Subject: Problem with Invariant mass distribution of D0 and D* candidates while using different tracking code
Posted by Ajay Kumar on Thu, 26 Mar 2015 15:40:16 GMT
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Dear All,

I have simulated 10^4 events for the signal channel pbar p-> D*+ D*- -> D0 pi+ D0bar pi- while adding Lambda Disks to the rest detector system in the sim_complete.C macro. I have observed that with the ideal tracking code (i.e. recoideal_complete.C) D0 (k- pi+) and D*+ (D0 pi+) are not reconstructed but with the global tracking code (reco_complete.C) are reconstructed well. I have attached the invariant mass plots here with both the tracking codes.

Without adding Lambda Disks both tracking code performed as expected. I did not understand what is issue with the ideal tracking code.

Why D0's are not well reconstructed with ideal tracking code while adding Lambda Disks to rest detector system?

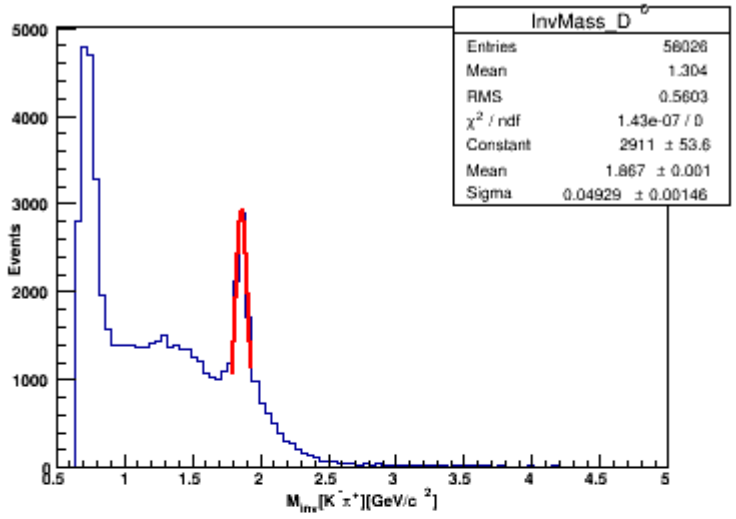
Can anybody teach me in this regard ??

