## Subject: hyperon fast simualtions
Posted by Karin Schönning on Thu, 08 May 2014 15:04:56 GMT

Hi,

is the simfast_opt.C file (scrut14 revision 24805 checked out on May 6th) ready to use? I tried to run it, changing the magnetic field to HALF and changed p_min from 0.5 to 0.1 in

fastSim->AddDetector("ScFts",      "thtMin=0.   thtMax=5.   ptmin=0.0 pmin=0.1 pRes=0.05 thtRes=0.002 phiRes=0.002 efficiency=0.80");

Then I tried

root -l -b -q 'simfast_opt.C("llbarsim","llbar_fwp_1-642.DEC",1.64,10000,"pbarpSystem ",88888,"det_full")'

the program runs smoothly but I expected it to reproduce the results from running

root -l -b -q 'simfast.C("llbarsim","llbar_fwp_1-642.DEC",1.64,10000,"pbarpSystem ")'

with the same changes.

However, in the former case, the acceptance is about 1/10 compared to the latter case.

Cheers,
/Karin

## Subject: Re: hyperon fast simualtions
Posted by Klaus Götzen on Thu, 08 May 2014 15:44:20 GMT

Hi Karin,


did you update also PndTools and fsim? Indeed, you should get the same results. You could also check whether the detectors are setup in the same way in both macros. I'm happy about all error reports...


Best,
Klaus

Subject: Re: hyperon fast simualtions
Posted by Karin Schönning on Thu, 08 May 2014 15:55:20 GMT
View Forum Message <> Reply to Message

Indeed, after updating them the results agree. But I thought that doing svn up in the top directory would do the job - if not, one should then always update the subdirectories "manually"? Or are there just fsim and PndTools hat have this problem?

Subject: Re: hyperon fast simualtions
Posted by Karin Schönning on Thu, 08 May 2014 16:37:23 GMT
View Forum Message <> Reply to Message

Hmmmm, found a mistake of mine, and after correcting it the results do NOT agree again. Will have a closer look at the options.

Subject: Re: hyperon fast simualtions
Posted by Karin Schönning on Thu, 08 May 2014 16:48:34 GMT
View Forum Message <> Reply to Message

Apparently it is the "det_full" option that doesn't work. I understood from your talk that one should/could give that as argument when running with the full setup. When doing that I get bad results. Changing to "12345" gives better results. The aceptance is now the same order of magnitude as for simfast.C but actually a little better: 3.7% LLbar efficiency for simfast.C and 4.9% for simfast_opt.C. Full simulations with ideal pattern recognition gives 7%.

Subject: Re: hyperon fast simualtions
Posted by Klaus Götzen on Thu, 08 May 2014 18:09:22 GMT
View Forum Message <> Reply to Message

Hi Karin,


which talk are you referring to? In the current simfast_opt.C 'det_full' is not an available option. Take a look here

 https://subversion.gsi.de/trac/fairroot/browser/pandaroot/release/scrut14/macro/scrut/simfast_opt.C#L25

However, the results of simfast.C and simfast_opt.C without any specification of a detector option string should give the same results. Perhaps I didn't update parameters always in both files, and something got asynchronous. Since I consider simfast_opt.C as the default (because it has more functionality), I'd propose to only use that one.

I'll certainly check for this inconsistency, thanks for pointing it out.

Best,
Klaus

---

## Subject: Re: hyperon fast simualtions
Posted by Karin Schönning   on Mon, 12 May 2014 15:38:57 GMT
View Forum Message <> Reply to Message

OK, I see. I ran some simulations for Lambda Lambdabar at 1.64 GeV/c and 4 GeV/c (with fastsim_opt), and got the following LLbar efficiencies with the different setups in the fast sim:

1.64 GeV/c:

Full: 4.2%
No FS: 3.6%
No Barrel EMC: 4.4%
No MVD/GEM: 0.6%

4 GeV/c:

Full: 4.7%
No FS: 0.8%
No Barrel EMC: 5.0%
No MVD/GEM: 1.5%

some remarks/question marks:

1: The efficiency for the full setup in fastsim is smaller than for the full simulations, which means that the numbers should be taken with a grain of salt. Maybe the relative numbers are relevant though.
2: The efficiency without EMC barrel is slightly better than for the full setup. The difference is within the statistical uncertainty but if the difference remains after running more events (ran only 10000 so far for each case) what could be the reason? As far as I know, the particles are anyway reconstructed before entering the EMC so it shouldn't be because some particles are absorbed by the EMC, right?
3: At low energies, MVD and GEMs are necessary for lambda lambdabar studies.
4. At higher energies, both MVD, GEMs and FS are necesary.

Cheers,
/Karin

---