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.

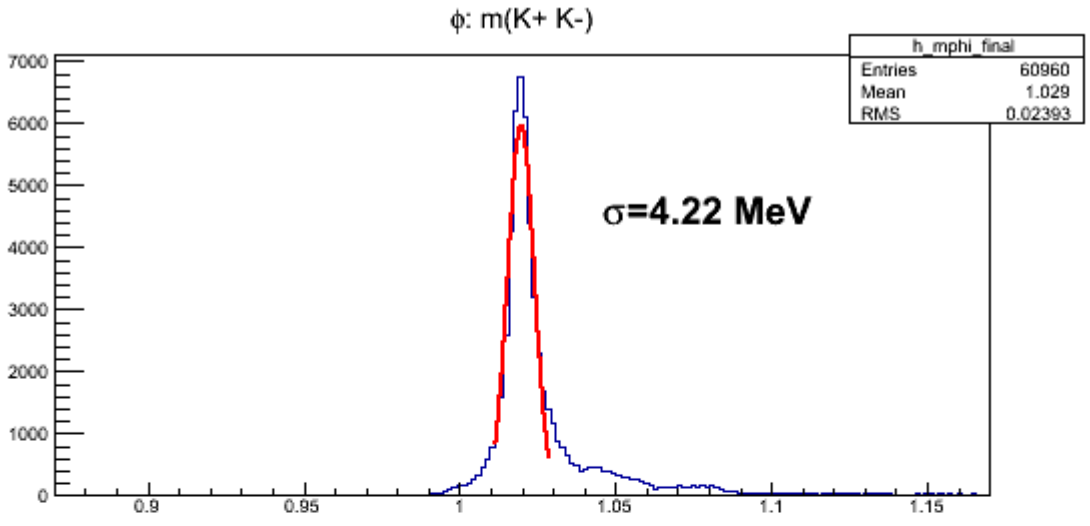
And I didn't look yet how position of the vertex is reconstructed, i.e. (reconstructed - MonteCarlo).

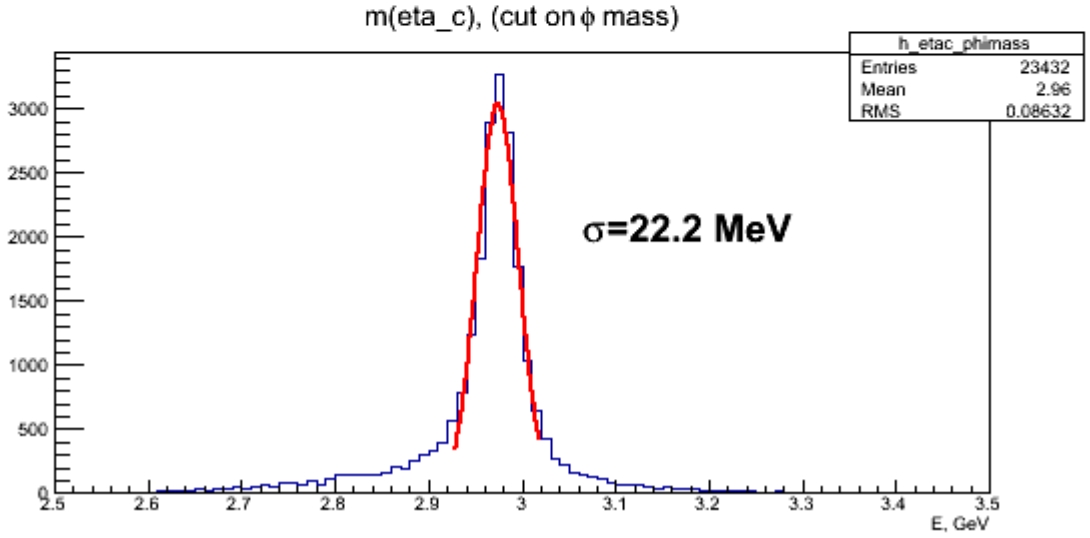
But in principle now both fitters could be used in analysis.

