



GSI 2003 beamtest results (on data reduction)

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Data

- There are a few runs with new data reduction
- Run 256 chosen (boron)
- Run 275 - nickel problems with clusters
(do we have any good Ni-run?)
- There is no direct information on CN calculated in DSP (direct comparison is impossible!)

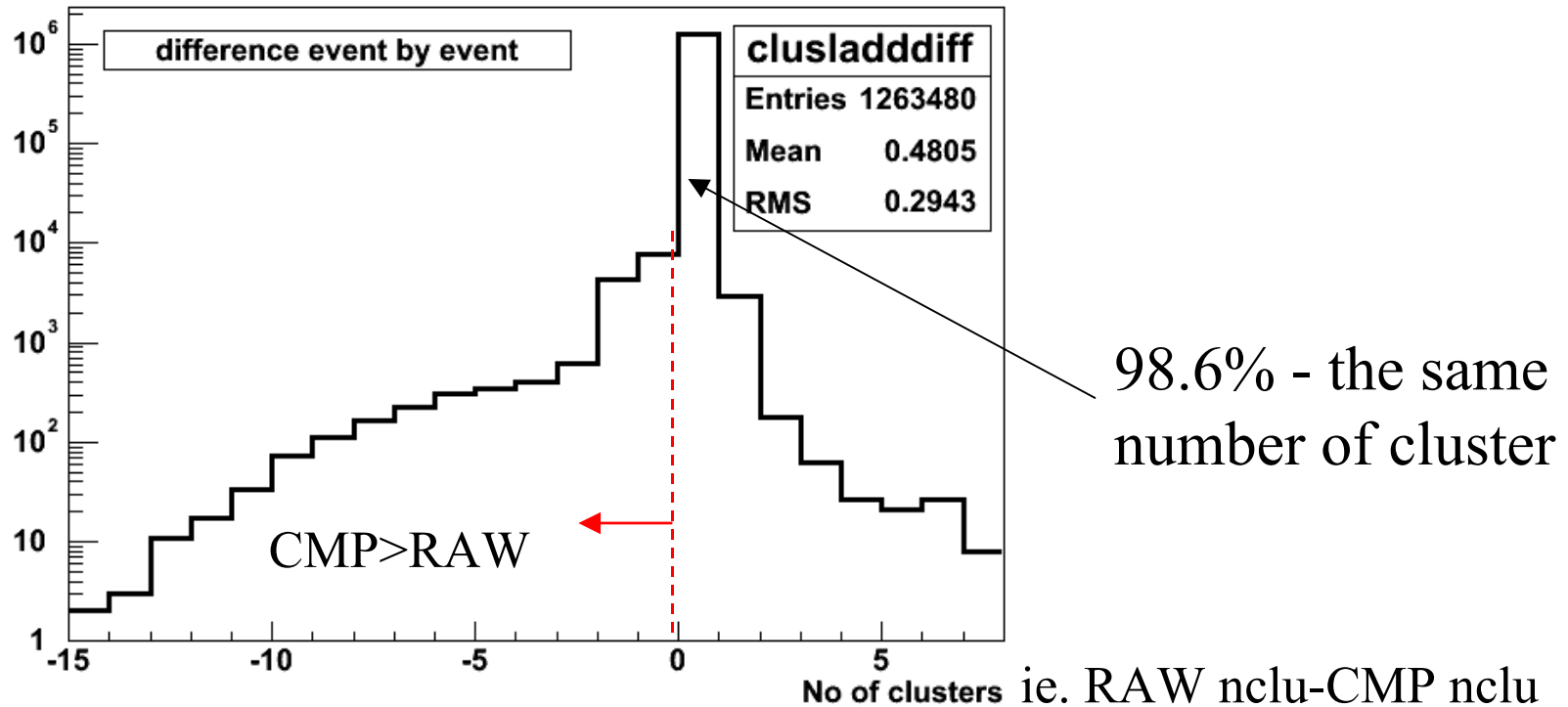
Goals

- Reproduce DSP-algorithm in RAW data (CN and clusterisation algorithms!)
- Verify what are the differences between used algorithm (DSP) and Offline (Off)
- Estimate much we can gain rejecting dead and noisy channels

Procedure

- Use the same 4-sigma algo for CN
- Use the same fix-threshold algo for clusterisation
- In both algo there is no dead or noisy channel identification!

