

Simple cross talk investigation 20180108

Three data sets using the “Barcelona tester” connected on the socketmcm with chip 65. Number of time samples is 135. Pulser at 20.5 kHz and unsynchronized with trigger. Nominal gain/shaping/bias:

- 1 Pedestals with no pulse in
- 2 No capacitors on test card and pulse in
- 3 10pF Capacitor on channel 10 and pulse in
- 4 10pF Capacitor on channel 10 and pulse in and trace on socketmcm grounded.

Use 1 to subtract the pedestal values and 3. (for 2 pedestals from 20180104 was used)

ch	pedestal
0	25.80
1	40.72
2	28.24
3	31.41
4	30.66
5	19.45
6	26.33
7	30.69
8	28.44
9	20.15
10	18.32
11	40.16
12	30.25
13	32.24
14	32.62
15	30.70

Use 2 to evaluate crosstalk/pickup on the bare tester card, i.e. without a capacitor.

This was done by adding all samples bin by bin for all channels for each event, and the maximum ADC value was found.

The distribution of the maximum ADC value is shown plot 1, as well as which time bin it is in.

Events are used where the maximum ADC value is above 15 ADC units.

The time samples is added bin by bin for each channel for all events and normalized to the number of events to get the average pulse seen without capacitor. Plot 2 show the normalized result around the bin with the maximum ADC value.

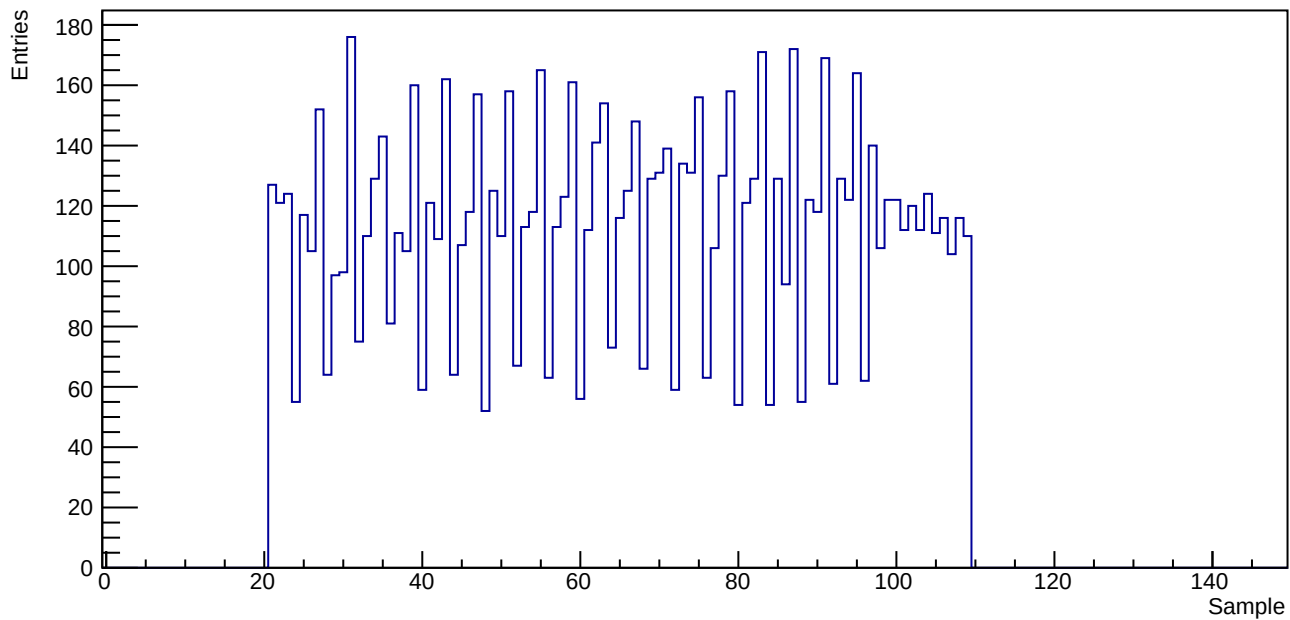
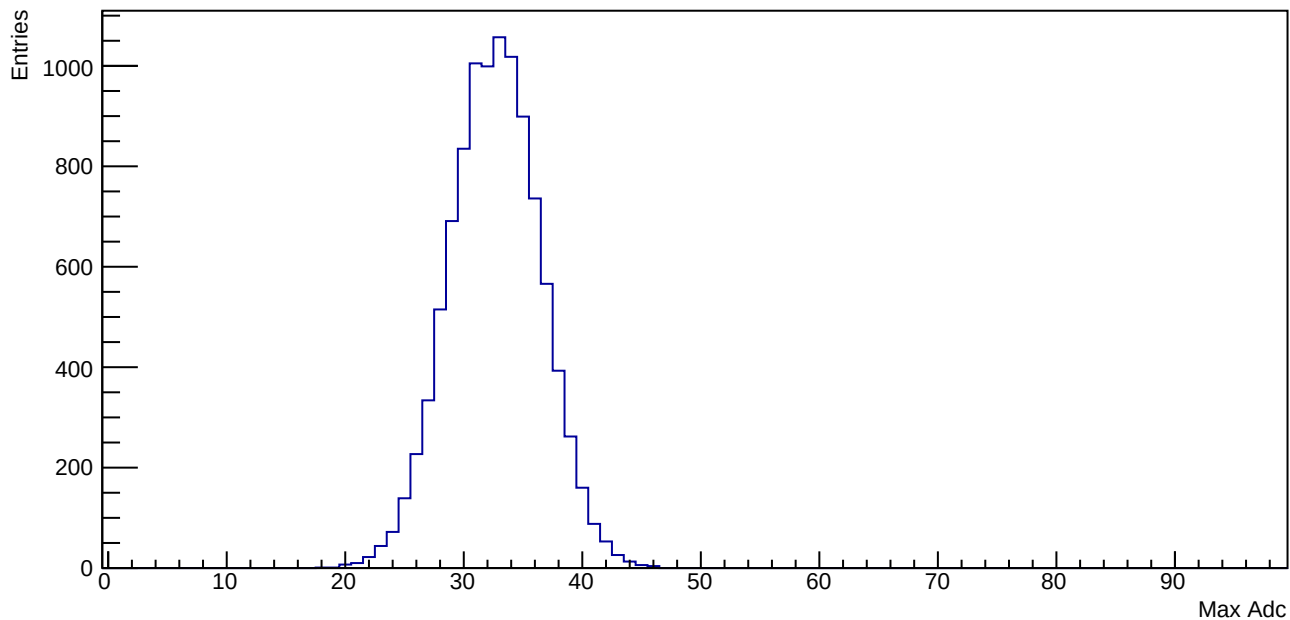
Doing the same with set 1 give no events where the maximum ADC value is above 15 ADC units, showing that the method selects pulses induced from the pulser.

