Subject: Re: Tracking: Kalman Task with STT,(electron hypo)
Posted by Lia Lavezzi on Wed, 22 Dec 2010 17:22:55 GMT
View Forum Message <> Reply to Message

Hi Mohammad and others,
here I attach the results of some tests made with the PndTools/MVD/macro macros (except for the selectEvents.cpp, do I have to compile it?).

The first two figures show the momentum distributions for a simulated electron with momentum in the range 1. - 1.5 GeV/c. It is reconstructed with kalman with electron and muon mass hypothesis respectively:

The electron reconstructed as electron distribution has a more gaussian shape, the electron reconstructed as a muon is more peaked, but the tail is more evident.
My first question is: did you use the kalman flag check to throw away badly reconstructed tracks?

The other two figures are the pull distributions: (p_MC - p_RECO)/sigma_from_kalman in the two cases again:

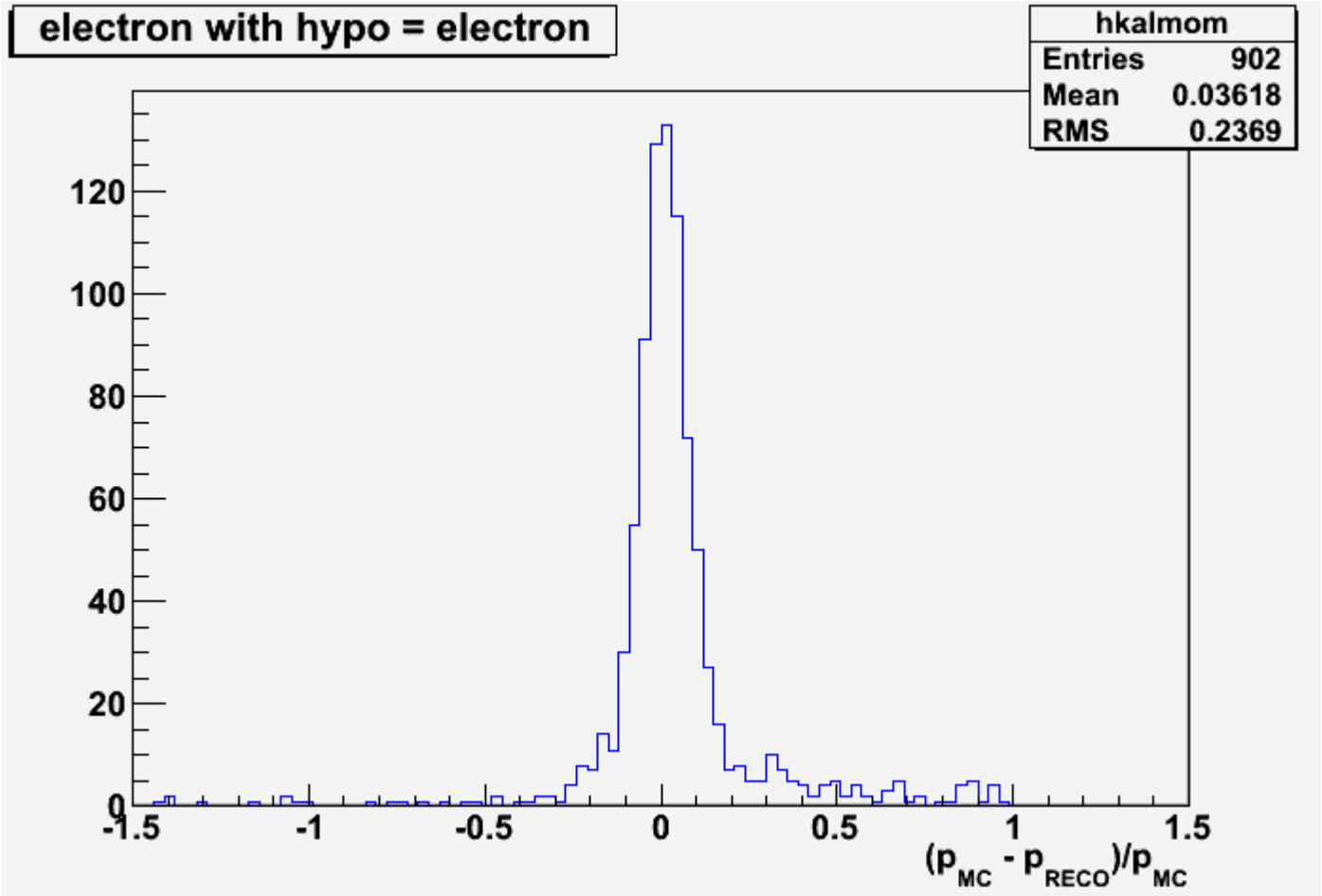
here you can see that the electron reconstructed as electron is almost a gaussian with mean = 0 (from the fit I get 0.087) and sigma = 1 (from the fit again I get 0.85). Sorry, I did the test with just 1000 events, so the statistics is quite low... The electron reconstructed as muon has a very bad shape: here it should be more evident that the right choice is the electron mass.
This happens even thought the bremsstrahlung is not yet treated in a complete way.