Number of clusters per layer



So: no full agreement even when using the same CN and Clu algo

Tracks

- Compare signals on tracks – reject pure noise
- Selection (S/K tracks separately):

1. Tracks per event < 5 (almost 100%)

2. $\text{Abs}(\text{CMPtrack} - \text{RAWtrack}) < 2$

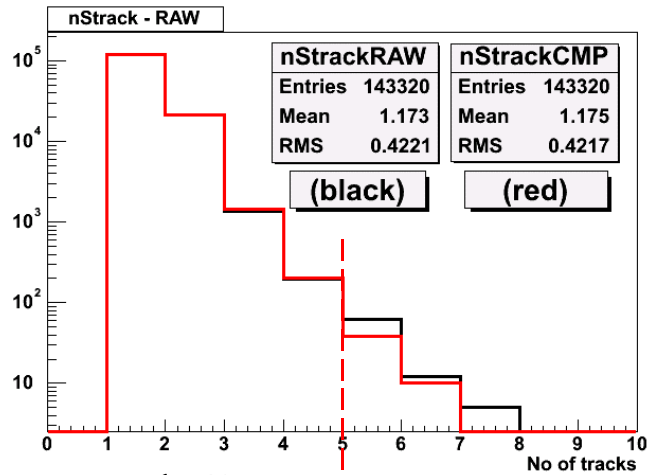
3. $\text{Abs}(\text{cogRAW} - \text{cogCMP} / \text{cogRAW}) < 0.008$

← event selection

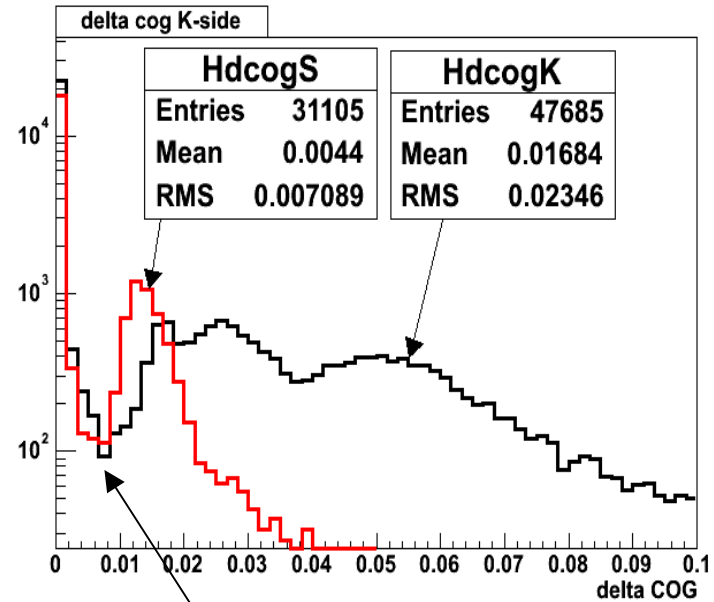
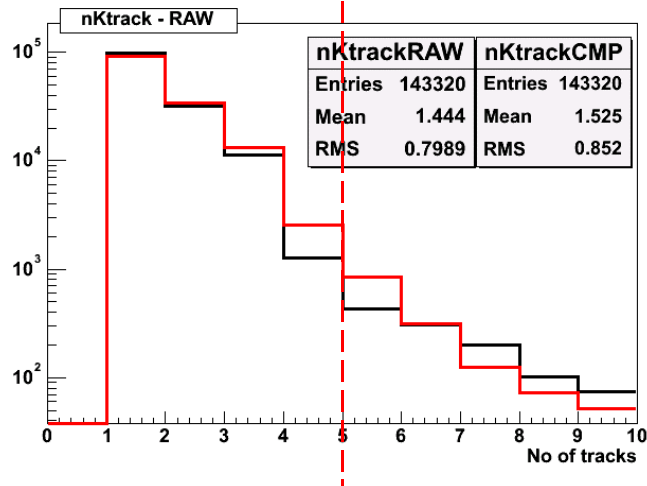
finding
corresponding
tracks

