
Subject: Re: Tracking: Kalman Task with STT,(electron hypo)

Posted by [Lia Lavezzi](#) on Wed, 22 Dec 2010 17:22:55 GMT

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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 though 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!

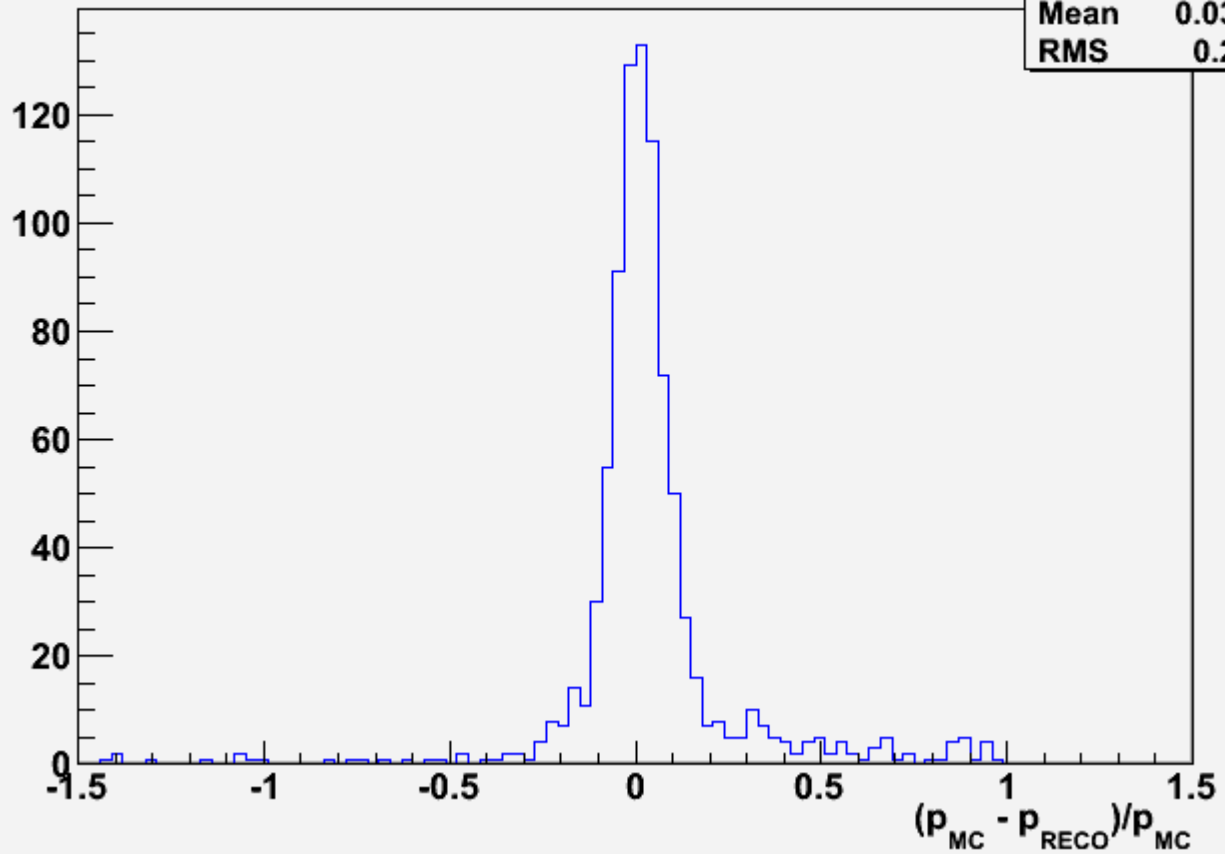
Lia.

File Attachments

1) [e_as_e.png](#), downloaded 1446 times

electron with hypo = electron

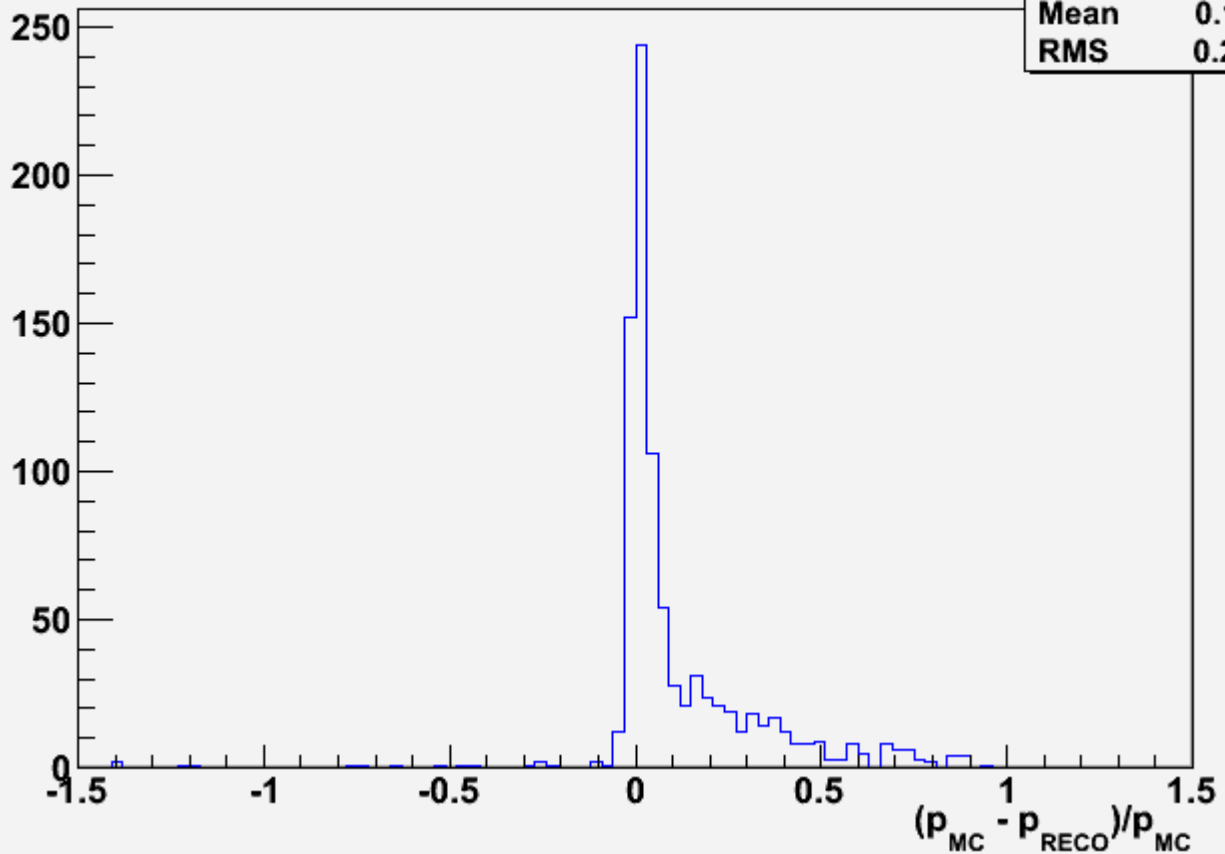
hkalmom	
Entries	902
Mean	0.03618
RMS	0.2369



