Subject: [FIXED] Problems with photon reconstruction in pandaroot
Posted by Elisabetta Prencipe (2) on Thu, 05 Sep 2013 08:40:58 GMT
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Dear all,

I would like to point you on a problem which I have found in the past weeks, using pandaroot, in the photon reconstruction.

When I try to reconstruct a decay chain to charged particles, basically the macro runs and delivers *reasonable* results.

Recently I tried to reconstruct 3 mesons of the DsJ family:
Ds2535+, Ds2460+, Ds2317+.

In the decay chain of Ds2371+ there is only one pi0(-->gamma gamma); the reconstruction is going very slow, but in the end I managed to run my analysis macro over 5000 generated events. It took many hours (~70 h), and in the end the memory used was going up to to 70%...so to split 5000 events in 1000-event-jobs help; but this is not a solution, in my opinion. It has been a warning that something in the photon reconstruction has not worked properly. Of course, I can run in parallel 5 jobs of 1000 events each one, and in ~7-8 hours I get ready my root files and merge them.

In the decay chain of Ds2460+, 3 photons got involved, as we have a pi0 (-->gamma gamma) and a photon in the decay of Ds*+. The decay chain is written on the top of the macro which I attach here.
In this macro I commented out all kinematic fit, mass constrained fit, combinatorial: I am just trying to reproduce the full truth matched value of the invariant mass distributions and the momentum of the particles. Very easy. What comes out is that I can run this macro only up to 10 events (--->36% memory used). When I try to run 15 events, the memory grows abnormal up to 80% in a few seconds, and then my job is stopped after 20 seconds. It is not possible for me to reconstruct more than 10 events for the decay chain of the Ds2460+ right now, in the main decay of interest, just because it involves 3 photons. Here definitively something is going wrong with photon reconstruction, because when I tried to reconstruct the Ds2460+ only to charged particles, it worked smooth.

Did anybody of you tried to reconstruct a decay channel where more than 2 photons got involved? If yes, what is your experience?

I am using pandaroot rev-21003.

Thank you in advance for any feedback,
Elisabetta

File Attachments

1) tut_anaDs2460Dstarpi0_simple.C, downloaded 481 times