In total about 86% events contain at least one good track

Track selection

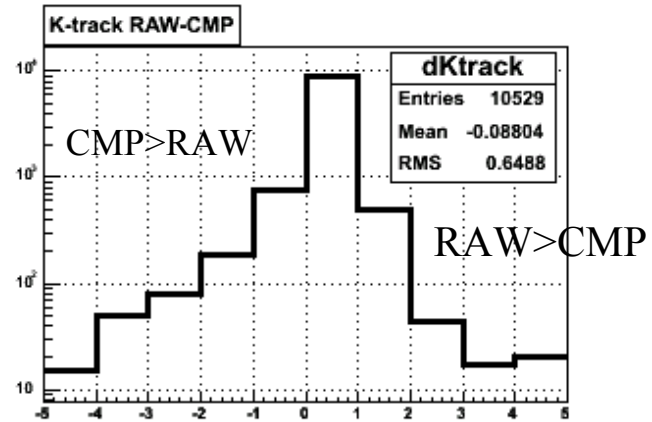
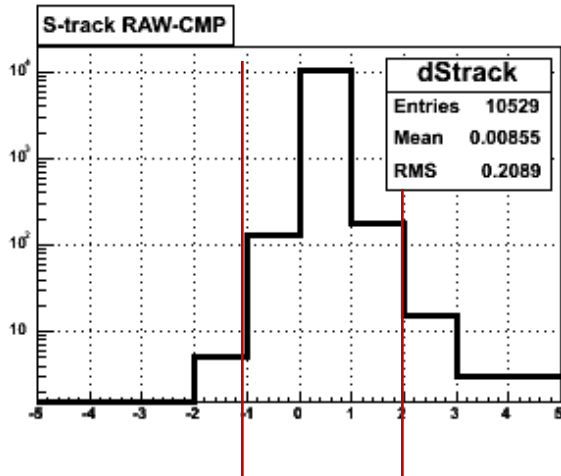
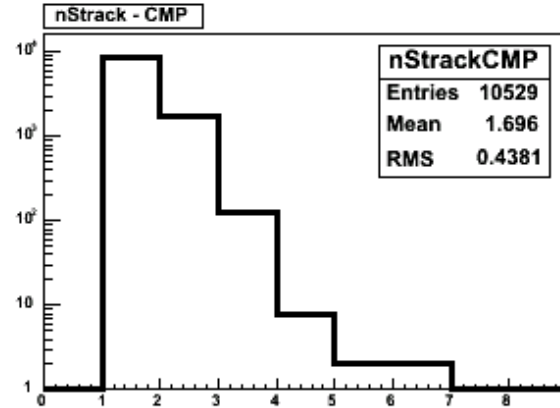
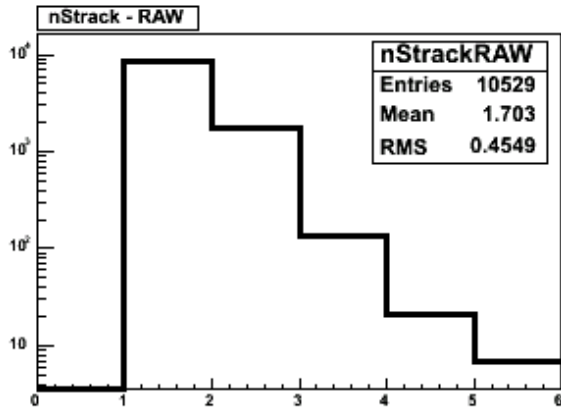


RAW and CMP

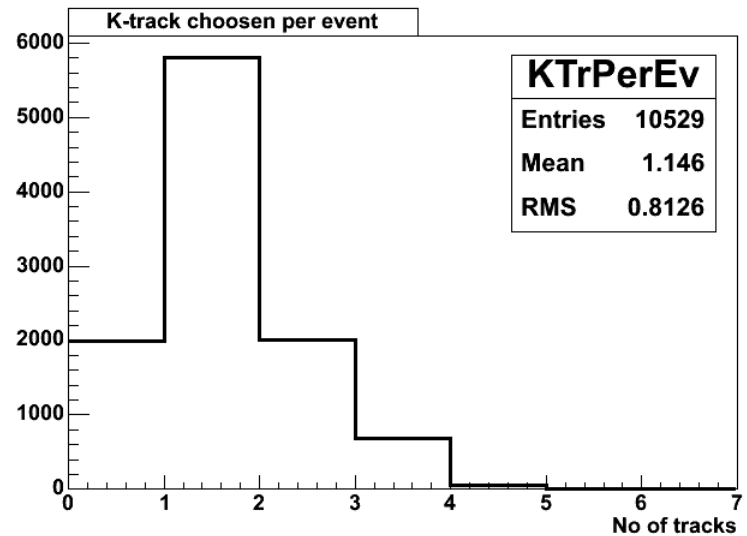
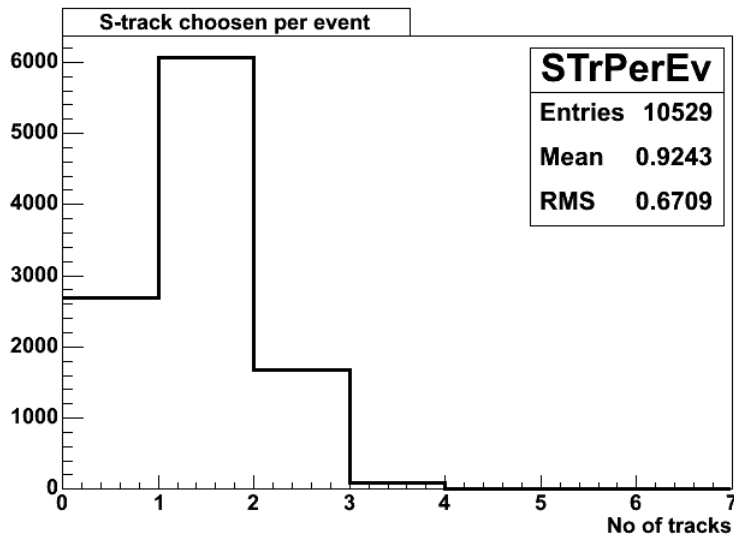


