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Subject: eta\_c with event mixing for STT  
Posted by [Dima Melnychuk](#) on Mon, 29 Aug 2011 22:35:11 GMT  
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Dear colleagues,

I have analysed the eta\_c data produced on the GRID with event mixing, and at the moment I still do not understand the results.

But I just want to share some plots to show the current status.

So multiplicity of charged tracks:

Only 8% of events have  $\geq 4$  tracks which is much lower than 72% without event mixing.

Invariant mass of phi and eta\_c with preselection on phi mass window:

Here there is no indication of phi or eta\_c peak.

And applying MC Truth PID does not change this distribution much.

And finally only 4 events out of 100k pass the selection cuts.

So the results still have to be understood.

Dima

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#### File Attachments

- 1) [n\\_charged\\_stt.png](#), downloaded 511 times
  - 2) [m\\_nocuts\\_stt.png](#), downloaded 551 times
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Subject: Re: eta\_c with event mixing for STT  
Posted by [Dima Melnychuk](#) on Fri, 02 Sep 2011 09:37:40 GMT  
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Dear colleagues,

Here I update plots on eta\_c reconstruction with STT and event mixing with runs mix301, mix311, mix321, mix331.

There is an improvement comparing to previous results but the results are still far from reasonable.

Multiplicity of charged tracks:

23% of events have  $\geq 4$  tracks in comparing to 8% in previous run and 72% without event mixing.

And invariant mass of phi and eta\_c with preselection on phi mass window:

Here phi peak appears but still no indication of eta\_c peak.

Finally 36 events were reconstructed from 100 k.

Dima

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#### File Attachments

- 1) [n\\_charged.png](#), downloaded 393 times
  - 2) [m\\_nocuts.png](#), downloaded 393 times
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Subject: Re: eta\_c with event mixing for STT  
Posted by [Dima Melnychuk](#) on Fri, 02 Sep 2011 15:26:39 GMT  
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Just for comparison here I present invariant mass distributions for eta\_c and phi with the same version of STT software (august11).

This run is produced with cleanup code and eta\_c reconstruction efficiency is 7.8%

Dima

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#### File Attachments

- 1) [m\\_nocuts\\_nomix.png](#), downloaded 325 times
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Subject: Re: eta\_c with event mixing for STT  
Posted by [Dima Melnychuk](#) on Thu, 08 Sep 2011 00:48:23 GMT  
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Hi all,

With the latest run eta\_c events produced with STT with background mixing are reconstructable.

Multiplicity of reconstructed tracks is rather high:

With rough pre-selection on phi mass invariant mass distributions looks like:

So there is small indication of eta\_c peak.

But after the final selection:

eta\_c is reconstructed with efficiency 3.3%

Dima

#### File Attachments

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- 1) [n\\_charged\\_stt\\_mix.png](#), downloaded 406 times
  - 2) [m\\_nocuts\\_stt\\_mix.png](#), downloaded 441 times
  - 3) [m\\_final\\_vtx\\_stt\\_mix.png](#), downloaded 396 times
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