Subject: Momentum dependence in tutorial/lhetrack
Posted by donghee on Wed, 06 May 2009 08:47:12 GMT
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Dear all,

I accept few suggestion from few experts of pandaroot simulaiton.
I'm working with the tpc+mvd scripts in tutorial/lhetrack/*.

My interesting event is exclusive photon, proton and electron in the final state from electron proton collision. This is a small(?) modification for panda physics. Please, don't argue about it. This is one of study.

Electron beam energy is 3 GeV to the backward direction in the spectrometer.
When I generate the event with initial beam momentum from 7.5 GeV/c to 14 GeV/c for proton, all scripts is working very fine.
I can reach to the final result. I mean that I can have simulation, digitization, as well as reconstruction files.

But if the beam energy exceed 15 GeV, the script run_digi_tpccombi.C give up the calculation at the first event.
This happens only in digitization level. Simulation part is ok!

I'm wondering that tpc+mvd trackfinder has some limitation for track momentum for outgoing proton, which is scattered proton to the direction of forward spectrometer.
It should have roughly 12 upto 15 GeV, since the event is purely exclusive.

I know there is an acceptance of polar angle, but I didn't see
the failure for 14 GeV/c proton in the digitization(or let say lhetrack finding process with tpc+mvd)

I'm trying to understand the reason.
Does anybody have some idea?

Thank you!
Best wishes,
Donghee Kang at Mainz University

Subject: Re: Momentum dependence in tutorial/lhetrack
Posted by StefanoSpataro on Wed, 06 May 2009 09:02:18 GMT
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Could you please copy completely the output?
And are your simulation data fine? Can you see detector hits in your sim file?

Subject: Re: Momentum dependence in tutorial/lhetrack
Posted by donghee on Wed, 06 May 2009 09:56:37 GMT
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Dear Stefano,

My simulation file is fine, if not, I could not get digi file for 12 GeV case.
Here, you can find two output files.
10 event are generated only changing 12 GeV and 15 GeV proton.

12 GeV proton can passing through 10 event, 15 GeV proton didn't.

In some sense, one can understand that the proton have very small polar angle 0 to 20 degree, therefore they couldn't be detected in tpc plane.
But what I don't understand is that why maximum 12 GeV proton track is going to digi process without problem?

In 12 GeV case, anyhow proton track cannot be detected in combined tpc+mvd process, but the digi process is still working.

Could you explain that?

Thank you very much for your help!
Regards,
Donghee Kang

File Attachments
1) output_12GeV, downloaded 419 times
2) output_15GeV, downloaded 382 times

Subject: Re: Momentum dependence in tutorial/lhetrack
Posted by StefanoSpataro on Wed, 06 May 2009 10:06:41 GMT
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I can see that with 15 GeV the digitization is running but then you have a crash at the second event:

Toggle Spoiler
********** PndEmcMakeBump, event: 2 **********
Digi at (67, 37) was a local max. Energy = 1.92928
Digi at (361, 351) was a local max. Energy = 1.6729
Digi at (449, 449) was a local max. Energy = 0.797061
Digi at (447, 448) was a local max. Energy = 0.102114
EMC header: fired crystals= 132, digi= 78, Total energy= 7.1429 [GeV], Reconstructed clusters= 10, Total energy in clusters= 7.06889 [GeV]
-I- PndTofHitProducerIdeal: 0 TofPoints, 0 Hits created.

-I- PndTofHitProducerIdeal: 0 SciFTofPoints, 0 sciF Hits created.
PndTpcClusterizer:: 61 clusters created
106 electrons arriving at readout
Aggregating drifted electrons into avalanches finished.
106 Avalanches created
0 aggregations done.
177 Signals created
PndTpcElectronicsTask::Exec
Building up padmap ...finished. 8 pads hit

*** Break *** floating point exception
Attaching to program: /proc/10011/exe, process 10011
[Thread debugging using libthread_db enabled]
[New Thread 0xb6cde6c0 (LWP 10011)]
0xb7f97410 in __kernel_vsyscall ()
error detected on stdin
The program is running. Quit anyway (and detach it)? (y or n) [answered Y; input not from terminal]
Detaching from program: /proc/10011/exe, process 10011
Root > Function My_dvcs_full_digi() busy flag cleared

Could you please run some debug script? Just type

gdb root.exe
then press "r", and execute your macro " .x run_digi_tpccombi.C ".
Once the error appears, type "bt" and then copy the whole output ("q" to quit).
In this way we can check what is going wrong in the code.

Subject: Re: Momentum dependence in tutorial/lhetrack
Posted by donghee on Wed, 06 May 2009 10:14:55 GMT
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Dear Stefano,

Here is the output from gdb

Best wishes,
Donghee

File Attachments

1) gdb_output_15GeV, downloaded 412 times

Subject: Error in PndTpcElectronicsTask
Posted by StefanoSpataro on Wed, 06 May 2009 13:03:42 GMT
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Hi,
it seems it is a problem of PndTpcElectronicsTask at line 185.
TPC experts should try to fix it (I don't know what this part of the code is doing).

Subject: Re: Momentum dependence in tutorial/lhetrack
Posted by donghee on Fri, 08 May 2009 19:44:17 GMT
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Dear Stefano,

After quite long time debugging, finally I have found a simple solution. I have done update for pandaroot again.
Then this special problem disappeared.
Probably, some specail track, which has a low decay angle, could not calculate at tracking module with old version of pandaroot.
I changed version from v5350 to v5420.

Thank you for your nice help!