side S and side K
0.008

Track selection (2)

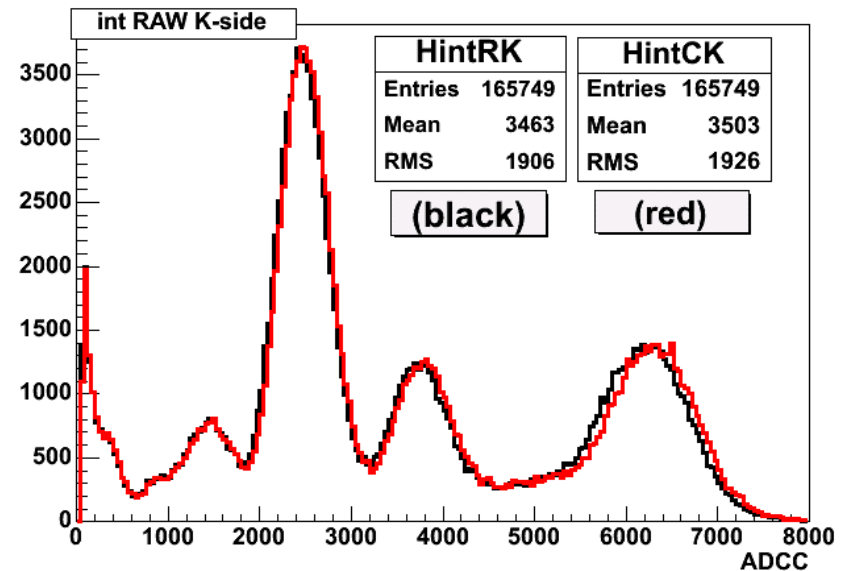
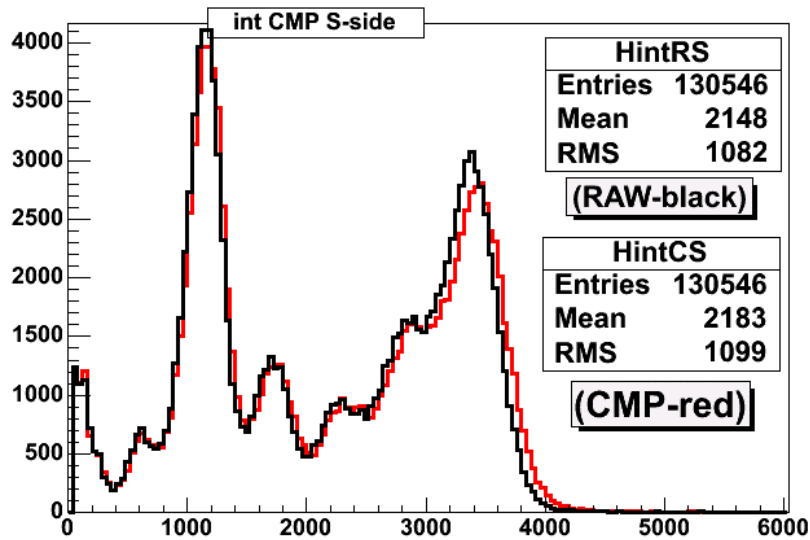


