Subject: Fast simulation - MCTrack block
Posted by Elisabetta Prencipe (2) on Tue, 01 Apr 2014 08:38:35 GMT

Dear Klaus,

 when I run the sim macro from the folder /macro/scrut/ :

root [0] .x simfast.C("outputDs2535","Y2535DstarK.dec",9.38,10000,"pbarpSystem")

something funny happens, if I check the plot of MCTrack.fPx and MCTRack.fPy. I got a spike on 0, not a distribution.
It is not so for MCTrack.fPz and MCTrack.E. Do I misinterpret something here, or what is the explanation for this?

Best regards, Elisabetta

Subject: Re: Fast simulation - MCTrack block
Posted by StefanoSpataro on Tue, 01 Apr 2014 09:04:39 GMT

I suppose your pbarpsystem is not decaying, then you have only the initial 4-momentum: px py = 0 ad pz!=0.
Are you sure that everything is properly loaded or changed in the simulation? Can you please upload the sim and the dec file ?

Subject: Re: Fast simulation - MCTrack block
Posted by Elisabetta Prencipe (2) on Tue, 01 Apr 2014 09:15:47 GMT

Hi Stefano,

 the sim macro is the standard one of trunk 24218. The dec file is the one used for the full simulations. When I run the full simulation, I got distributions of pX and pY,centered in 0. I am wondering why.
Here are attached.

cheers, Elisabetta

```
File Attachments
1) simfast.C, downloaded 409 times
2) Y2535DstarK.dec, downloaded 439 times
```

Subject: Re: Fast simulation - MCTrack block
Posted by StefanoSpataro on Tue, 01 Apr 2014 09:36:59 GMT

You don't have enough energy, and EvtGen is not letting your pbarpSystem decay:

This top particle is pbarpSystem 4.410 (10.365,0.000,-0.000,9.380)
pbarpSystem -> D'_s1+ D_s- 2.525 (2.525,0.000,0.000,0.000) 3; 1.968
(1.968,0.000,0.000,0.000)

With your momentum you have sqrt(s) = 4.410, but the mass sum of D'_s and D_s is
2.525+1.968 = 4.493. This is the reason why you have such error messages from evtgen.
You should increase your momentum.

Subject: Re: Fast simulation - MCTrack block
Posted by Elisabetta Prencipe (2) on Tue, 01 Apr 2014 10:53:46 GMT
View Forum Message <> Reply to Message

Hi Stefano,

 my invariant mass is 4.505 GeV/c2. It is the threshold to produce one Ds1' and one Ds. For
this purpose, the p_lab = 9.83 GeV/c. With this momentum set up, I don't get any problem with
the full simulation. So I am wondering why.

Please, let me know. Elisabetta

Subject: Re: Fast simulation - MCTrack block
Posted by Elisabetta Prencipe (2) on Tue, 01 Apr 2014 10:58:54 GMT
View Forum Message <> Reply to Message

Hi Stefano,

 I attach here the log file obtained when running the normal full simulation. Here you can see
what are the values of my incident beam, and the invariant mass.

incident 4-mom : (10.813, 0, 0, 9.830), m = 4.505

cheers, Elisabetta

```
File Attachments
1) logtot, downloaded 377 times
```

Subject: Re: Fast simulation - MCTrack block
Posted by Lu Cao on Tue, 01 Apr 2014 11:20:35 GMT
View Forum Message <> Reply to Message

Hi Elisabetta,

Perhaps I found the problem there, in your decay file you make the decay chain start from "pbarpSystem", but in the simfast.C "pbarpSystem0" is set as the initial particle. From the evt.pdl list,

*	type	name	id	mass/GeV	width/GeV	max_Dm/GeV	3*charge	2*spin	lifetime*c/mm	Lund-KC
add	p Special	pbarpSystem	88888	2.98	0.1	0	0	0	0	88888
add	p Special	pbarpSystem0	88880	2.98	0.1	0	0	0	0	88880

they're two "different" particles although they look the same here except the pdgcode. Anyway, no matter which one you prefer to use, it's needed to make them consistent in decay file and sim macro.

