Subject: Probability ditribution of mass constraint fitting in oct14 vs. mar15
Posted by Lu Cao on Tue, 07 Jul 2015 13:25:13 GMT
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Dear all,

I simulated 2k evt of this decay chain:
pbarp->Ds+ Ds-; Ds- -> K+K-pi-; Ds+ -> eta e+ nu_e; eta -> pi+ pi- pi0; pi0->2 gamma.

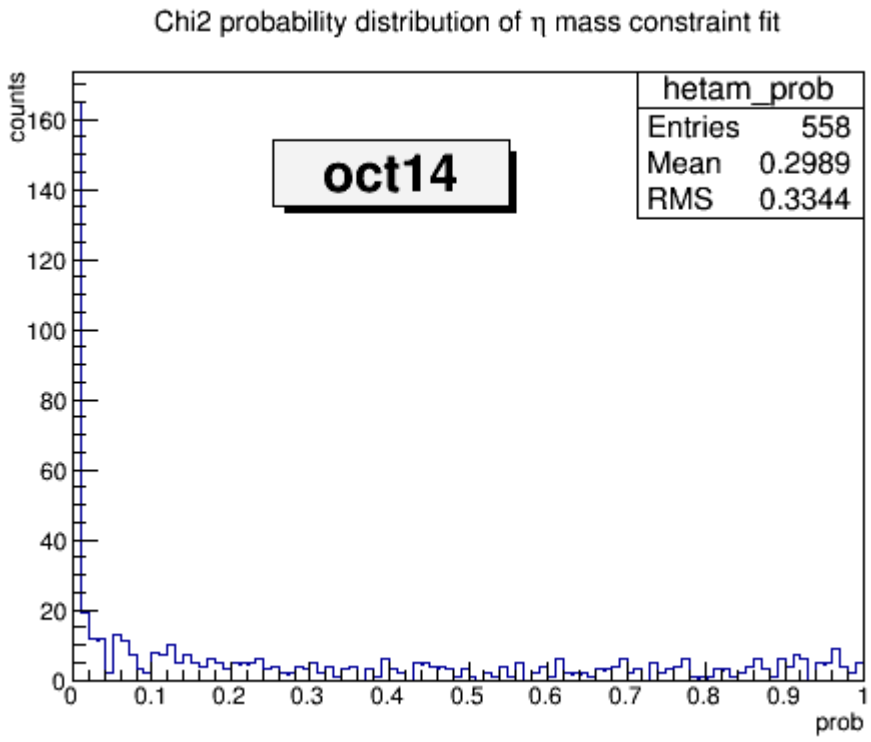
Inorder to reconstruct eta, I do mass constraint fitting on (pi+, pi- pi0) after the vtx fitting of combined charged daughters. Recently I find the probability distribution of the eta mass constraint fitting seems incorrect, where most of prob are skewed to 1 and chi2 is very small, i.e. the mean value of chi2 is 0.0003. The interesting thing is this doesn't happen in the mass constraint fittings of Ds- (pure charged daughters) and pi0 (pure neutral daughters). This problem is found with the release mar15 (#27529). I test the identical code with release oct14 (#26514), and find this problem doesn't arise there (see attached histograms). The code I used for testing is attached.

Question: Why it happens and how can I fix it?
Many thanks in advance.

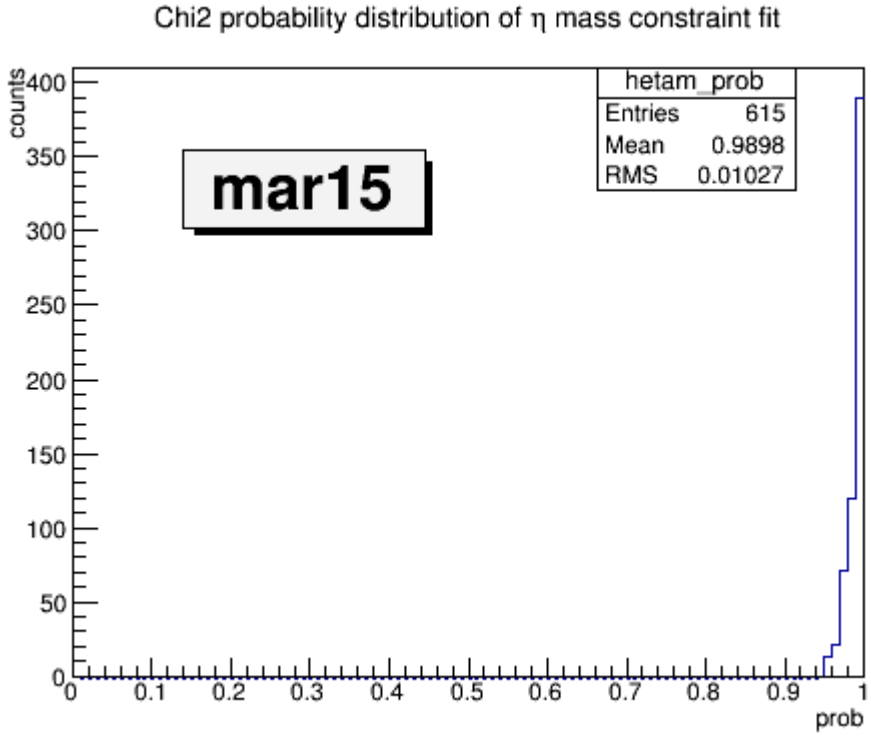
Best regards,
Lu

File Attachments

1) dspair.dec, downloaded 689 times
2) sim_complete.C, downloaded 678 times
3) digi_complete.C, downloaded 645 times
4) reco_complete.C, downloaded 679 times
5) pid_complete.C, downloaded 661 times
6) oct14.png, downloaded 1696 times



7) mar15.png, downloaded 1771 times



8) up_mcf_neu_recon.C, downloaded 675 times

Subject: Re: Probability ditribution of mass constraint fitting in oct14 vs. mar15
Posted by StefanoSpataro on Wed, 08 Jul 2015 08:47:13 GMT
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You forgot to attach the analysis macro.

Subject: Re: Probability ditribution of mass constraint fitting in oct14 vs. mar15
Posted by Lu Cao on Wed, 08 Jul 2015 11:02:25 GMT
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Sorry, I forgot. I attach it now within the first message.