Tracks selected



Number of tracks selected per event

Integrated charge on good tracks

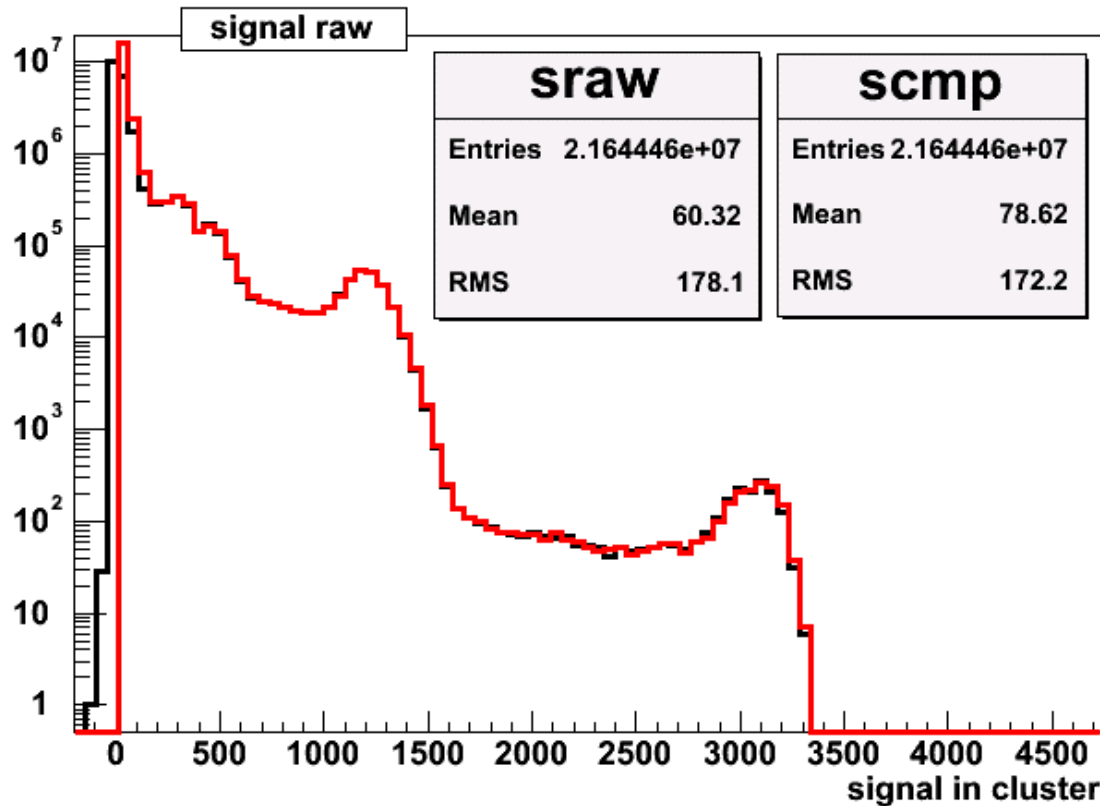


Differences: still not the same tracks?

truncating/rounding problem?

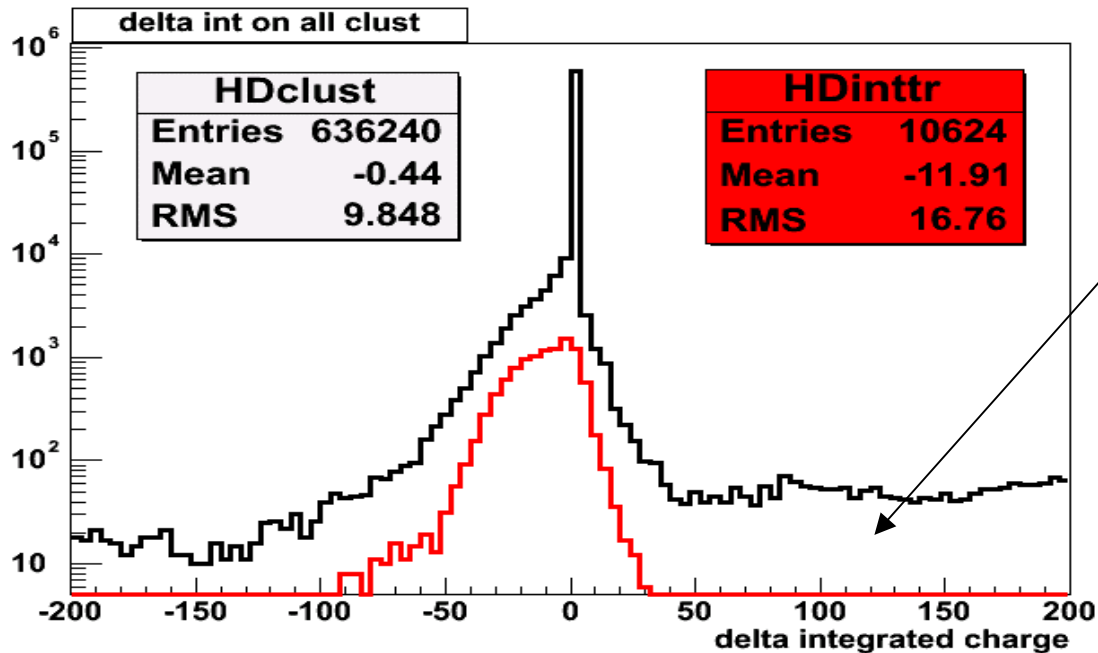
the „sigma raw,, issue?