Best,
Lu

Subject: Re: Fast simulation - MCTrack block
Posted by Elisabetta Prencipe (2) on Tue, 01 Apr 2014 11:24:21 GMT
View Forum Message <> Reply to Message

Hi Lu,

 could you say to me please which trunk version are you currently using? I just made an update, and fastsim is not working at all...

thanks, Elisabetta

Subject: Re: Fast simulation - MCTrack block
Posted by Lu Cao on Tue, 01 Apr 2014 11:29:22 GMT
View Forum Message <> Reply to Message

Hi Elisabetta,

I'm using #24270 at this moment...

Best,
Lu

Subject: Re: Fast simulation - MCTrack block
Posted by Klaus Götzen on Tue, 01 Apr 2014 12:15:10 GMT
View Forum Message <> Reply to Message

Hi Elisabetta,

the distribution you observed might indicate, that the initial particle was created, but not found

in the decay file to start decaying. You could check, if the number of entries in your MCTrack.fPx histogram is exactly the number of events you simulated -> only one particle per event (the initial one).

Best,
Klaus

Subject: Re: Fast simulation - MCTrack block
Posted by StefanoSpataro on Tue, 01 Apr 2014 12:28:52 GMT
View Forum Message <> Reply to Message

You wrote:

Quote:root [0] .x simfast.C("outputDs2535","Y2535DstarK.dec",9.38,1,"pbarpSystem")

9.38, and not 9,83!

Subject: Re: Fast simulation - MCTrack block
Posted by StefanoSpataro on Tue, 01 Apr 2014 12:30:40 GMT
View Forum Message <> Reply to Message

No, Elisabetta is using pbarpSystem:

Quote:root [0] .x simfast.C("outputDs2535","Y2535DstarK.dec",9.38,10000,"pbarpSystem")

Subject: Re: Fast simulation - MCTrack block
Posted by Elisabetta Prencipe (2) on Tue, 01 Apr 2014 12:41:46 GMT
View Forum Message <> Reply to Message

Hi Stefano and Klaus,

 that was just a typo this morning (my apologize for that).

In the meantime, I updated the trunk to rev-24270.

when I run:

root [0] .x simfast.C("outputDs2535","Y2535DstarK.dec",9.83,1000,"pbarpSystem0")

[pbarpsystem0 now is everywhere]

all fX,Y,Z,E distribution are a spike to 0. Nothing passes.
I see that in the new simfast macro a new entry is added:

void simfast(TString Prefix, TString Decfile, Float_t Mom, Int_t nEvents = 1000, TString Resonance="pbarpSystem0", int pdgcode = 11)

---

what shall I write instead of 11? If I write 88888, it does not work. I get only "red" warning of non existing particles, when I try this macro.
If I do not write anything, it does not work in any case. If I leave 11, same situation.

    FairPrimaryGenerator: PDG code 88880 not found in database. This warning can be savely ignored.
 -W FairPrimaryGenerator: PDG code 88880 not found in database. This warning can be savely ignored.
 -W FairPrimaryGenerator: PDG code 88880 not found in database. This warning can be savely ignored.
 -W FairPrimaryGenerator: PDG code 88880 not found in database. This warning can be savely ignored.
 -W FairPrimaryGenerator: PDG code 88880 not found in database. This warning can be savely ignored.
 -W FairPrimaryGenerator: PDG code 88880 not found in database. This warning can be savely ignored.
 -W FairPrimaryGenerator: PDG code 88880 not found in database. This warning can be savely ignored.
 -W FairPrimaryGenerator: PDG code 88880 not found in database. This warning can be savely ignored.
 -W FairPrimaryGenerator: PDG code 88880 not found in database. This warning can be savely ignored.

[this for 1000 times..at least yesterday it looked the normal staff]

Any idea what's wrong here? how shall I run my analysis with the fast simulation tool? It is still not clear to me....

thank you, Elisabetta

Subject: Re: Fast simulation - MCTrack block
Posted by Elisabetta Prencipe (2) on Tue, 01 Apr 2014 12:46:31 GMT
View Forum Message <> Reply to Message

Hi,

I tried both, same situation. With pbarSystem is giving strange results; with pbarsystem0 is simply crashing.

what shall I do to have something running with fast simulation, please?
From my side, nothing works.

Elisabetta

Subject: Re: Fast simulation - MCTrack block
Posted by Klaus Götzen   on Tue, 01 Apr 2014 12:50:06 GMT

Hi Elisabetta,

you can ignore the pdgcode=11 for EvtGen. It's the particle type for running Box generator, in case you want to do that. I introduced it to not modify always the macro for running particle-gun for different species. (It's actually described in the README like this.)

