Subject: Re: eta_c reconstruction efficiency
Posted by StefanoSpataro on Wed, 19 Oct 2011 16:07:05 GMT

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Dear all,
I have started also to investigate the problem of the eta_c efficiency loss.
For this I have run the simulation chain up to SttMvdTracking, w/o genfit, using the trnk
PndSttMvdracking.* and comparing with the july11 version.
The followings are the invariant mass distributions for eta_c and phi, with trunk and july11:

You can see there are no differences.

After, I run the same but also genfit:

Here the difference is evident, even if the kalman code is exactly the same for the two options.

I suspected it was connected with the montecarlo id hypothesis of the mctrackassociator, and I
have run genfit using the standard muon hyp:

The same. The problem does not depend on the mc id part.

My guess:
the STTMVD pattern recognition part is fine, it provides nice peaks w/o the kalman. The
kalman does some mess with the latest code. Considering that the kalman starts from the track
parameters at the first point (which should be fine according to the first plots) and from the
trackcand, I suspect that in the latter SttMvdTracking there is some mess with the TrackCand
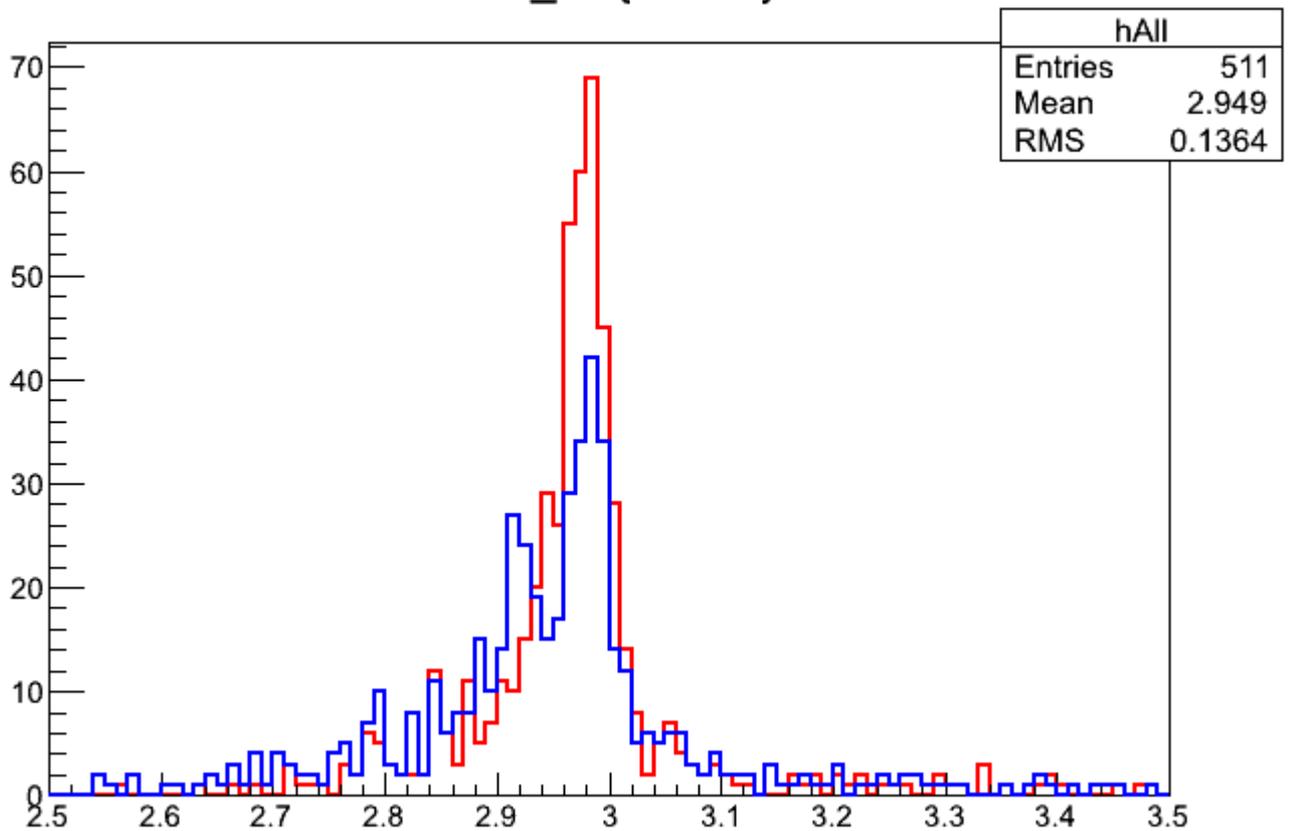object.

