Subject: Vertex fitter for eta_c analysis
Posted by Dima Melnychuk on Wed, 13 Jul 2011 14:31:04 GMT
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Dear colleagues,

I would like to inform you that Elisa has found a bug in my eta_c analysis macro related to usage of vertex fitter and after correction it gives reasonable results in the sense of mass distribution.

Using PndKinVtxFitter eta_c and phi mass looks like

And for comparison using 4C kinematics fit

So in both cases mass resolution loos almost identical.

In case of 4C-fit daughter particles are not updated after the fit, i.e. it shouldn't modify the shape of mass distribution, but for vertex fit daughter particles are updated and I would expect bigger improvement/difference of at least eta_c mass, but it's not the case.

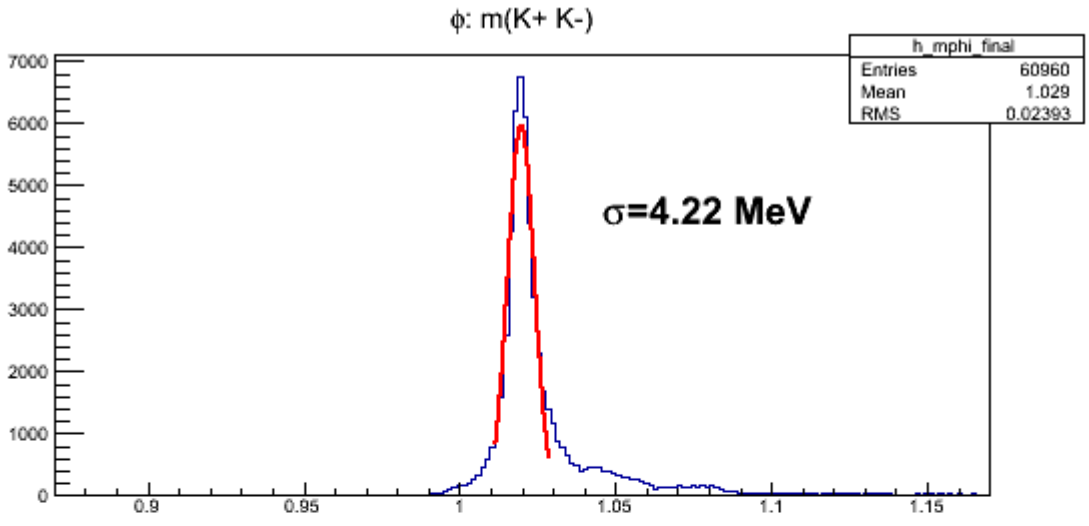
And I didn't look yet how position of the vertex is reconstructed, i.e. (reconstructed - MonteCarlo).

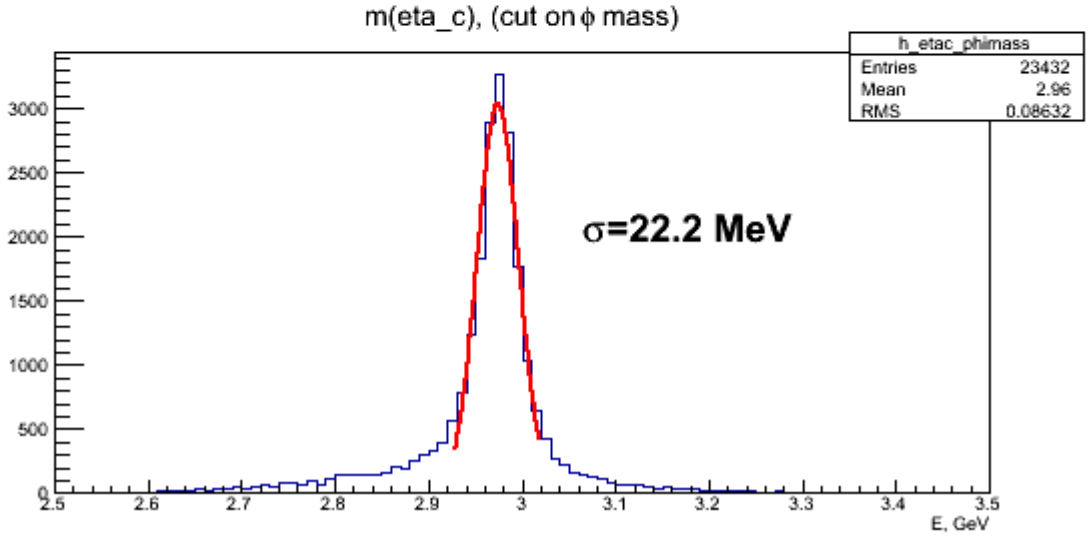
But in principle now both fitters could be used in analysis.

