Subject: Re: Difference of neutral candidate between Geant4 and Geant3
Posted by Dima Melnychuk on Thu, 06 Feb 2014 10:56:13 GMT
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Hi,

As Stefano suggested I tried to compare the number of neutral candidate between Geant 3 and Geant 4 with different "hadronic process" setting for Geant 3. The default value for "hadronic process" in /gconfig/SetCuts.C is 1.
gMC->SetProcess("HADR",1);

I tried "3" and "5" and with "5" simulation stuck. But actually between "hadronic process" "1" and "3" with respect to number of neutral candidates there is no much difference.

So the results for 15 GeV DPM events.

Multiplicity for Geant 4 is much lower, and almost no difference between different "hadronic process" in Geant3.

Distribution of cluster size (number of crystals per cluster)

indicate 2 times difference in single cluster crystals between Geant3 and Geant4.

And if we consider the multiplicity of neutrals with more than 2 crystals:

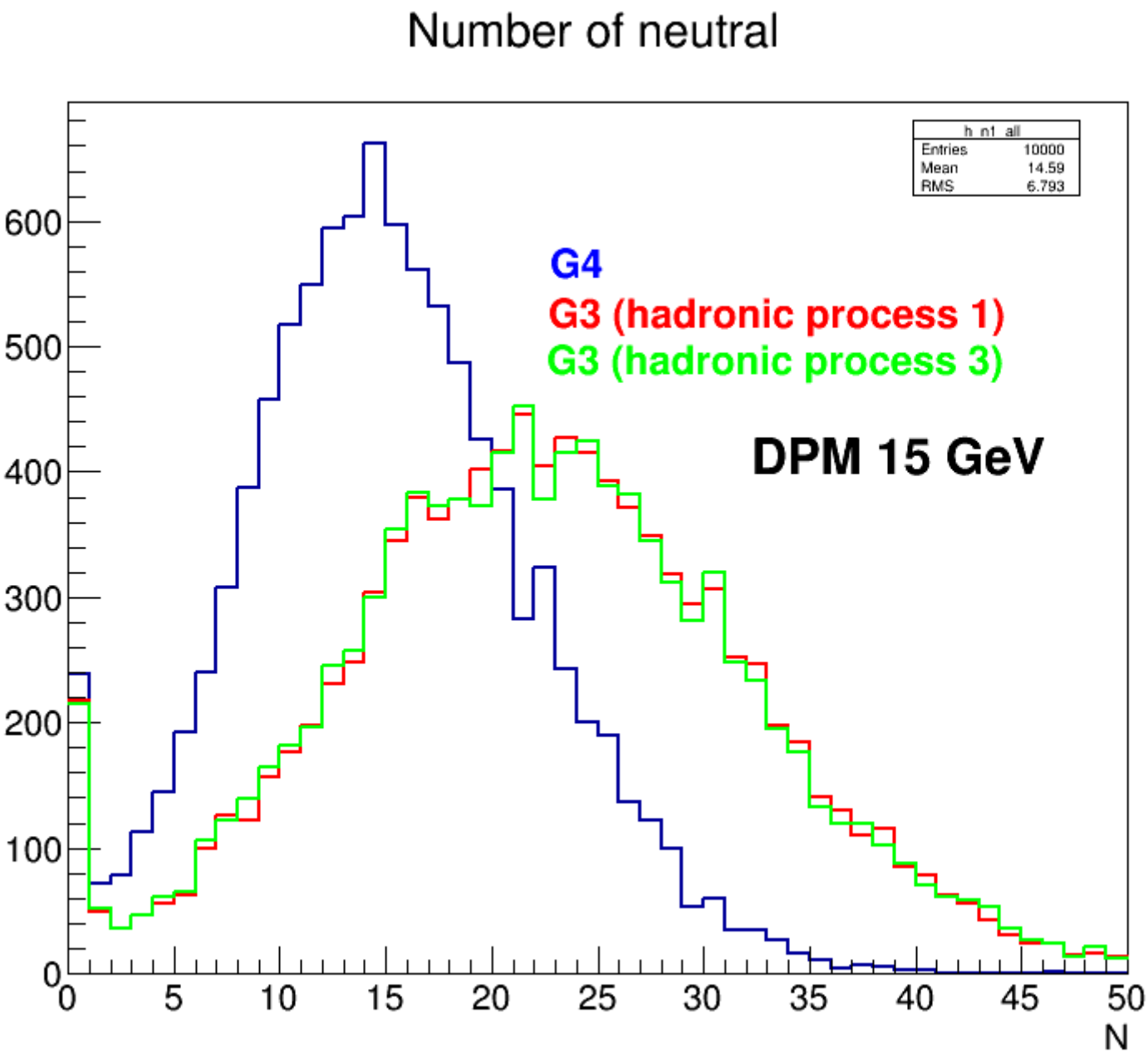
there is already a reasonable agreement between Geant3 and Geant4.