File Attachments
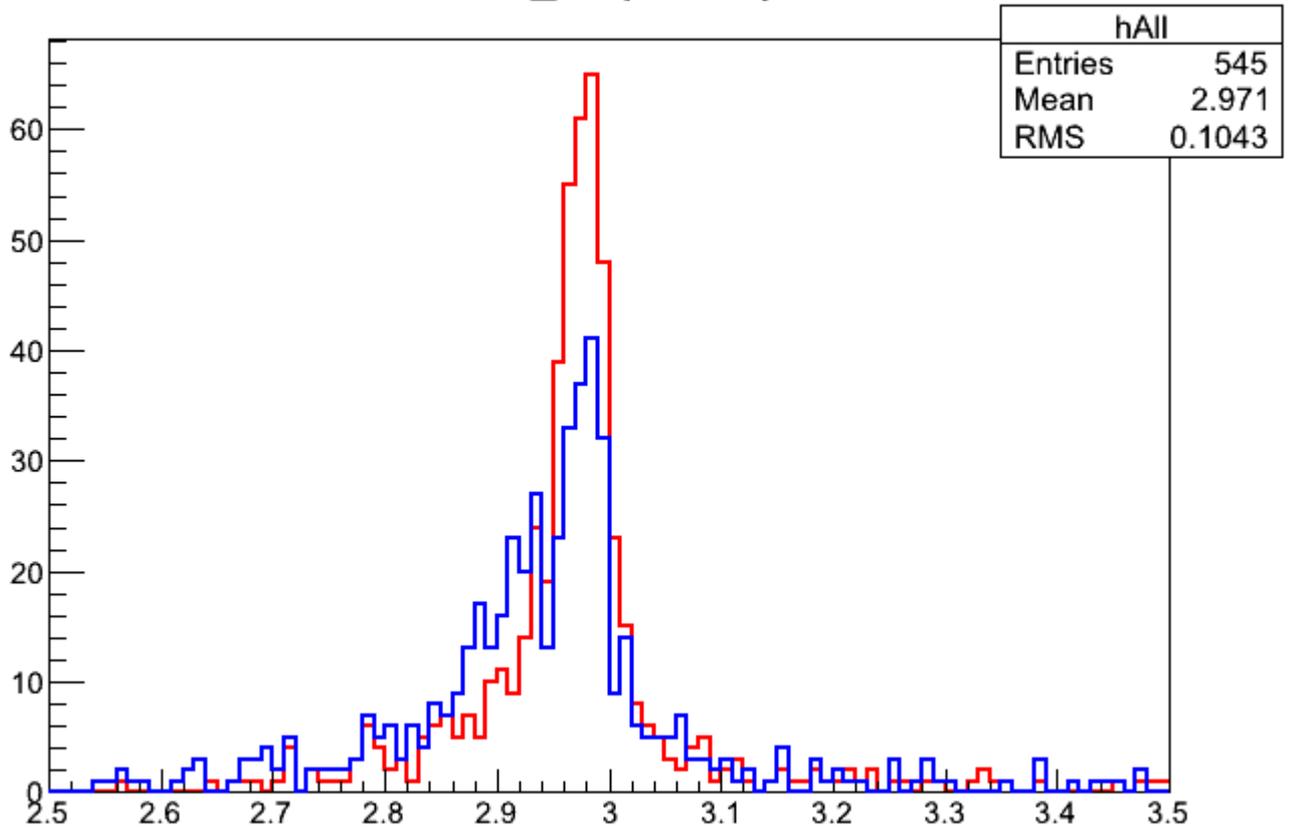1) etac_sttmvd.gif, downloaded 1028 times

