

Dear all,

I met a problem that simulations with my geometry of the EMC backward endcap go quite slow.

I tried different combinations of EMC geometry including very old ascii and one done by Ola and I found out that ascii geometry works much faster than mein or Ola's.

After asking some people what could be wrong I got an answer that problem could be because of too complicated ProcessHit function in PndEmc.cxx. It has a lot of if() operators which could cause the problem.

As I understood this function is called each step in simulation for each particle. Thus if it could consume a lot of time in case of electromagnetic shower in EMC.

1. My first question is: where is the code responsible for processing events when ascii geometry is used? I think it should be inside ProcessHit function but I can't identify it. Maybe I could take a look in and then correct my code correspondingly. Because geometry in all cases should be essentially the same just the size and the position of crystals are different.

Another observation I done shows that in all cases there are error or warning(see below) + one of another kind which appears only in my case. In case of ascii geometry it appears not so often as in Ola's and in Ola's geometry it appears less than in mine. I think it is the main problem because these warnings take a lot of time compare to events processing.

2. What are these messages and what can I do?

P.S. I tried to change max step number to different values up to 30000 but it changes nothing.

This warning appears in all cases and in different cases it gives different coordinates.

>>> Event 5

\*\*\* Particle reached max step number (10000). \*\*\*

10002 329 -56.7 -663 2.29 0 0 31.3

cave Transportation

10003 329 -56.7 -663 2.29 0 0 31.3

CrystalVol Transportation

10004 329 -56.7 -663 2.29 0 0 31.3

cave Transportation

10005 329 -56.7 -663 2.29 0 0 31.3

CrystalVol Transportation

\*\*\* Particle reached max step number (10000). \*\*\*

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\* G4Track Information: Particle = gamma, Track ID = 60, Parent ID = 59  
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This kind of warnings appear only in my case.

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No physical volume found at track vertex: (1.08019e+06,753627,-1.92401e+06)

++++ TG4Warning: +++++

TG4TrackingAction::UserProcessHits:

Cannot locate track vertex.

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++++ TG4Warning: +++++

TG4SpecialControlsV2::SetSwitch:

No limits defined in BoxVol

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best regards,

Dmitry

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