Dima

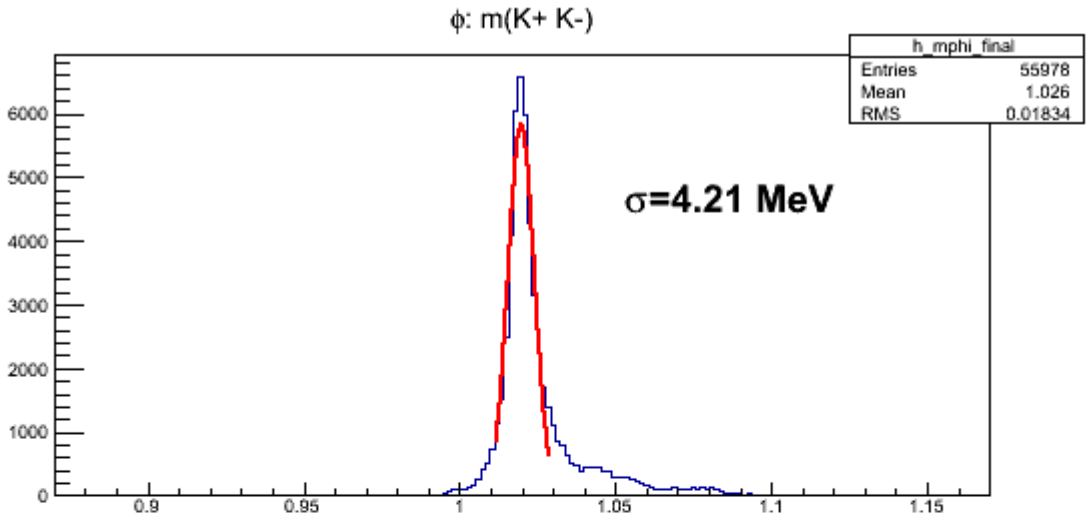
File Attachments

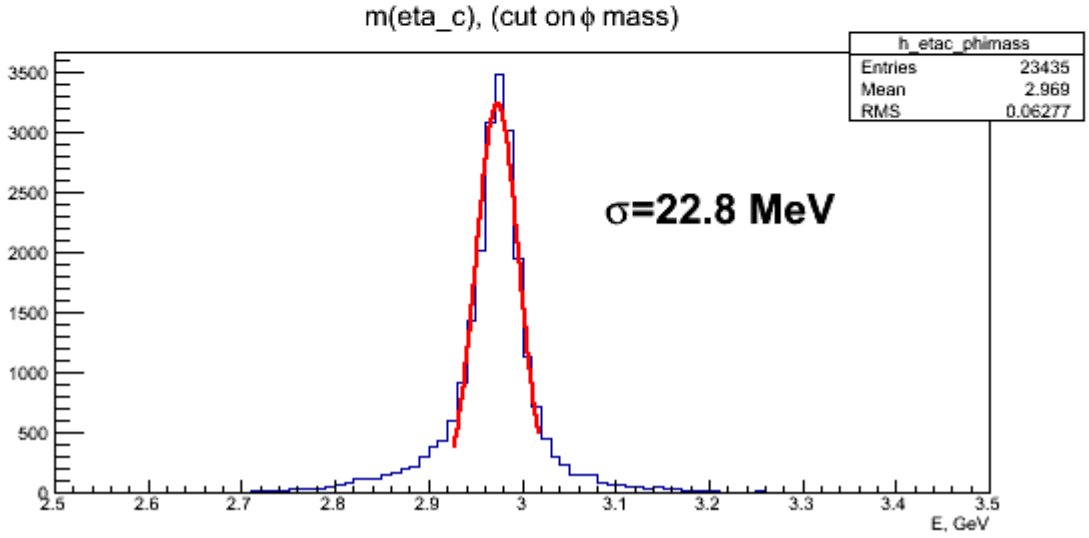
1) m_etac_stt_vtx.png, downloaded 1296 times





2) m_etac_stt_4c.png, downloaded 1341 times





Subject: Re: Vertex fitter for eta_c analysis
Posted by Klaus Götzen on Wed, 13 Jul 2011 15:07:20 GMT
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Hi Dima,

that's good news! Concerning the vertex fit I wouldn't expect too much improvement in mass resolution. In my Babar analysis I never observed significant mass resolution improvements from vertex fits, in particular for short living resonances.

Concerning updating of daughters I thought it's the other way around: I observed that the 4C fitter updates the daughters, but the vertex fitter doesn't...

However I'm taking a closer look at it anyways...

Cheers,

Klaus

Subject: Re: Vertex fitter for eta_c analysis
Posted by StefanoSpataro on Wed, 13 Jul 2011 17:20:11 GMT
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Do you see any differences with tpc?