reco_all {eff==4}

hAll	
Entries	557
Mean	2.98
RMS	0.0903
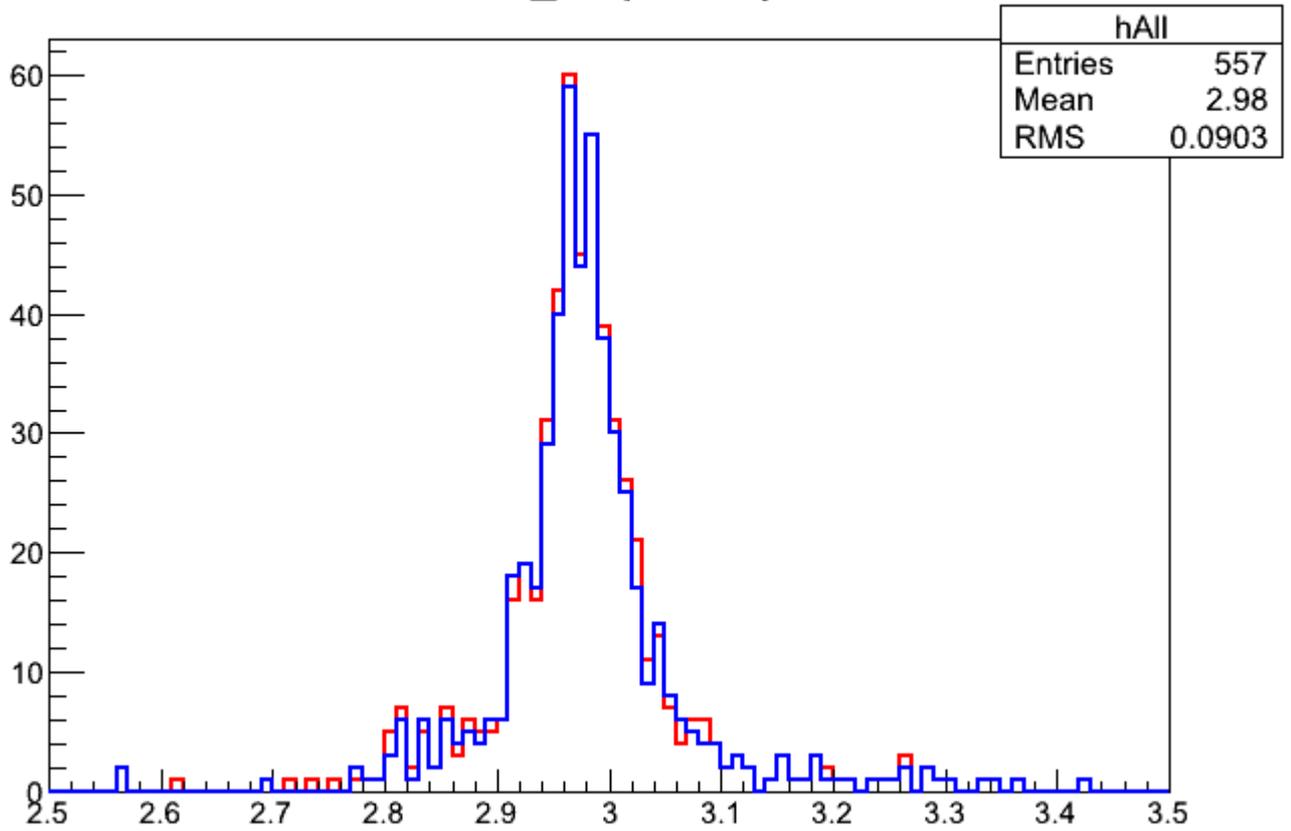
2) etac_sttmvdgen.gif, downloaded 1023 times