Now, from Ronald post we can also see that pions behave the same way when reconstructed with muon and pion hypothesis, but this is ok, since they are not distinguishable from dedx, so they are expected to behave like this.
What is missing is just a test with kaons and protons...

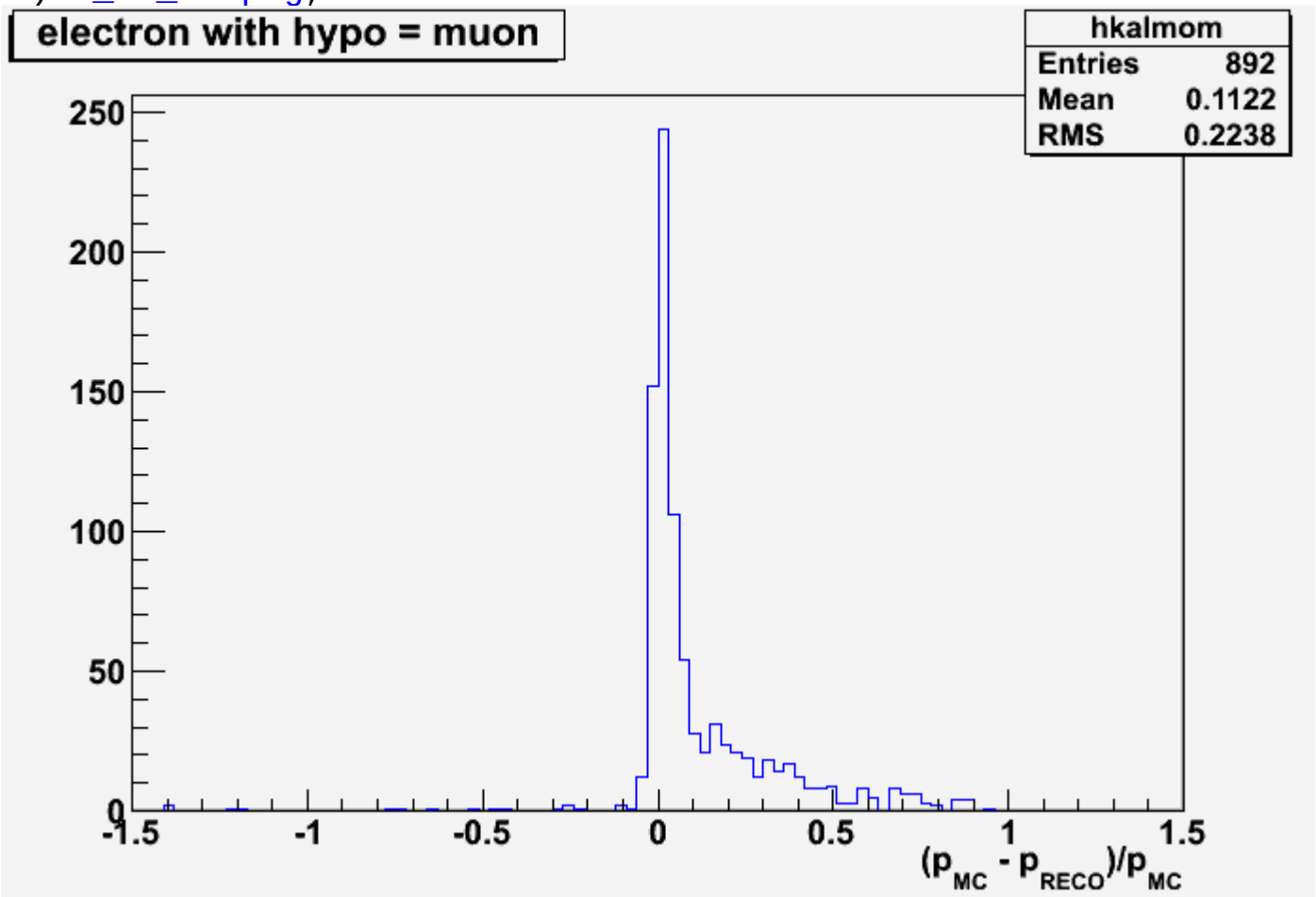
Bye bye and Buon Natale to everyone!
Lia.