Dima

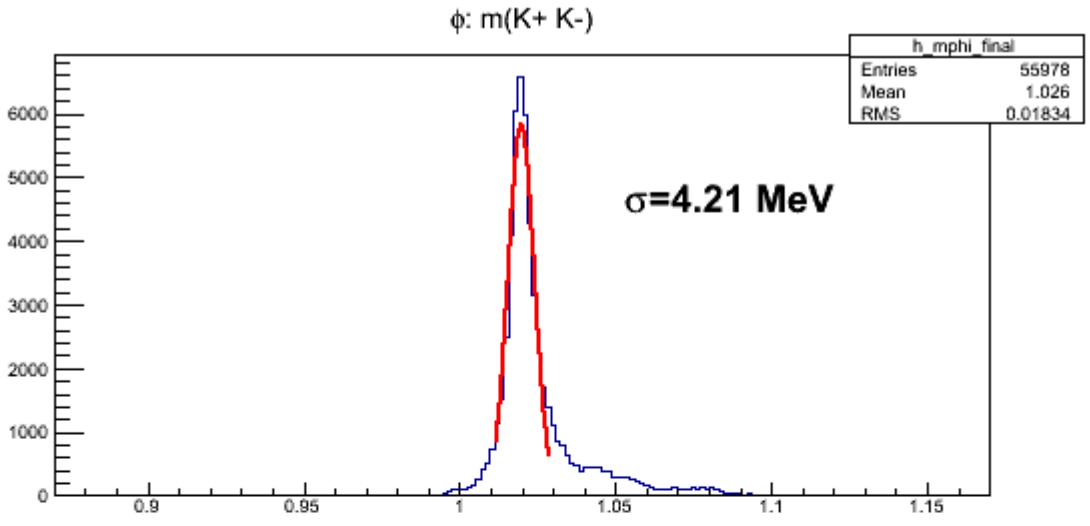
File Attachments

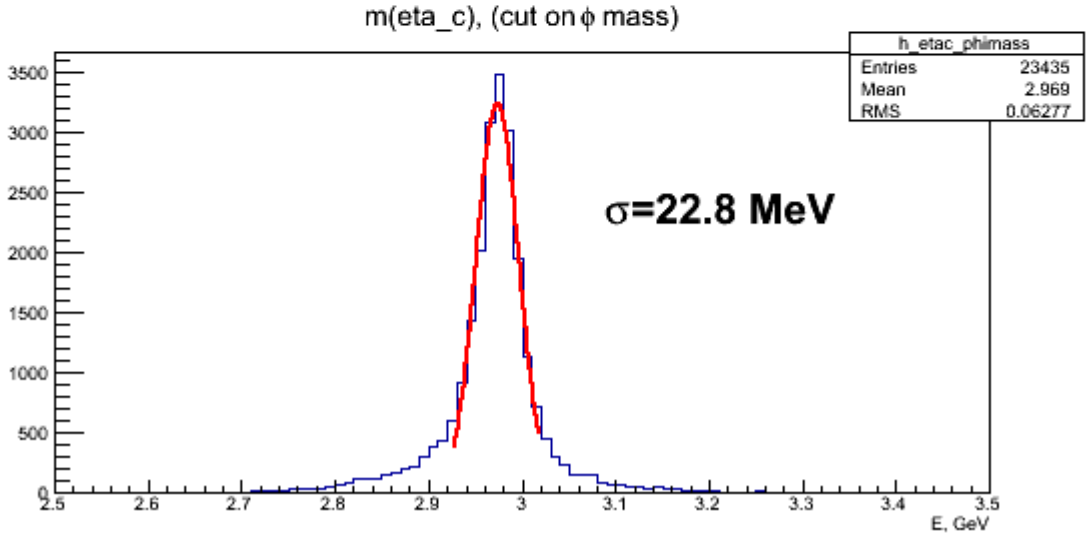
1) m_etac_stt_vtx.png, downloaded 1298 times





2) m_etac_stt_4c.png, downloaded 1343 times


ϕ: m(K+ K-)
h_mphi_final
Entries 55978
Mean 1.026
RMS 0.01834
σ=4.21 MeV
6000
5000
4000
3000
2000
1000
0
0.9
0.95
1
1.05
1.1
1.15


m(eta_c), (cut on ϕ mass)
h_etac_phimass
Entries 23435
Mean 2.969
RMS 0.06277
σ=22.8 MeV
3500
3000
2500
2000
1500
1000
500
0
2.5
2.6
2.7
2.8
2.9
3
3.1
3.2
3.3
3.4
3.5
E, GeV