Range selections in B30

From digitization-v3r4p6_135005436_digi_DIGI.root and recon

Measured energy and best range selections

The energy returned for a Xtal is the geometric mean of the reconstructed energy for both sides of a Xtal. The energy from a + or - side can be reconstructed with either range 0 or range 1. this is the energy reconstructed from individual Xtals, where the different range selections show in different colors.

Range 0 is selected for low energy events including the muon peak. Around 100 MeV is a distribution of events where either range 0 or 1 is selected. Above 130 MeV range1 is selected for both ends.

Measured energy and ADC range 0

Here is the reconstructed energy vs ADC 0+ and this is the reconstructed energy vs ADC 0-. A few Xtals reconstruct energies below a MeV. A few pathological Xtals can be identified here:

- layer 0 column 5 tower 8

This is the Xtal that shows the horizontal stripes between 500 and 600 ADC counts in the second plot. Both ADC0+ and ADC1+ show unusual distributions.

Xtals with LAC set to 0 from Zach:

tower	layer	column	face
3	3	5	0
0	1	8	1
10	1	5	1
11	5	10	1
2	0	3	1
8	0	5	1

Removing those Xtals yields this plot for ADC 0+ - the twisters are gone. This list of xtals should probably be removed in these B30 runs in future analysis.

Shaped readout noise in B30

An example of shaped readout noise in a channel (red distribution). another one.