This error from FairPrimaryGenerator is normal because TDatabasePDG does not know about particles defined for EvtGen. However, myself I'm looking for a switch to turn it off. If you want to immediately get rid of it, you could also add

double sqrts = ...
TDatabasePDG::Instance()->AddParticle("pbarpSystem0","ppbar0",sqrts,0,0.0001,0,"",88880);
TDatabasePDG::Instance()->AddParticle("pbarpSystem","ppbar",sqrts,0,0.0001,0,"",88888);

in the beginning of simfast.C.

Best,
Klaus

Subject: Re: Fast simulation - MCTrack block
Posted by Elisabetta Prencipe (2) on Tue, 01 Apr 2014 12:53:07 GMT

Hi Klaus,

 the point is that I get a Segmentation Violation when using the sim fast macro. And I still do not know why. It does not start neither the first event. Could you please try yourself?

thank you very much! I attach here my dec file.

Rev: 24270
Operative system: Suse-Linux

Elisabetta

File Attachments
1) Y2535DstarK.dec, downloaded 409 times

Subject: Re: Fast simulation - MCTrack block
Posted by Klaus Götzen   on Tue, 01 Apr 2014 12:55:02 GMT

Hi Elisabetta,

if you just updated this afternoon, you should update again at least fsim, since there was some incomplete code leading to this error. Ralf just submitted the fix....

Best,
Klaus

Subject: Re: Fast simulation - MCTrack block
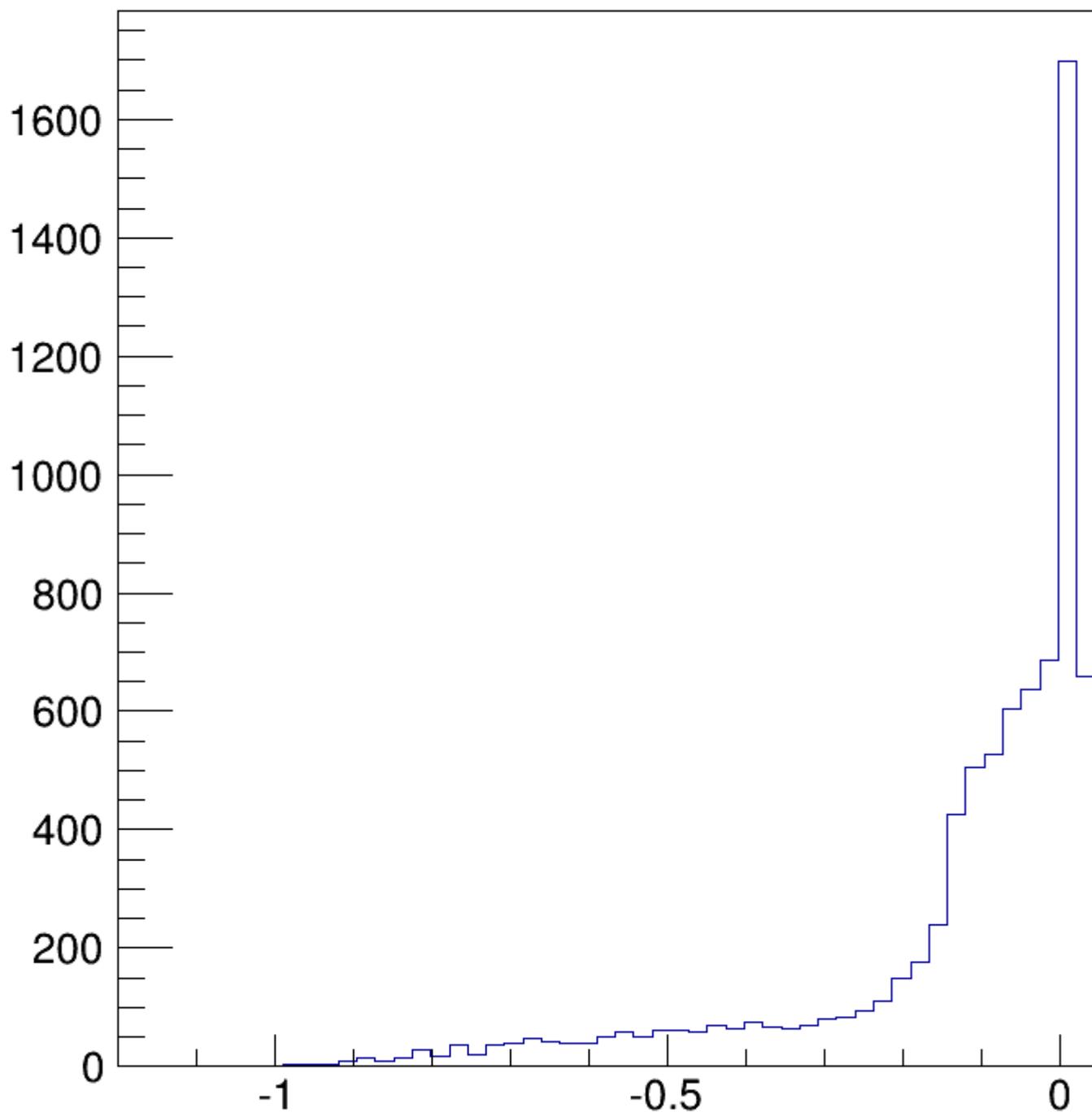Posted by Lu Cao on Tue, 01 Apr 2014 13:05:16 GMT

