Subject: Geant 3, Geant 4 VMC, native geant 4 comparison
Posted by Dima Melnychuk on Fri, 22 Feb 2008 11:20:53 GMT
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Hi again,

I put here a couple of plots that demonstrate difference in deposited energy for Geant3, Geant4 VMC and native Geant4.

So cluster_energy_full.jpg -

is energy deposited from 1GeV photon in emc barrel (theta=50, phi=0-360).

And it is comparable with energy deposited in EmcTest setup (5x5 PbWO4 crystals), implemented by Stefano.

So around 5% of energy is lost somewhere for Geant4 and it doesn't come from complicated emc geometry.

But with native Geant4 application

deposited energy is similar to Geant3 VMC and close to the value calculated by Jan in Babar framework for the whole EMC.
http://tau.ep1.rub.de/HyperNews/get/SimGenDisc/2159/1/1/1/1/1.html

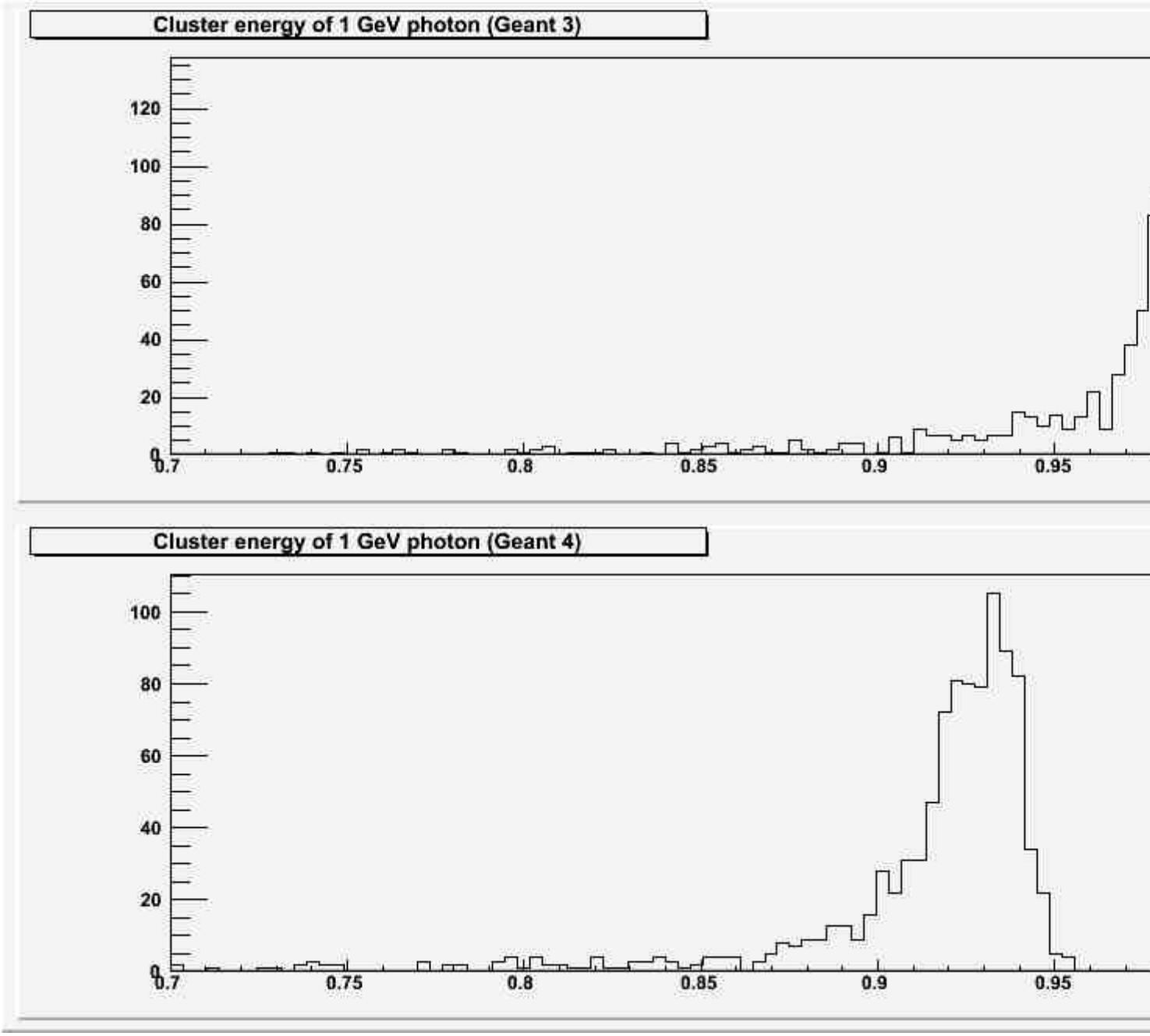
So the difference doesn't come from the different Geant4 version
4.7 in Babar framework vs. 4.9 in pandaroot (which I also used in native Geant4 application).