If not track selection:



This is signal per cluster, not per track

What we gain selecting tracks

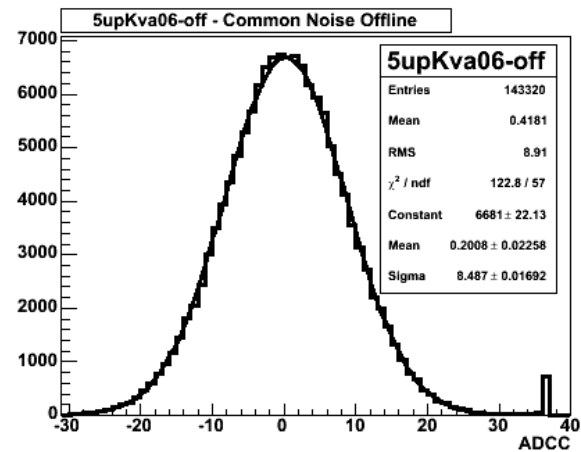
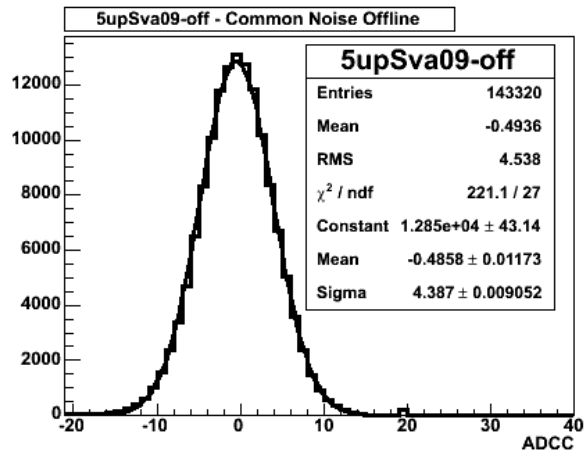
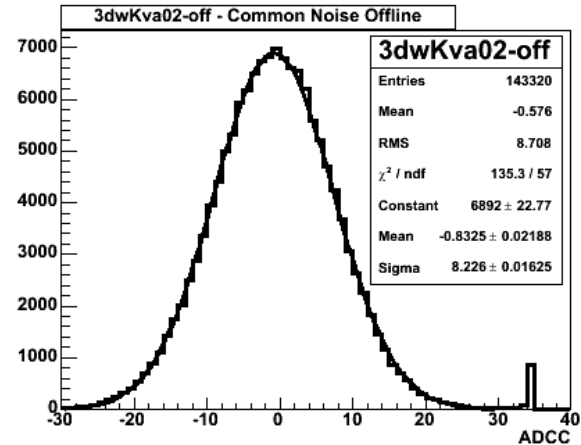
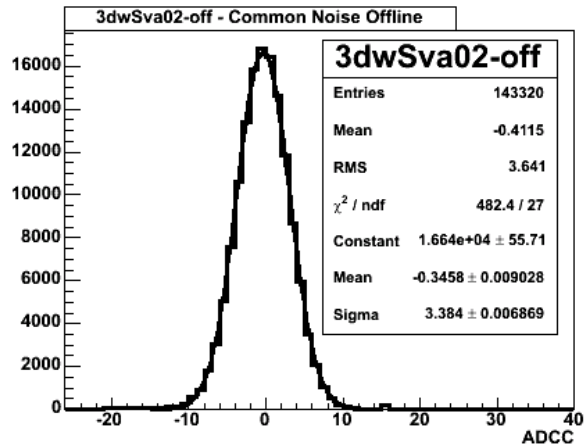