And still there is no conclusion which engine is more correct Geant3 or Geant4.

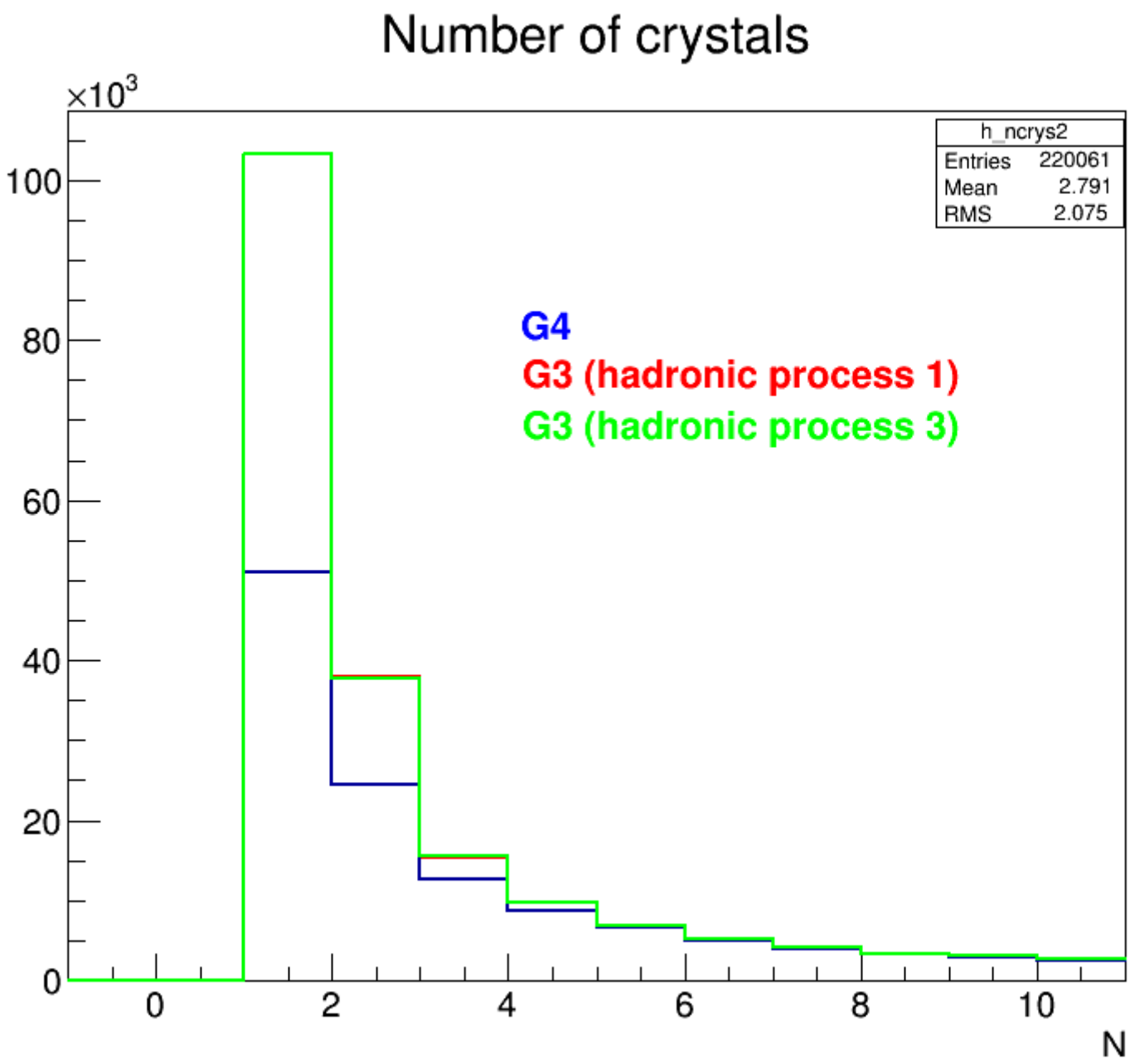
Dima

File Attachments

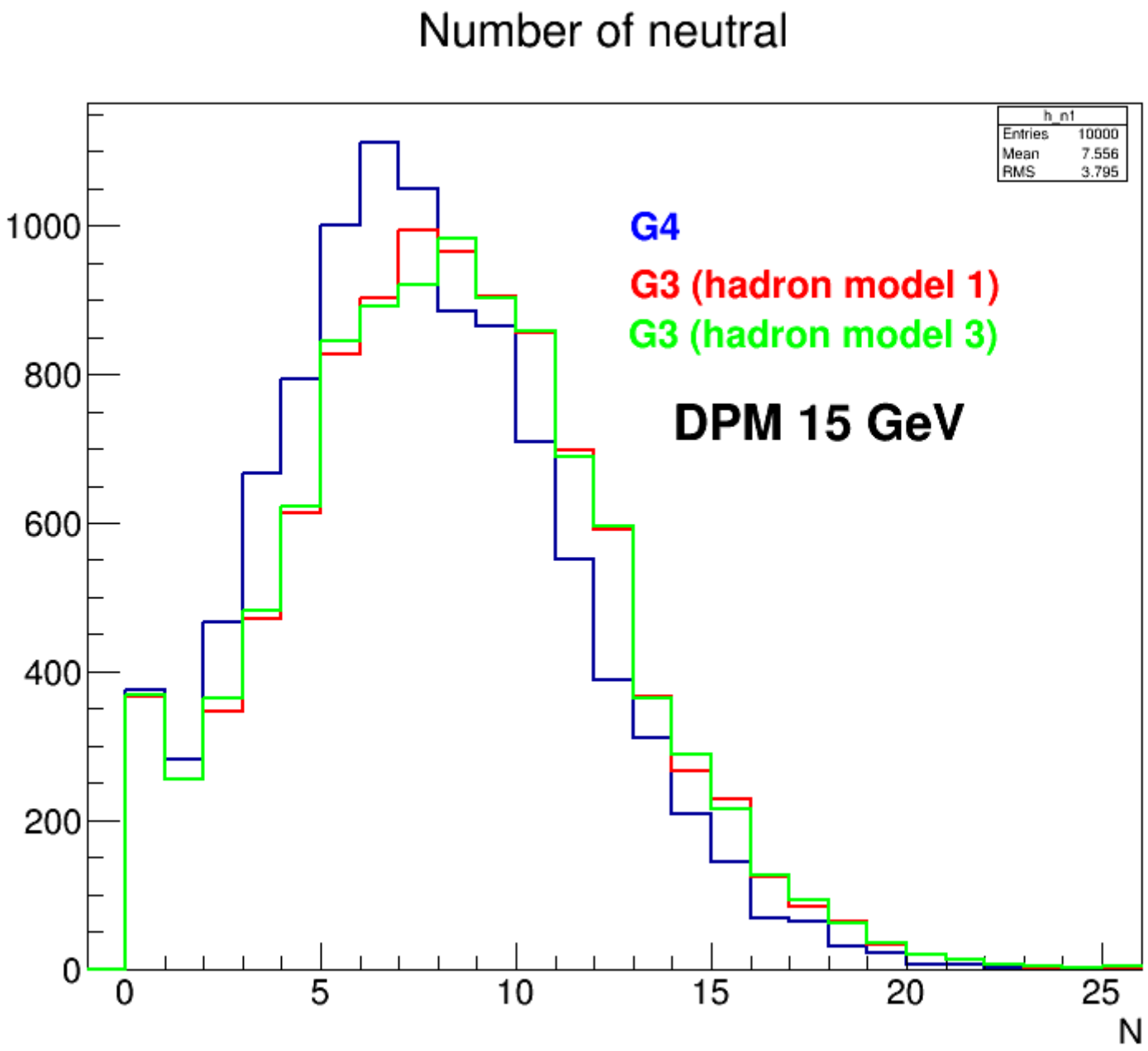
1) number_neutral.png, downloaded 1839 times



2) number_crystals.png, downloaded 1696 times



3) number_neutral_gt2.png, downloaded 1849 times


Number of neutral
h_n1
Entries 10000
Mean 7.556
RMS 3.795
G4
G3 (hadron model 1)
G3 (hadron model 3)
DPM 15 GeV
1000
800
600
400
200
0
0
5
10
15
20
25
N