## Subject: [FIXED] Recontruction of neutrals - macro is very slow Posted by Elisabetta Prencipe (2) on Tue, 03 Sep 2013 09:45:52 GMT

View Forum Message <> Reply to Message

Dear Klaus, dear rho-experts,

I am running the reconstruction of the chain:

pi0 ----->2 photons

I am doing a very basic study, asking for the mass constraint fit for the Ds(2317)+, and plotting the full truth match value of mass and momentum, and the the combinatorial with "best" pid selection. When I run a similar decay chain, but no gammas were involved, the macro was running quickly. Now I have the same number of chain steps, but with photons. The speed of macro becomes worse and worse especially if I apply some selection cuts (e.g., I require for photons that the maximum candidate per event should not be larger than 100, or the momentum should be >0.150 GeV/c, in order to reduce noisy-gammas).

Just to give some numbers: to run a similar decay, but only charged particles got involved: 5000 events --->~4 hours (analysis macro, only); in this new case: in 4 hours I get 600 events only...is this a known problem or am I doing something really wrong here? Do you have by chance any suggestion how to modify this macro in order to run it faster? I attach my very simple macro to this email. There are many histograms initialized here, but only few of them are filled. I had to exclude many, because of problem with time.

Thanks in advance for your useful suggestions, Elisabetta

## File Attachments

1) tut anaDs2317.C, downloaded 367 times

Subject: Re: Recontruction of neutrals - macro is very slow Posted by Klaus Götzen on Tue, 03 Sep 2013 11:32:28 GMT View Forum Message <> Reply to Message

Hi Elisabetta,

I think of two effects, which make your macros running slow:

- 1. When using neutrals, the combinatorics usually gets blown up quite significantly, since there are always huge numbers of neutral objects reconstructed.
- 2. This effect of getting slower and slower from event to event is a buggy effect of CINT I think. I observed it always, when the 'complexity' (however that really is defined) of the macro code gets above a certain threshold, which basically always happens at some point for complicated analyses.

An improvement for (1.) can be achieved but requiring a lower energy threshold for your gamma candidates, e.g. 30-100 MeV, in order to reduce the number of candidates.

This can be easily done with a RhoEnergyParticleSelector:

```
double minE = 0.03;
RhoEnergyParticleSelector *SelEnergy = new
RhoEnergyParticleSelector("SelEnergy",50.+minE,100.);
while (theAnalysis->GetEvent())
{
    theAnalysis->FillList(gamma, "Neutral");
    gamma.Select(SelEnergy);
```

You should try some values or take a look at the gamma energy distribution beforehand to find an appropriate threshold.

In order to cope with (2.), you should convert your analysis code to run in a task. I already sent you a task version of your Ds2535 macro last week or that before, where you can take a look how this can be done, or you read the corresponding section in the new tutorial wiki

http://panda-wiki.gsi.de/cgi-bin/view/Computing/PandaRootRhoTutorial#3\_A nalysis\_in\_a\_Task

where it is also described.

Best regards, Klaus

Subject: Re: Recontruction of neutrals - macro is very slow Posted by Elisabetta Prencipe (2) on Tue, 03 Sep 2013 11:49:24 GMT View Forum Message <> Reply to Message

Thanks Klaus.

I will try both your suggestions and I will report, then.

Best regards, Elisabetta