Hi Elisabetta,

I tried your decay on my machine (#24270) as simfast(TString Prefix="els_out", TString Decfile= "Y2535DstarK.dec", Float_t Mom=9.83, Int_t nEvents = 1000, TString Resonance="pbarpSystem", int pdgcode = 11)

It works.The plot of MCTrack.fPx is attached.

Best,
Lu

File Attachments
1) Canvas_1.png, downloaded 706 times

Subject: Re: Fast simulation - MCTrack block
Posted by Elisabetta Prencipe (2) on Tue, 01 Apr 2014 13:06:54 GMT
View Forum Message <> Reply to Message

Hi Klaus,

so which trunk version should I use?

In the meantime I changed the definition of "Mom" from Float to Double in my sim fast macro: it looks running now (it's a silly change, but at least I do not see the Seg Fault, which was seen here only when setting the momentum to a number with 2 decimal entries after the comma, e.g. 9.4 is good; 9.40 produces a crash....strange....).

Elisabetta

Subject: Re: Fast simulation - MCTrack block
Posted by Klaus Götzen   on Tue, 01 Apr 2014 13:09:41 GMT
View Forum Message <> Reply to Message

Hi,

my svn says

URL: https://subversion.gsi.de/fairroot/pandaroot/trunk/fsim
Repository Root: https://subversion.gsi.de/fairroot
Repository UUID: 0381ead4-6506-0410-b988-94b70fbc4730
Revision: 24275
Node Kind: directory
Schedule: normal
Last Changed Author: ralfk
Last Changed Rev: 24275
Last Changed Date: 2014-04-01 14:43:06 +0200 (Di, 01 Apr 2014)

Subject: Re: Fast simulation - MCTrack block
Posted by Elisabetta Prencipe (2) on Tue, 01 Apr 2014 13:10:17 GMT
View Forum Message <> Reply to Message

Hi Lu,

 I don't know how you get this plot. For me it is just a spike on 0, when the macro runs....which is not happening with the standard macro of the rev-24270. I needed to change it, and in any case I do not get a distribution.

Elisabetta

Subject: Re: Fast simulation - MCTrack block
Posted by Elisabetta Prencipe (2) on Tue, 01 Apr 2014 13:32:59 GMT

Hi Klaus,

 I tried to run the fastsim in 2 different machines, with different operative systems, using the rev-24275 (the last updated trunk version).
Lu Cao is right in saying that something funny happens with pbarpSystem and pbarpSystem0 (and then, why we have the 2 of them?)
now I got distributions for fpx, fpy, fpz and fE (MC-track block), finally. I can go further

Thank you all for your help,

 Elisabetta

Subject: Re: Fast simulation - MCTrack block
Posted by StefanoSpataro on Tue, 01 Apr 2014 14:44:44 GMT

pbarpSystem0, pbarpSystem1 and pbarpSystem2 are states with spin 0, 1 and 2. If you use models which depend on spin, you should use the proper system in order to avoid crashes. (i.e. a VLL will never work with a initial state with spin0). I
pbarpSystem has spin 1 and is the "original state", if you use phase space you don0t have to care. If you exchange pbarpSystem with pbarpSystem0 you should be sure that you change properly the whole sim macro including the dec file.

If now everything works I would set this topic as fixed.