We cut out signals which are not registered in CMP

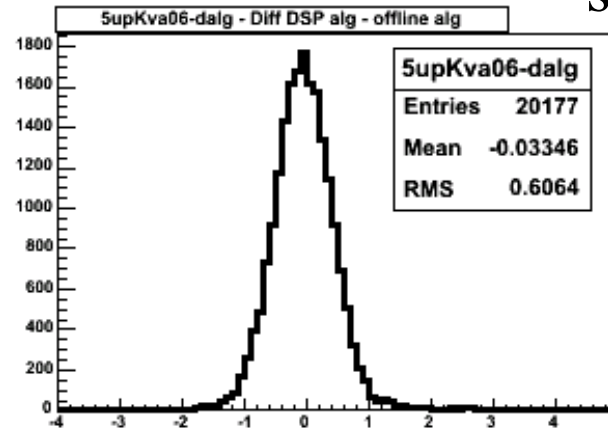
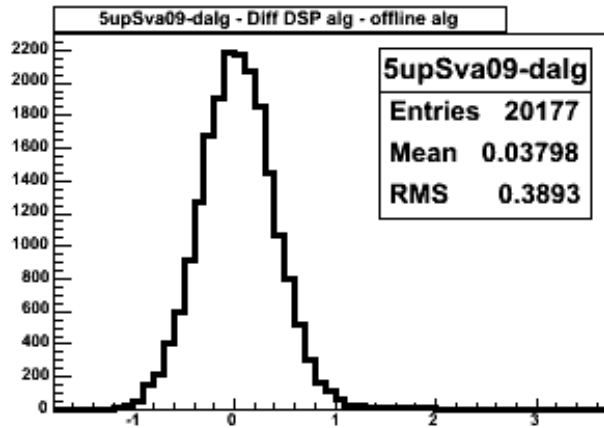
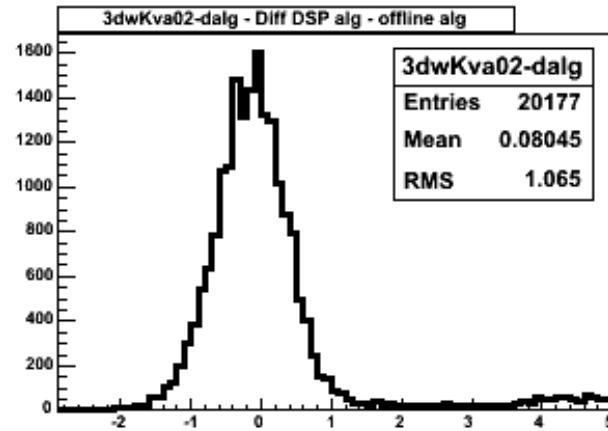
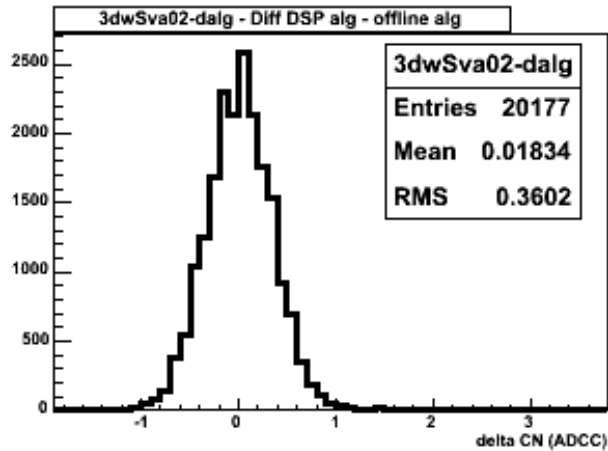
Integrated charge on the tracks is larger for CMP than for RAW

Difference between charge integrated per cluster (RAW-CMP) for all clusters averaged per event (black) and for clusters on selected tracks averaged per track (red)

