
Subject: TPC digitization blocks everything for too many cluster events

Posted by [Stefano Spataro](#) on Thu, 03 Jun 2010 20:04:36 GMT

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Dear all,

I have noticed, producing many events with different momentum values, that sometimes the digi macro persists on some well defined events even for tenth of minutes!

In particular, the detector which is "blocking" the digitization is the TPC.

This is a sample of "blocking" event, produced when I was trying to simulate one single pion events from 0.5 to 4 GeV/c:

```
PndTpcClusterizer:: 20278 clusters created
41409 electrons arriving at readout
Aggregating drifted electrons into avalanches finished.
41409 Avalanches created
0 aggregations done.
77354 Signals created
PndTpcElectronicsTask::Exec
Building up padmap ...finished. 317 pads hit
.....
```

After 20 minutes it is still blocked at the same event. This happens also many times... in this particular case 20278 clusters created, 41409 avalanches.

I copy a "normal" TPC event:

```
PndTpcClusterizer:: 674 clusters created
1214 electrons arriving at readout
Aggregating drifted electrons into avalanches finished.
1214 Avalanches created
0 aggregations done.
2260 Signals created
PndTpcElectronicsTask::Exec
Building up padmap ...finished. 287 pads hit
.....
166 Digis created
```

In this case "only" 674 clusters. Digitization time... less than 1 second.

I can understand that for large events the required digitization time is high, but 20 minutes are really too much, I think. I am not sure if, at the end, we will be able to analyse them or they will be simply too much noisy. In the latter case, maybe a rejection of events with a too high number of clusters/avalanche in tpc could help making the digitization a bit faster, without losing too much signal. Or maybe sometimes the code enters inside a too large loop that could be optimized, I don't now.

I would call for comments from the TPC experts.