2) [e_as_mu.png](#), downloaded 1529 times

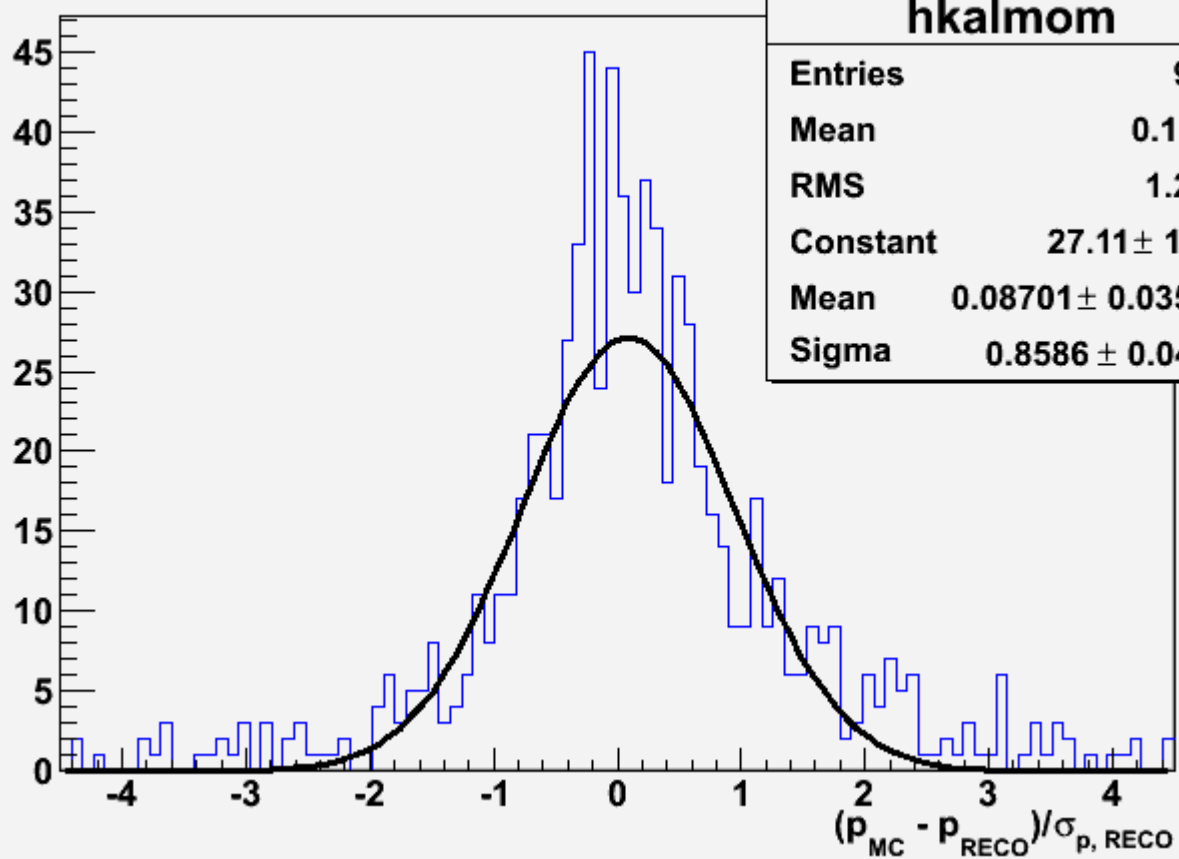
electron with hypo = muon

hkalmom	
Entries	892
Mean	0.1122
RMS	0.2238



3) [e_as_e_pull.png](#), downloaded 1509 times

simulated electron, kalman hypo = electron



4) [e_as_mu_pull.png](#), downloaded 1563 times

simulated electron, kalman hypo = muon

hkalmom	
Entries	892
Mean	0.7215
RMS	1.735