reco_all {eff==4}

hAll	
Entries	511
Mean	2.949
RMS	0.1364

3) eta_sttmvdgen_nomc.gif, downloaded 1028 times

reco_all {eff==4}

hAll	
Entries	545
Mean	2.971
RMS	0.1043

4) phi_sttmvd.gif, downloaded 1018 times

reco_phi1 {eff==4}

hphi	
Entries	1114
Mean	1.023
RMS	0.01318
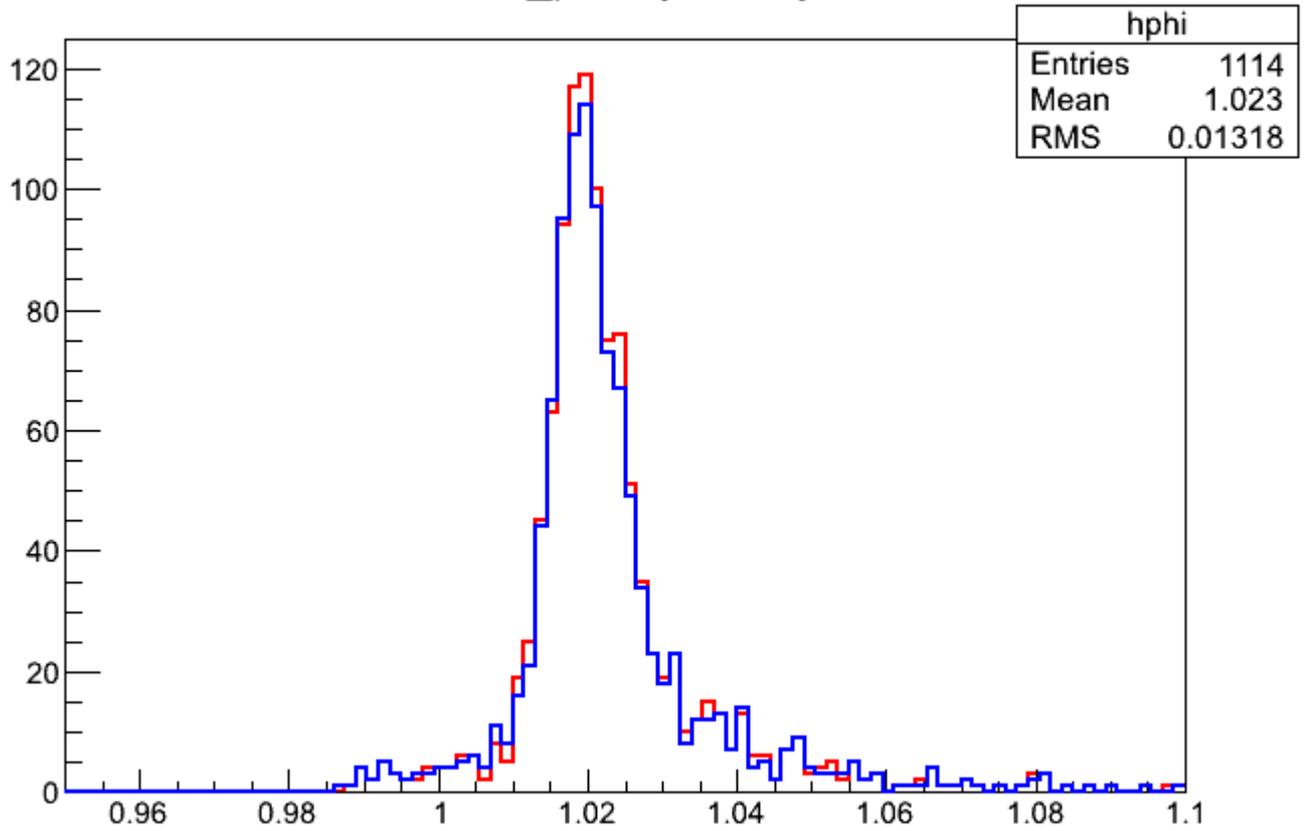
5) phi_sttmvdgen.gif, downloaded 1042 times