File Attachments

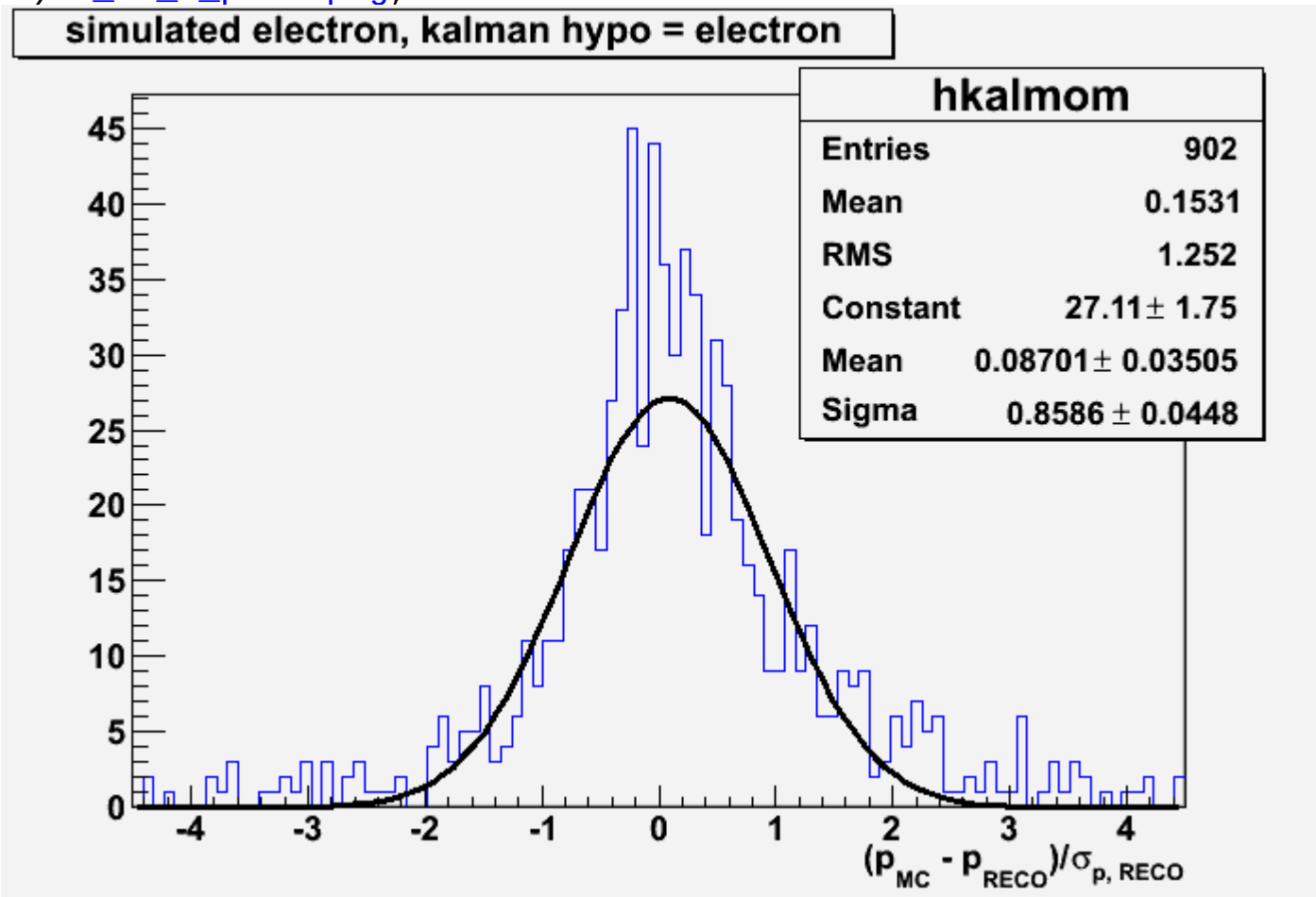
1) e_as_e.png, downloaded 800 times



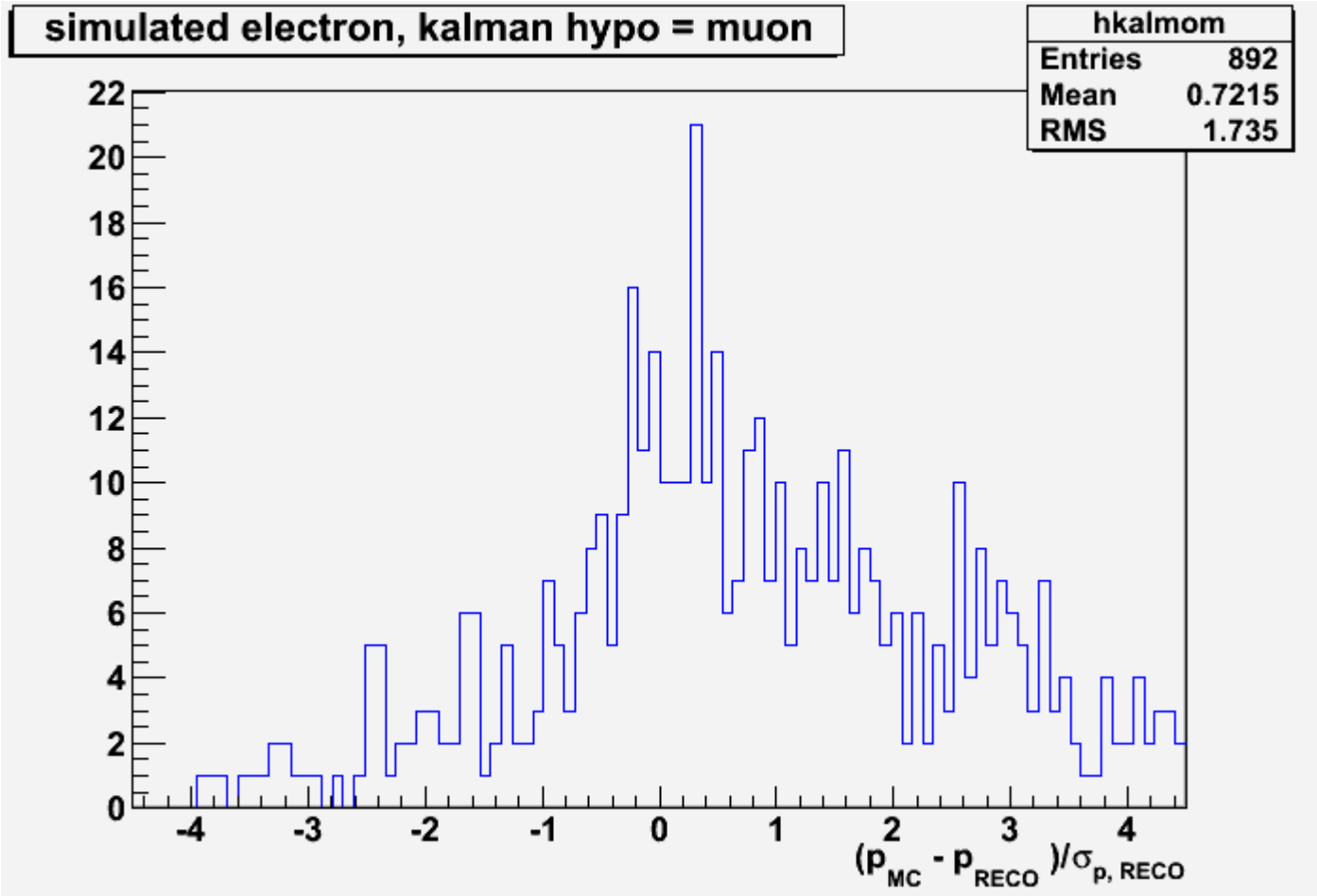
2) e_as_mu.png, downloaded 839 times



3) e_as_e_pull.png, downloaded 865 times



4) e_as_mu_pull.png, downloaded 885 times


simulated electron, kalman hypo = muon
hkalmom
Entries 892
Mean 0.7215
RMS 1.735
22
20
18
16
14
12
10
8
6
4
2
0
-4
-3
-2
-1
0
1
2
3
4
(p_MC - p_RECO)/σ_p, RECO