So the source of difference is still under investigation,

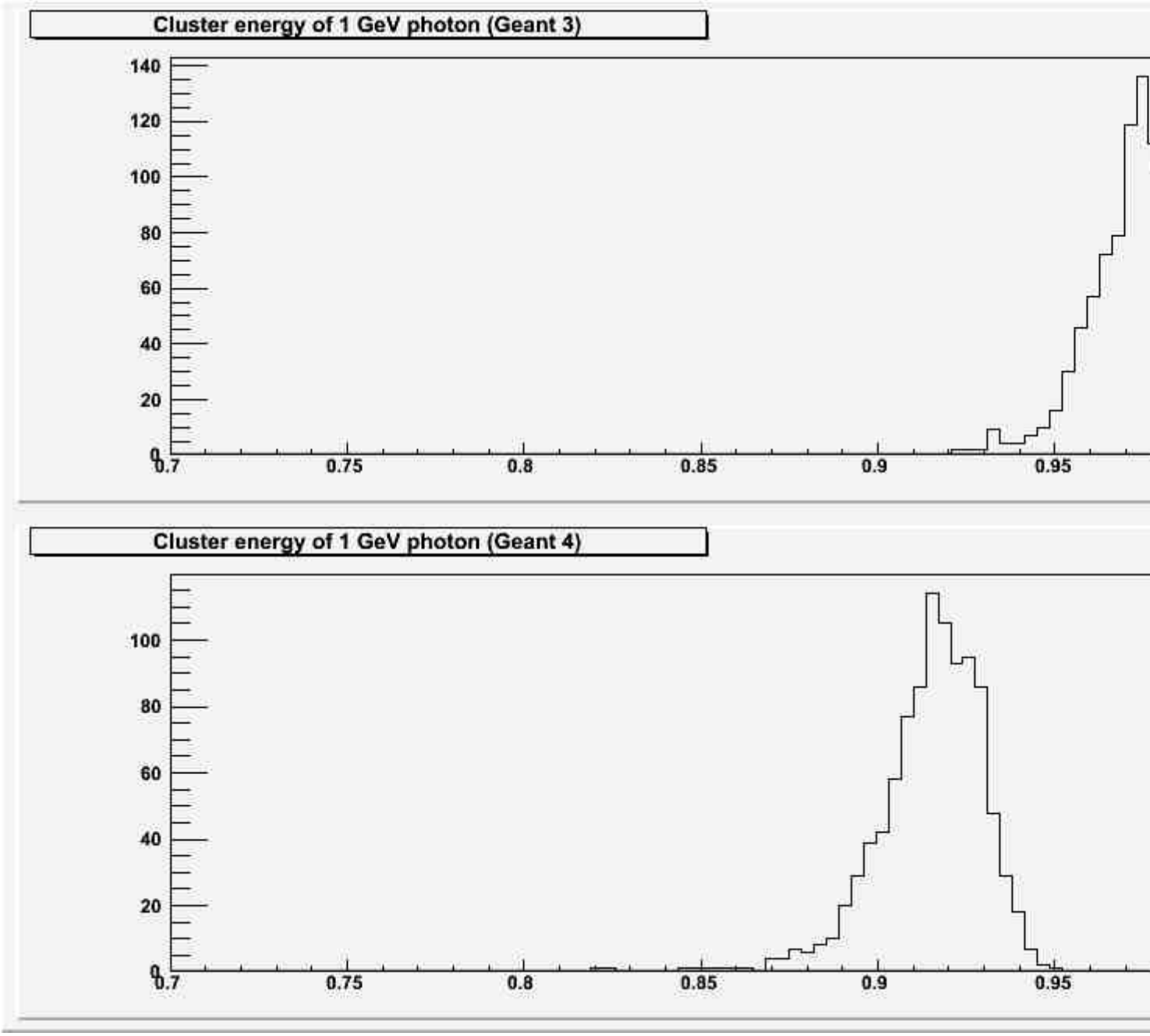
Dima

File Attachments

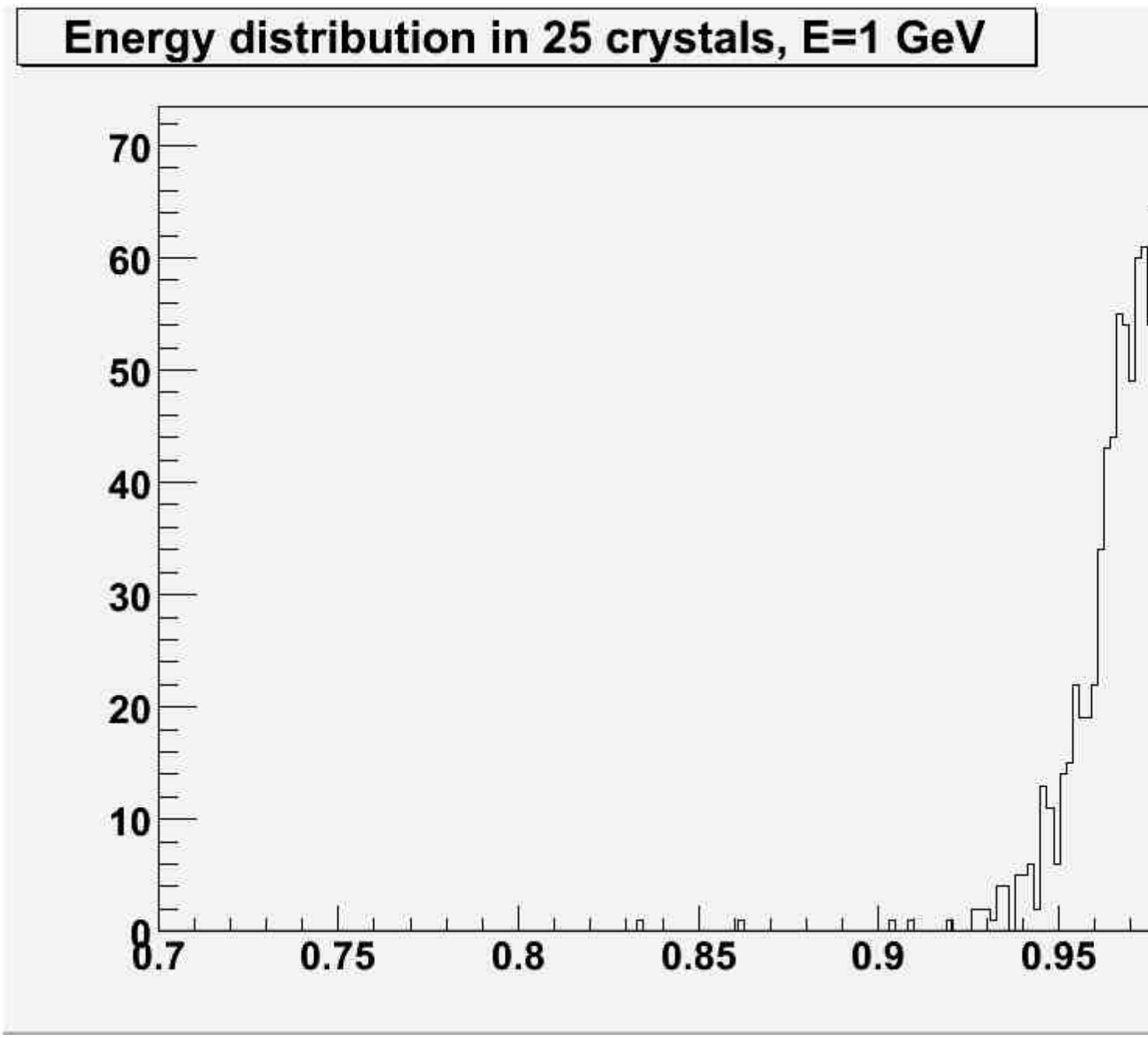
1) cluster_energy_full.jpg, downloaded 2659 times



2) cluster_energy_test.jpg, downloaded 2753 times



3) cluster_energy_g4.jpg, downloaded 2712 times


Energy distribution in 25 crystals, E=1 GeV
70
60
50
40
30
20
10
0
0.7
0.75
0.8
0.85
0.9
0.95