Common noise in DSP algo



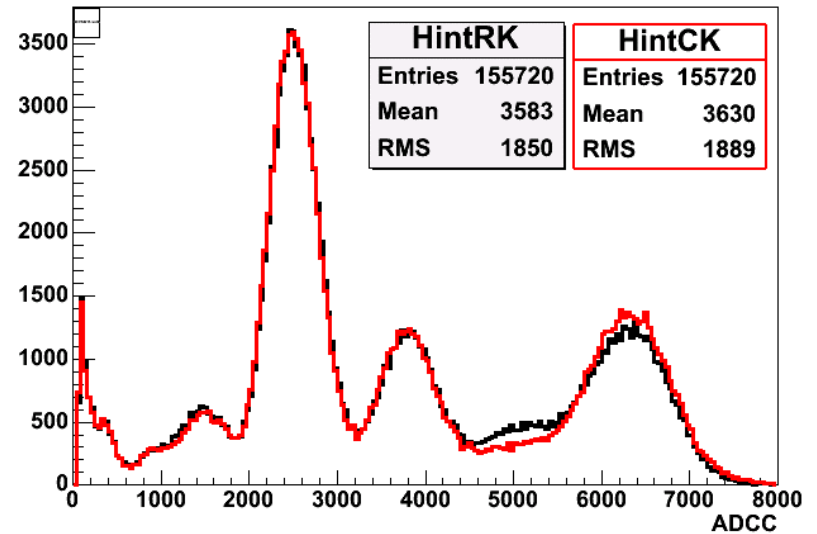
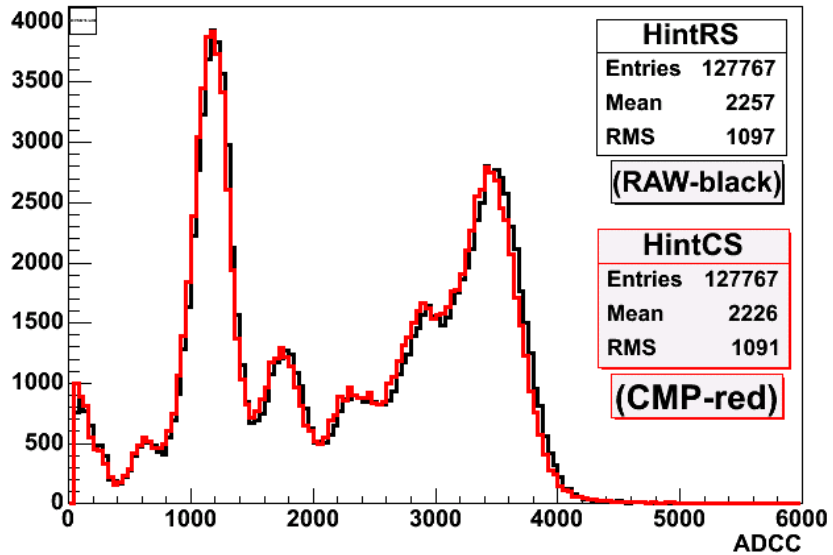
Difference between CN DSP and CN Offline



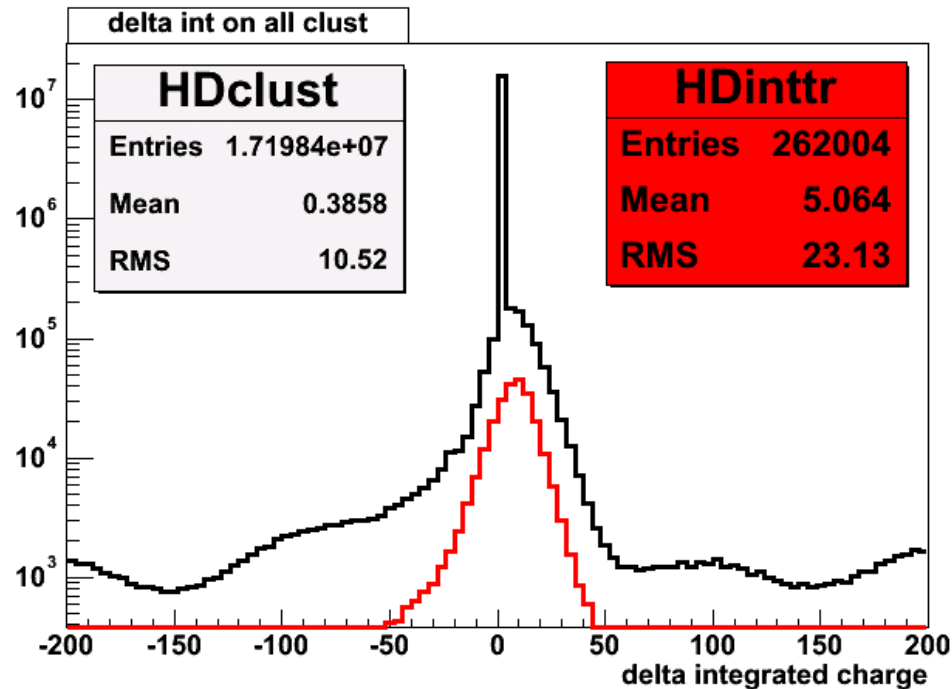
sigma \approx

0.3-0.5ADCC

Tracks with CN and Clust Offline



Charge difference on track



Total charge on track is larger for CMP tracks for DSP algorithms
and for RAW tracks for Off algorithms
(in case of CMP it is Off algo imposed on results of DSP algo)

Conclusions

- Difficult to estimate quality of CN reconstruction in DSP (effects of clusterisation are not easily dismantlable from effects of CN calculations)
- CN DSP is in most cases about 1 ADCC different then CN Offline. There are tails, where from?
- Preliminary: I have not seen important statistical difference if rejection of noisy channel included
- There are still many open questions...