mTower analysis meeting summary
15.04.2020

Robbie: Robbie added an example file to the git repository for the CED viewer. He is still looking into the X11 problem. Although it should in principle work from a Linux machine. Nigel can check a working configuration with a Mac.
Open questions:
For the Multi-gauss fit use the selection of single, double, triple electron events that Aart is working on.
Also look at an improvement method for the event selection.
Check linearity based on the fit results.

Fabian: He now has a UU computing account. Marco needs to add Fabian to the quark cluster users.
In the mean time he is investigating the calibration procedure.

Emilie: She is working on looking at the shower maximum vs the number of clusters in the first layer. This is not quite finished yet.
Open questions:
compare 20 µs run to a normal 2 µs run, also look at the number of clusters and number of hits, not only the cluster size.

Hiroki: Hiroki has again network connection from home. So now he will continue to look into alignment with cosmics.

Qasim: Showed the comparison between November and February data. The same mask applied and the same default pixel threshold settings. Event selection: 1 particle in the first layer. The mean number of clusters in the HL-A layers in November is higher, while in the HL-B layers it is lower in November. As the layers have been ‘randomly’ shuffled between the two setups, it can not be due to a simple inversion. Is it related to the impact position of the beam?
To do: Check events impacting in a certain area on the chips in the comparison.
When averaging over HL-A and HL-B, the difference almost disappears.
To do: For this layer comparison, plot the sum of the two halves and not the average.
He also added the 180 degrees turned mTower data to the angle comparisons. The data should be shifted by one layer as there is W first in the stack.
The mean cluster size does not seem to depend on the angle.
Open questions:
The cluster size increases slightly with temperature. The number of clusters does not behave linearly. Find out why.
The shift in the shower max position for mTower at an angle for ~15 degrees is larger than expected based on the path length increase (cosine), in the number of clusters. Check also the number of hits itself.

Between some runs with the standard and the optimised pixel thresholds there is a similar change in a chip with unchanged settings and a chip with changed settings. This is unexpected. Can it be related to the beam rate? Are the settings really as we think they are (check python script)?

Aart: Has added another criteria for possible improvement of the 1 electron event selection. The effect was not satisfactory.
Open questions: What kind of events fall into each category of Nhits? Check also visual (event viewer).

Stephen/Nigel: no update.