Subject: Charged Hits in Neutral List
Posted by Lu Cao on Fri, 08 Aug 2014 11:54:15 GMT
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Dear PID experts,
I simulated 10 charged kaon in box generator with the momentum (1,4) GeV/c and checked the photon multiplicity in this K+ box like this:

```
---event loop---
theAnalysis->FillList(neu,"Neutral");
hgeve->Fill(neu.GetLength());
```

As shown in the attached .png, in the 10 evt K+, we got avg. 5.7 neutrals and 2 of those events got surprising 16 neutrals.

To understand this in a deeper level, Tobias helped to check the EMC cluster in MCTrack:

```
fMCMatch->CreateArtificialStage("MCTrack");
Int_t nCluster = fClusterArray->GetEntriesFast();
Int_t nTracks = fMCTrackArray->GetEntriesFast();
//loop to test Cluster
 for (Int_t iCluster=0; iCluster<nCluster; iCluster++)
 {
  PndEmcCluster* theCluster = (PndEmcCluster*) fClusterArray->At(iCluster);
  std::vector<Int_t> mcIndexes = theCluster->GetMcList();
  for (Int_t iMcIndex = 0; iMcIndex < mcIndexes.size(); iMcIndex++){
   std::cout << "Tracks in Cluster " << iCluster << " TrackId: " << mcIndexes.at(iMcIndex); // <<
std::endl;
   PndMCTrack* myTrack = (PndMCTrack*)fMCTrackArray->At(mcIndexes.at(iMcIndex));
   std::cout << " PdgCode: " << myTrack->GetPdgCode() << std::endl;
  }
 }
```

Then, we got this info:

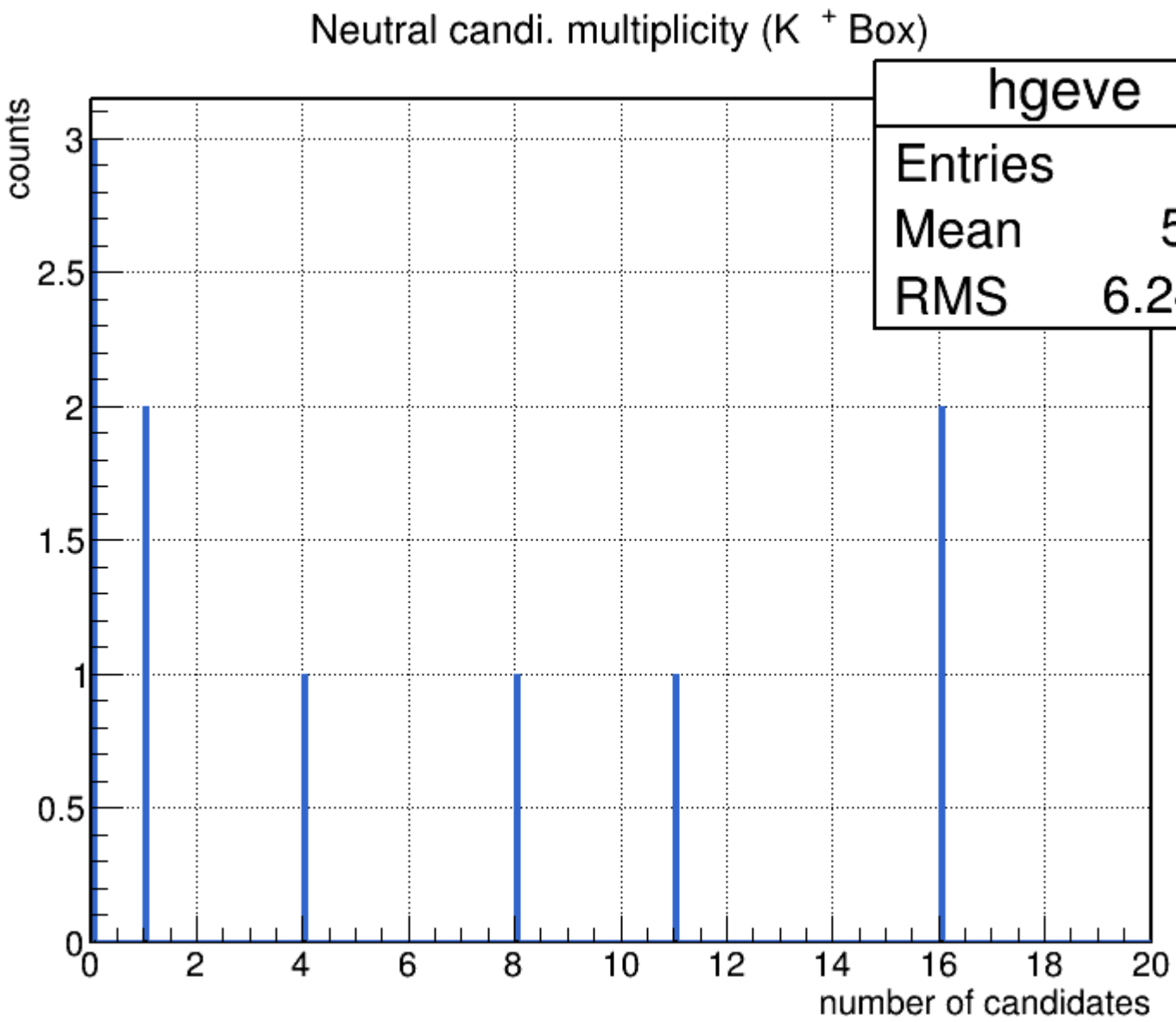
```
Tracks in Cluster 1 TrackId: 0 PdgCode: 321
Tracks in Cluster 2 TrackId: 0 PdgCode: 321
Tracks in Cluster 3 TrackId: 0 PdgCode: 321
Tracks in Cluster 4 TrackId: 0 PdgCode: 321
Tracks in Cluster 5 TrackId: 0 PdgCode: 321
...
```

It looks some charged particles fired the EMC crystals but they are treated as "neutral candidates".

With best regards,
Lu

File Attachments

1) Canvas_1.png, downloaded 1883 times


Neutral candi. multiplicity (K + Box)
hgeve
Entries 10
Mean 5.7
RMS 6.246
counts
number of candidates
0
0.5
1
1.5
2
2.5
3
0
2
4
6
8
10
12
14
16
18
20