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Subject: Eta\_c efficiency

Posted by [Gianluigi Boca](#) on Fri, 25 Nov 2011 18:20:37 GMT

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Hi,

I modified again PndSttMvdTracking.cxx in order to get the 'old' efficiency level, as in July11 release, for the Eta\_c channel.

The difference, as anticipated, was a stricter cut on the association of the Parallel STT hits.

Please analyzers update and try again at your convenience

Tschuess Gianluigi

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Subject: Re: Eta\_c efficiency

Posted by [Dima Melnychuk](#) on Sun, 27 Nov 2011 22:27:15 GMT

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Hi,

I just want to quote two numbers concerning eta\_c reconstruction efficiency I obtained with 1000 events statistics.

Before the last modification I obtained 28.4% after it 30.9%, so indeed it improves additionally reconstruction efficiency.

Both numbers are for the same data set.

It's still a question how those numbers changes with higher statistics.

Dima

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Subject: Re: Eta\_c efficiency

Posted by [Dima Melnychuk](#) on Mon, 28 Nov 2011 11:43:20 GMT

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Hi,

Just an additional number for eta\_c efficiency.

For the data produced on grid without latest update I have eta\_c reconstruction efficiency 23.5% with analysed 70.000 events.

Somehow with the grid data I have efficiency lower than with data produced by myself (28.4%). And it's not the first time I observe this behaviour.

Dima

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Subject: Re: Eta\_c efficiency

Posted by [StefanoSpataro](#) on Mon, 28 Nov 2011 15:05:21 GMT

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Could you please check if some subjob has 0 entries in the tree? Maybe there are some empty files, maybe...

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Subject: Re: Eta\_c efficiency  
Posted by [Dima Melnychuk](#) on Mon, 28 Nov 2011 16:14:50 GMT  
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Event if there are files which has 0 entries in the tree it would not change the efficiency which I quote since I normalise for the actual number of entries, at least if it is obtained correctly from:

```
PndEventReader evr(inPidFile);  
nevs=evr.GetEntries();
```

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Subject: Re: Eta\_c efficiency  
Posted by [Stefano Spataro](#) on Mon, 28 Nov 2011 16:43:12 GMT  
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Considering that the efficiency is something like 20%, there should be no empty files. In such a case, maybe the reconstruction macros had some problems and have created a tree with no entry, without giving an error. The subjob is simply failing and it should not be counted in the 70000 statistics.

But I don't know if this can happen.

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Subject: Re: Eta\_c efficiency  
Posted by [Dima Melnychuk](#) on Tue, 29 Nov 2011 13:43:57 GMT  
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Hi,

With the latest STT reconstruction update the following results are obtained for eta\_c channel with data produced on grid.

run926 (99500 events, copy of one file (500 events) fails)  
Invariant mass distribution:

Reconstruction efficiency - 25.8%, result is good but again somehow lower than I obtained with 1000 events (30.9%)  
 $\sigma(\eta_c) = 31.6$  MeV,  $\sigma(\phi) = 3.87$  MeV

With cleanup - run926cu

Efficiency drops to 18.1%, but still is reasonable.  
 $\sigma(\eta_c) = 28.7$  MeV,  $\sigma(\phi) = 3.70$  MeV

And here are the multiplicities of charged tracks, without and with cleanup:

So I still try to understand why on grid efficiency is lower than I have locally, but otherwise data look reasonable.

Dima

### File Attachments

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- 1) [mfinal\\_926.png](#), downloaded 418 times
  - 2) [mfinal\\_926cu.png](#), downloaded 409 times
  - 3) [n\\_charged926.png](#), downloaded 334 times
  - 4) [n\\_charged926cu.png](#), downloaded 381 times
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Subject: Re: Eta\_c efficiency  
Posted by [Gianluigi Boca](#) on Tue, 29 Nov 2011 14:42:50 GMT  
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Hi Dima,  
is the 'cleanup' result obtained with the DPM Background or not yet ?  
Gianluigi

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Subject: Re: Eta\_c efficiency  
Posted by [Stefano Spataro](#) on Tue, 29 Nov 2011 14:54:31 GMT  
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Without

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