Subject: Bremsstrahlung and neutrals mergeing
Posted by Klaus Götzen on Tue, 06 May 2014 12:18:53 GMT
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Hi all,

I just wanted to inform you that I implemented a neutral (cluster) mergeing and bremsstrahlung losses for electrons in the Fast Sim in trunk and scrut14. As default these features are switched off and have to be enabled in the fast sim macro with

```
// enable the merging of neutrals if they have similar direction
fastSim->MergeNeutralClusters();

// enable bremsstahlung loss for electrons
fastSim->EnableElectronBremsstrahlung();
```

The parametrization for the cluster mergeing was motivated by Ronalds talk (see https://panda-wiki.gsi.de/foswiki/pub/Computing/Minutes28April2014/evo14 0428RK.pdf) to roughly match the efficiency on page 11.

The following plot shows the J/psi -> e+ e- mass distribution (from psi'->J/psi pi+ pi- events) without (blue) and with (red) bremsstrahlung:

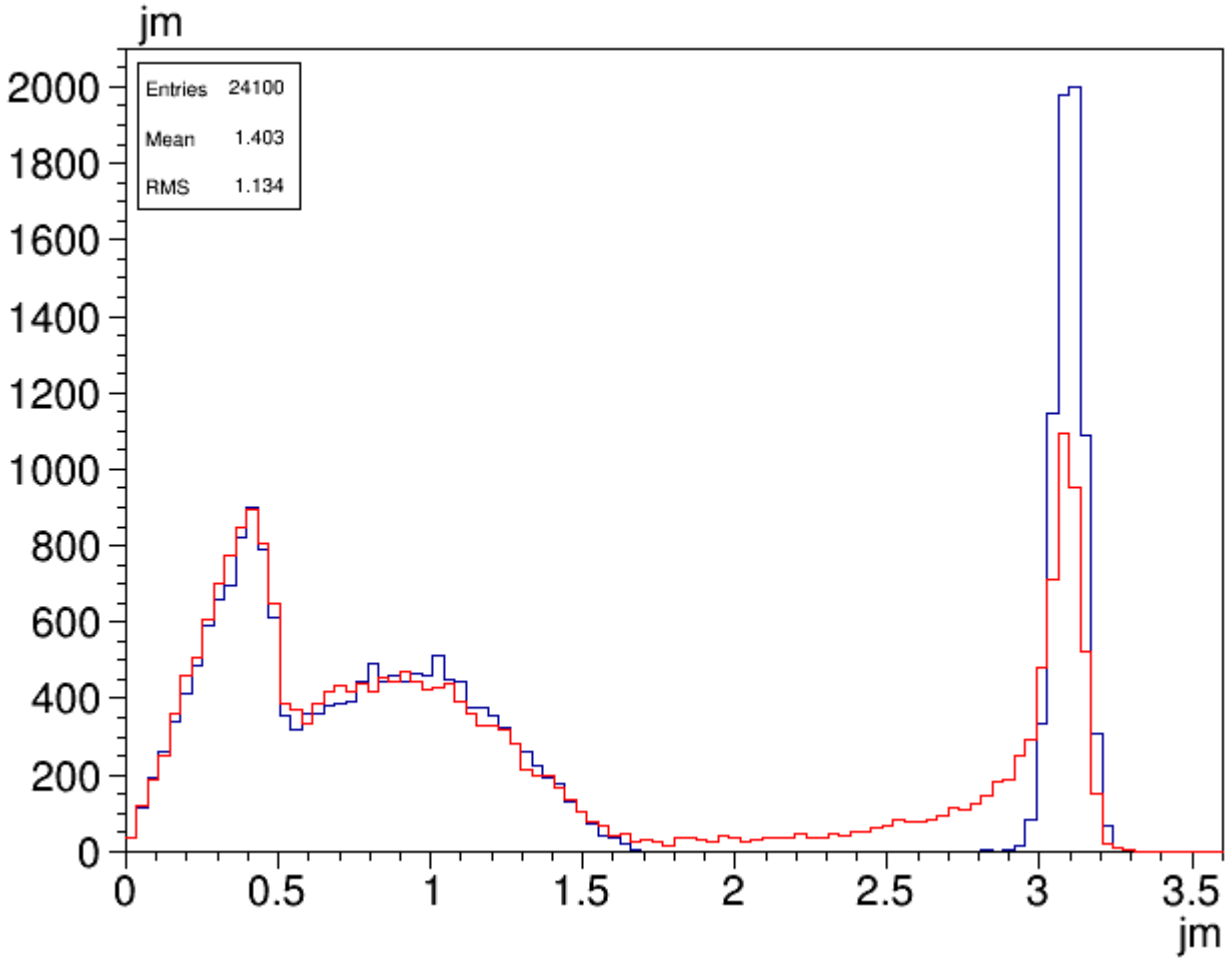
This plot shows the pi0 reco efficiency depending on the opening angle (here from pbarp -> pi+ pi- pi0 events):

You might give it a try and check, whether it behaves like expected. In case of your positive feedback we can also enable the features as default.