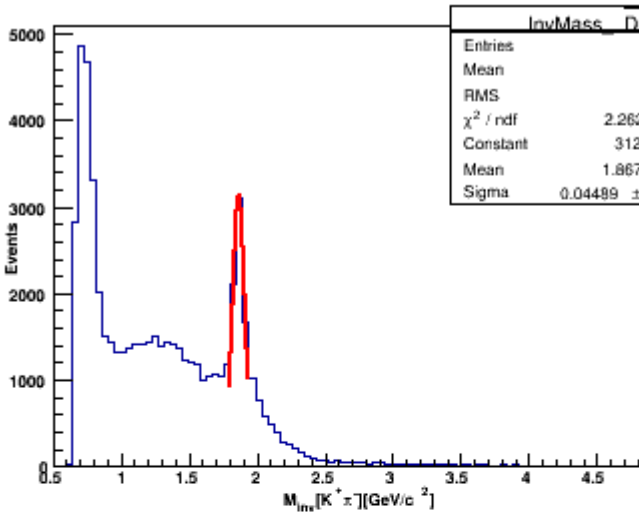
Thanks in advance

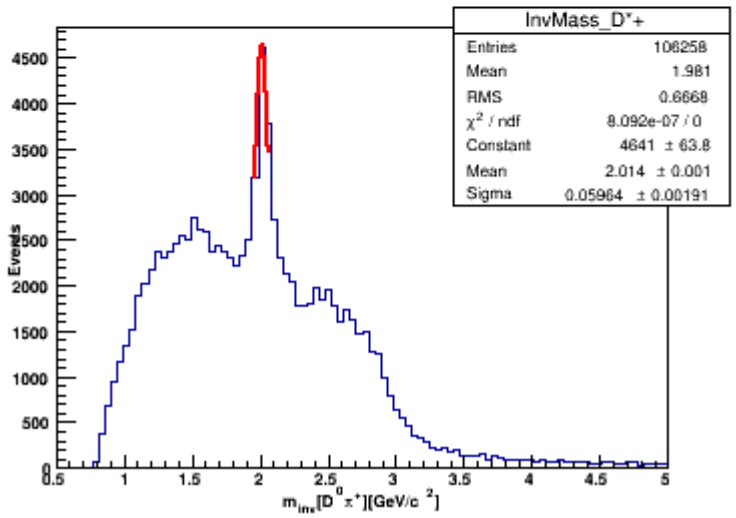
Ajay

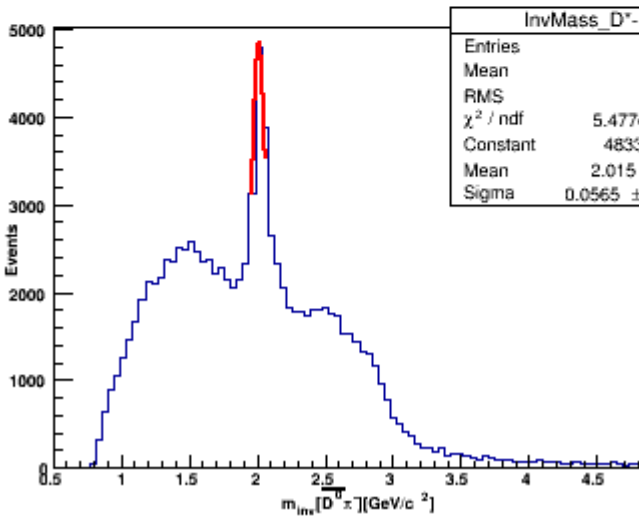
File Attachments

1) DstarPlus_DstarMinus_InvMass_GlobalTraking.png, downloaded 1259 times

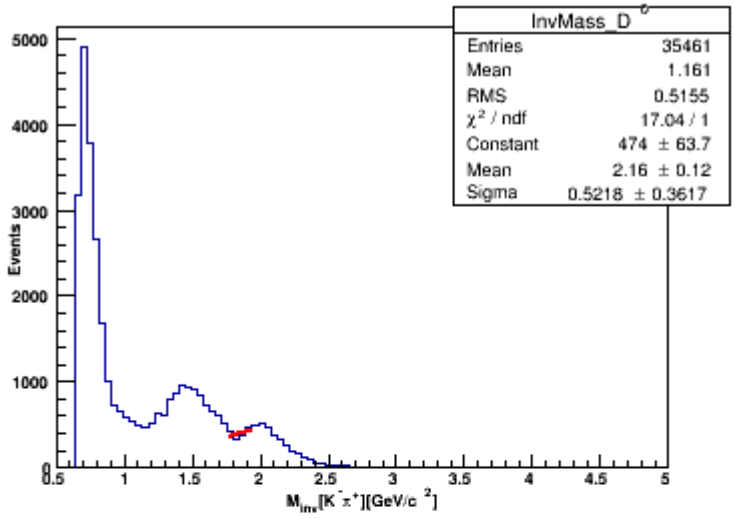


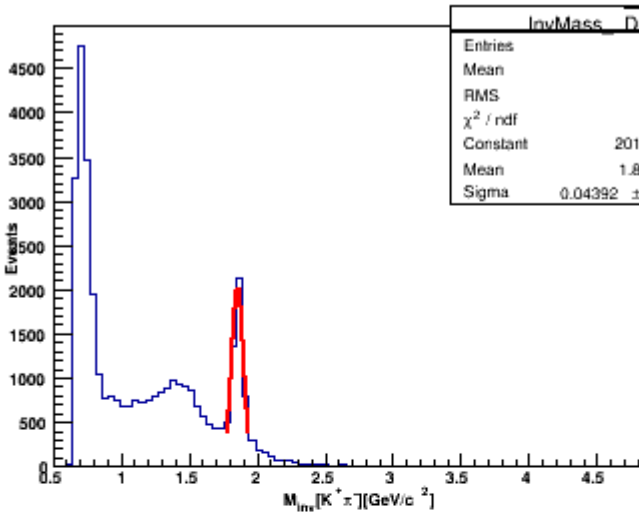


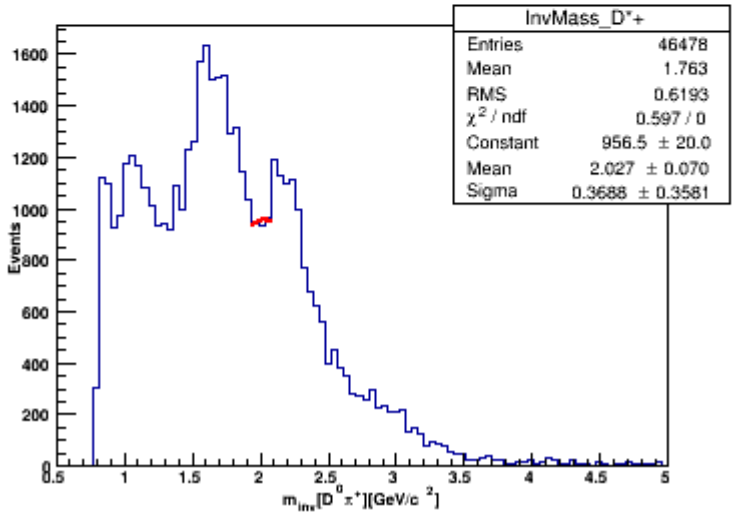


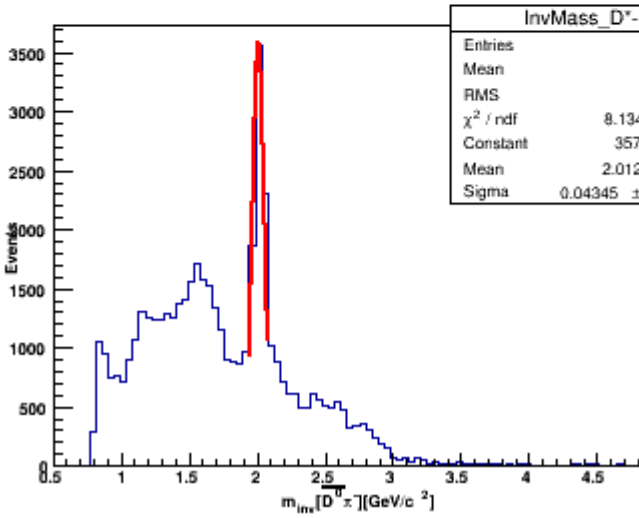


2) DstarPlus_DstarMinus_InvMass_IdealTraking.png, downloaded 1268 times


InvMass_D
Entries 35461
Mean 1.161
RMS 0.5155
χ² / ndf 17.04 / 1
Constant 474 ± 63.7
Mean 2.16 ± 0.12
Sigma 0.5218 ± 0.3617
Events
M_inv[K⁻π⁺][GeV/c²]


Events
M_inv[K⁺π⁻][GeV/c²]


InvMass_D*+
Entries 46478
Mean 1.763
RMS 0.6193
χ² / ndf 0.597 / 0
Constant 956.5 ± 20.0
Mean 2.027 ± 0.070
Sigma 0.3688 ± 0.3581
Events
m_inv[D⁰π⁺][GeV/c²]


Events
m_inv[D̄⁰π⁻][GeV/c²]