
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".

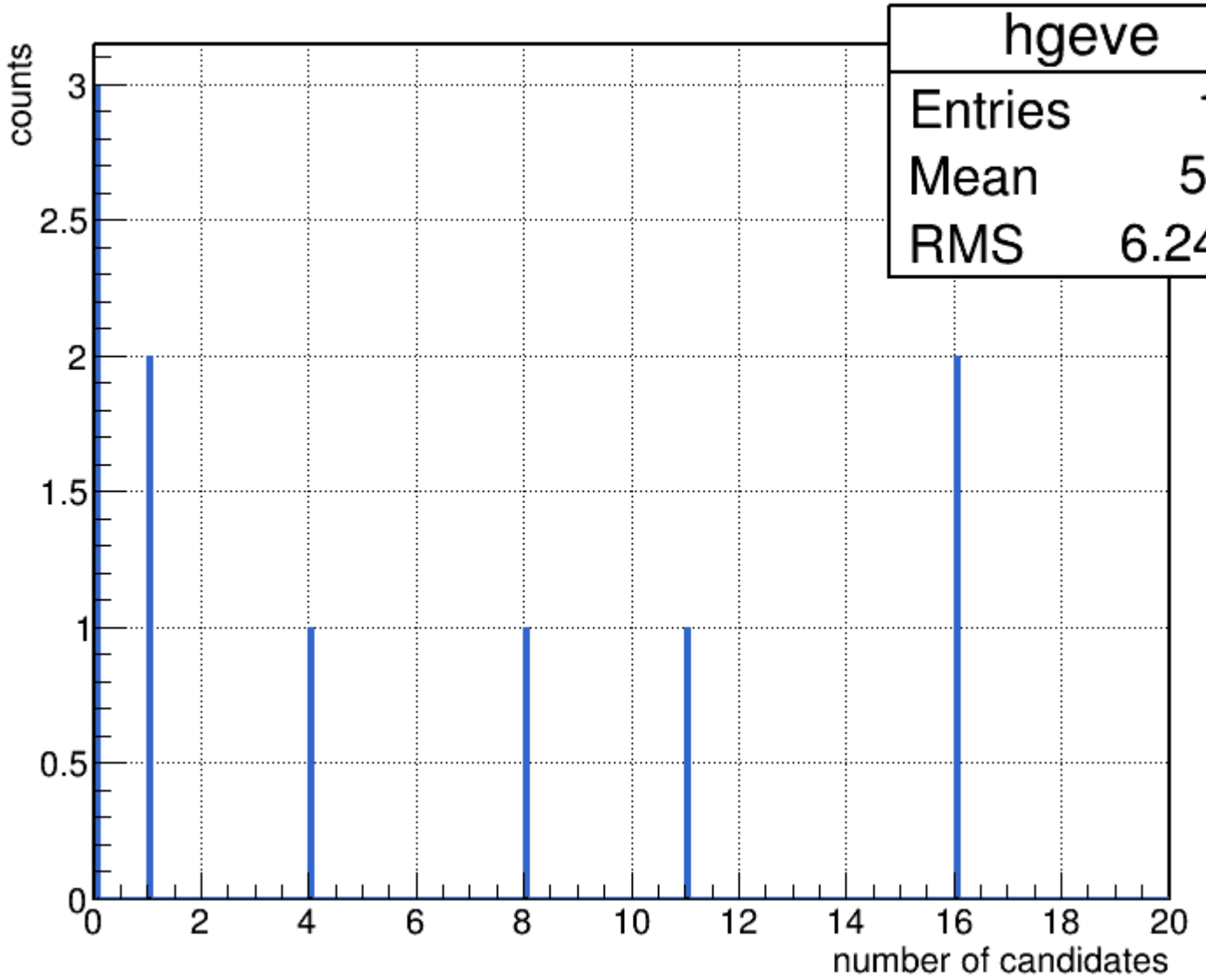
With best regards,

Lu

File Attachments

1) [Canvas_1.png](#), downloaded 1643 times

Neutral candi. multiplicity (K⁺ Box)



hgeve	
Entries	10
Mean	5.7
RMS	6.246