reco_phi1 {eff==4}

hphi	
Entries	1082
Mean	1.025
RMS	0.01503
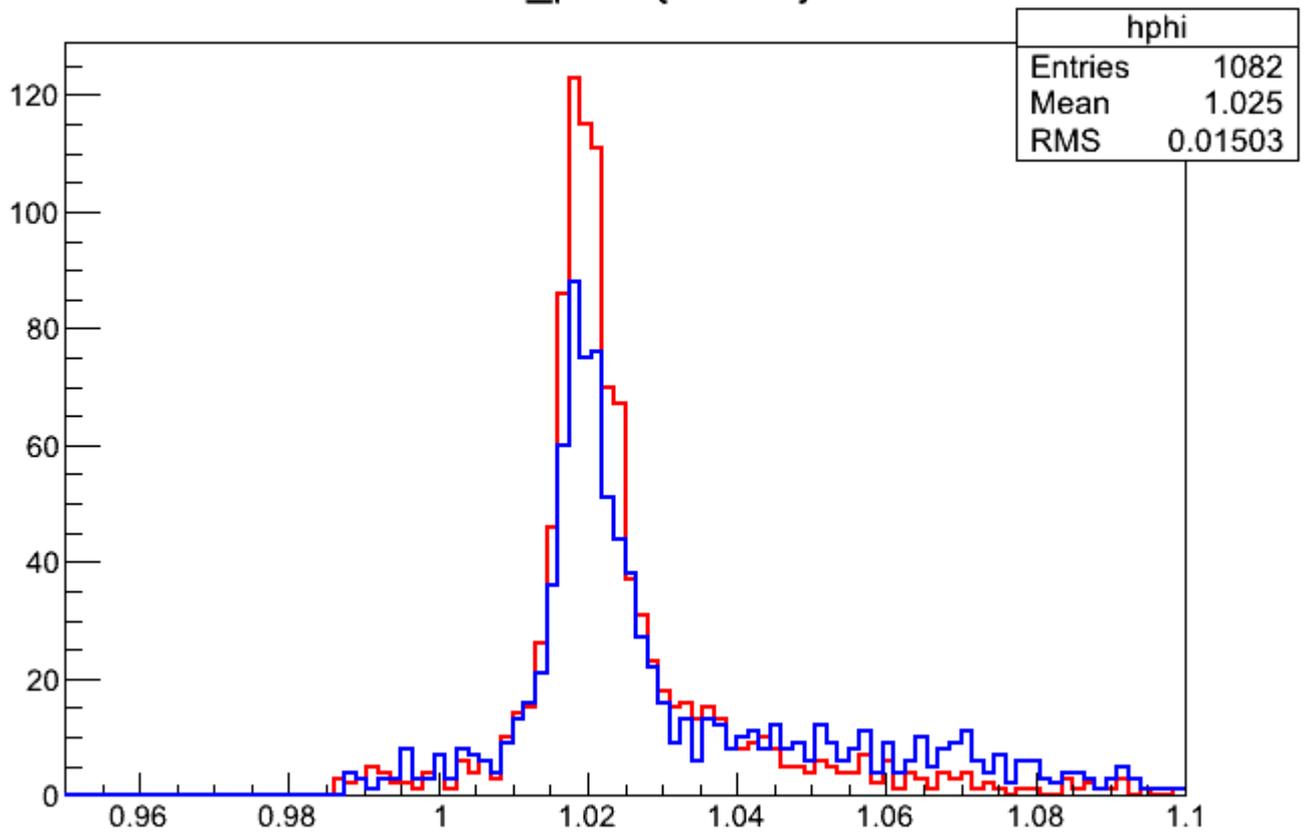
6) phi_sttmvdgen_nomc.gif, downloaded 1031 times

reco_phi1 {eff==4}

hphi	
Entries	1090
Mean	1.024
RMS	0.01468