Subject: [FIXED] Question in MC simulation
Posted by Jifeng Hu on Mon, 19 Aug 2013 12:38:27 GMT
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see also $VMCWORKDIR/macro/run/sim_complete.C

in this script, we create all sub-detectors, then produce events.
If we swap the order of creating sub-detectors, the result will be different. In original script, PndEmc was created after PndStt,
now when move this creation forward, and put it after PndCave, the result is different.
Attention, only this swap I saw the difference, however, I didn't try all possible cases.

Subject: Re: Question in MC simulation
Posted by Jens Sören Lange on Mon, 19 Aug 2013 14:26:46 GMT
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Hi Jifeng, are you maybe using a different seed when running the macro again, so that it could actually be normal that the results are different?

PndEvtGenDirect *EvtGen = new PndEvtGenDirect(..., gRandom->GetSeed(),...);

Subject: Re: Question in MC simulation
Posted by Jifeng Hu on Mon, 19 Aug 2013 14:43:29 GMT
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The random seed 11508 was changed to 13508.
difference still happens.
In detail, for PndEmc detector, the difference is:

Negative element index in EMC, name=SuperconductingSolenoidov831
(mod=-1, row=-1, copyno=-1, cyrstal=-1

this message was triggered in PndEmc.cxx.
enclosed in brackets are traced by me.

because I focus on emc study, so I pay more attention to emc results, for other detectors, I am not sure any difference will be produced. just for reminding of you all.

Subject: Re: Question in MC simulation
Posted by StefanoSpataro on Mon, 19 Aug 2013 14:47:30 GMT
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Are you using the official code or some private version? because I never saw such message.

Subject: Re: Question in MC simulation
Posted by Jifeng Hu on Mon, 19 Aug 2013 15:35:18 GMT
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PandaRoot revision 21011.

I will verify again, download and keeping everything unchanged. later, i make a reply.

Subject: Re: Question in MC simulation
Posted by Jifeng Hu on Thu, 22 Aug 2013 08:25:39 GMT
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official version.
I thought this is a bug in PndEmc, this class is to produce PndEmcPoint. In next step, PndEmcHitProducer read in PndEmcPoint and write out PndEmcHit, if we check PndEmcPoint->GetTrackID(), we can find the negative MC track ID (-2). I think it is a bug.

Subject: Re: Question in MC simulation
Posted by StefanoSpataro on Thu, 22 Aug 2013 11:11:21 GMT
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I tried with 10 events from macro/run (switching on emcpoint persistence) and I can see such -2 points.

I believe there is some problem of memory leak somewhere, or maybe shadowed variables. I admit with such complicated PndEmc class I am not able to find the solution, it was changed so much since it was originally written. Maybe the obsolete code should be removed.

Subject: Re: Question in MC simulation
Posted by Jifeng Hu on Thu, 22 Aug 2013 13:02:52 GMT
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I spent this morning to find out this bug, but failed.
What now I can state is, there is no abnormal track id wrongly assigned in producing PndEmcPoint, but at the end of one MC event, we can see such abnormal points, that means the PndEmcPoint collection was changed in other place. I hope a good news another day.

Subject: Re: Question in MC simulation
Posted by StefanoSpataro on Sat, 31 Aug 2013 08:50:22 GMT
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Hi, it seems it is a problem of the filtering inside fair base classes.
before the package is debugged, you can set the minumum number of points from 1 to 0 in gconfig/g3Config.C

st->SetMinPoints(1); => st->SetMinPoints(0);

This should solve the problem for the moment, increasing the size of your sim file. I will let you know when to update to have the debugged filtering.

Subject: Re: Question in MC simulation
Posted by StefanoSpataro on Wed, 12 Feb 2014 15:10:01 GMT
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Hi,
I have fixed this problem. Simply the PndStack was not properly filled by SciTil and EMC.