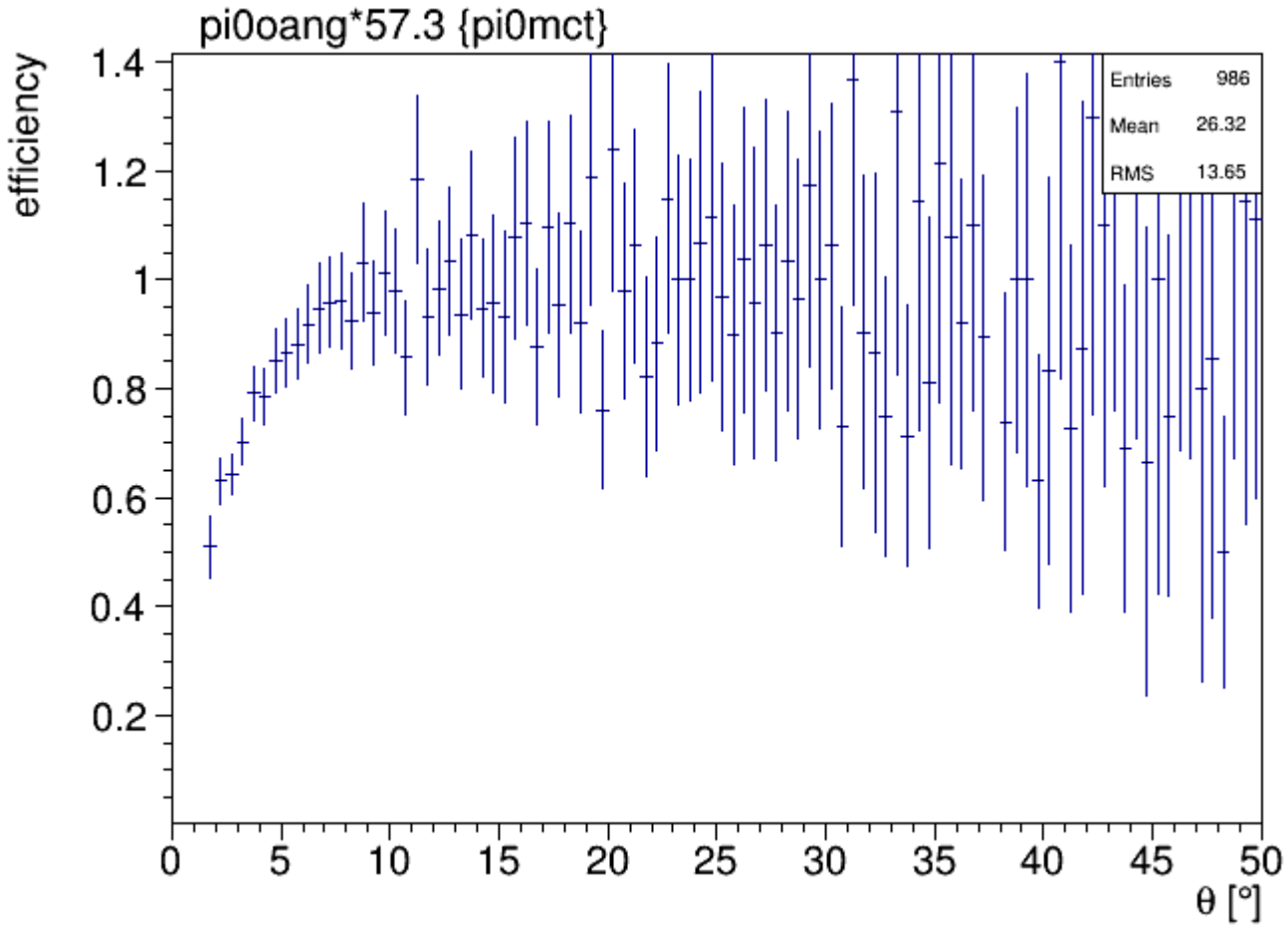
Best,
Klaus

File Attachments

1) j2e_brems.gif, downloaded 1299 times



2) pi0_merge.gif, downloaded 1169 times


pi0oang*57.3 {pi0mct}
efficiency
1.4
1.2
1
0.8
0.6
0.4
0.2
0
5
10
15
20
25
30
35
40
45
50
θ [°]
Entries 986
Mean 26.32
RMS 13.65