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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 looks 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 415 times

2) [m\\_etac\\_stt\\_4c.png](#), downloaded 350 times

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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

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Subject: Re: Vertex fitter for eta\_c analysis  
Posted by [Stefano Spataro](#) on Wed, 13 Jul 2011 17:20:11 GMT  
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Do you see any differences with tpc?

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