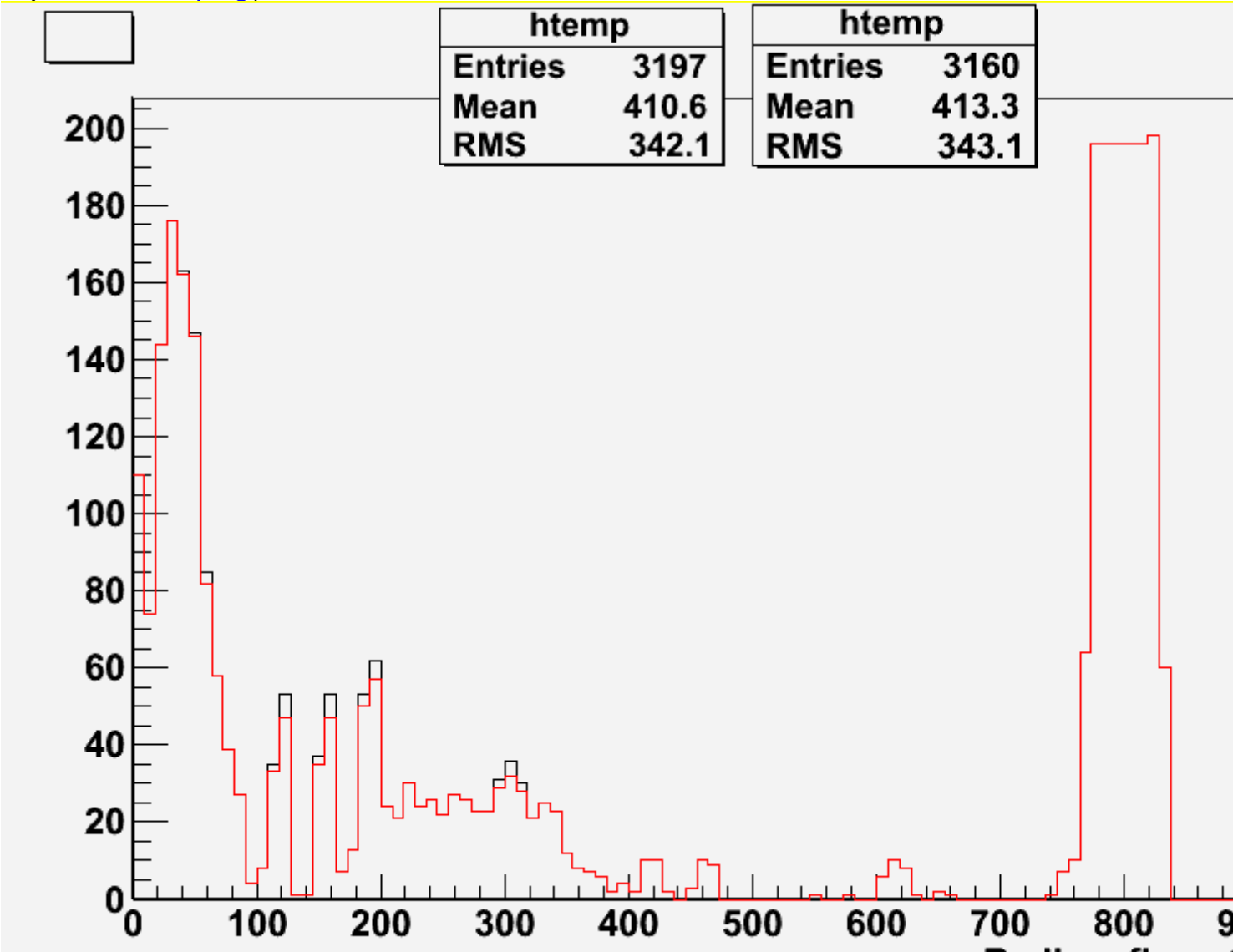
In the macro/run directory there is a macro rad_complete_stt.C which demonstrate how to calculate the radiation length information. Using this macro and comparing between G3/G4 the comparison is attached. The difference comes from the different random seeds (I guess, I did not set the seed!) any way this difference is acceptable!

regards

Mohammad

File Attachments

1) G3vsG4.png, downloaded 938 times



Subject: Re: radiation length study or G3 vs G4
Posted by Dmitry Khaneft on Fri, 25 Jun 2010 13:43:22 GMT
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Dear Mohammad,

I took a look in macro. There is one thing I do not understand. Why multiplicity is set to 10?

I changed multiplicity from 10 to 1, replaced MVD with a latest (Mvd-2.1_AddDisks_FullVersion.root) geometry and commented some of the detectors. Edited version is attached.

I got 2 different pictures.

But when I use default for this macro MVD geometry (MVD_v1.0_woPassiveTraps.root) both G3 and G4 gave same results.

I comment out everything except of MVD and run 4 times with both new and old geometries with G3 and G4.

Results are attached. As you can see there is a difference of the order of 1 radiation length at some points when latest MVD is used and no difference in case of old geometry.

Best regards,
Dmitry

File Attachments
1) g3newMVDE.eps, downloaded 508 times
2) g4newMVDE.eps, downloaded 453 times
3) g3oldMVD.eps, downloaded 439 times
4) g4oldMVD.eps, downloaded 466 times
5) rad_complete_stt.C, downloaded 472 times

Subject: Re: radiation length study or G3 vs G4
Posted by Simone Bianco on Mon, 28 Jun 2010 08:07:12 GMT
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Dear Dmitry,

which revision of the media_pnd.geo are you using? We changed the definition of one material used for the connectors of the cabling (which could maybe affect your studies in the backward region). The connectors are rather small but if you are performing a really detailed scan along phi they could have an influence. So I would suggest you to check whether you have at least r. 8564 for the media file.

Best regards,

Simone

Subject: Re: radiation length study or G3 vs G4
Posted by Dmitry Khaneft on Mon, 28 Jun 2010 09:15:17 GMT
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Dear Simone,

I have r.8782 it is actually may10 release. I run "svn info" command in may10/geometry and got this number.

Best regards,
Dmitry