For set 3 the time samples are added bin by bin for each channel for all events and normalized to the number of events to get the average pulse seen with capacitor on channel 6.

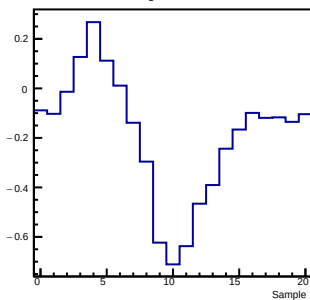
Events are used where the maximum ADC value is above 900 ADC units (i.e. channel 6) and where the full pulse in channel 6 is within the 135 time samples. Plot 3 show the normalized result around the bin with the maximum ADC value.

Subtract the normalized distribution in 2 from 3. This gives an idea of the crosstalk corrected for any crosstalk/pickup in the bare setup. The result is in plot 4. The largest “crosstalk” is seen in channel 9 and 11, ca 1.2 ADC units. All other channels have negligible visible “crosstalk”. The bin with largest “crosstalksignal” is one before the bin with the largest ADC value of channel 6.

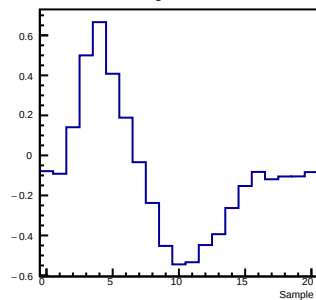
Set 4, where the trace over the inputs is grounded, is used to see if there is any pickup on the trace. Plot 5 show the difference between set 4 and 3 (pedestal subtracted and normalized). No significant difference can be seen.



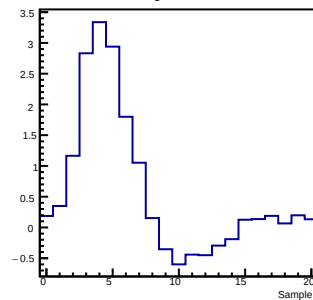
Average adc ch 0



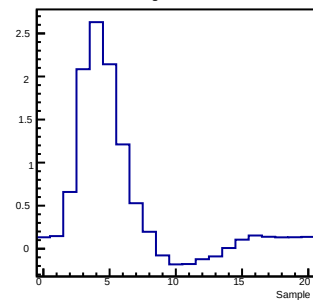
Average adc ch 1



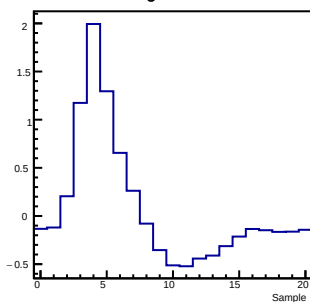
Average adc ch 2



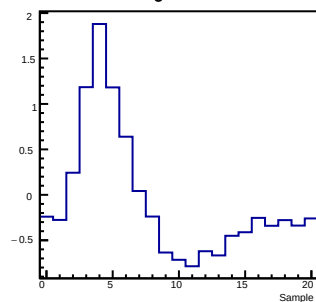
Average adc ch 3



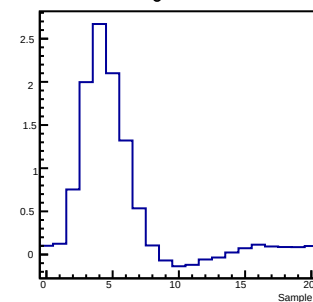
Average adc ch 4



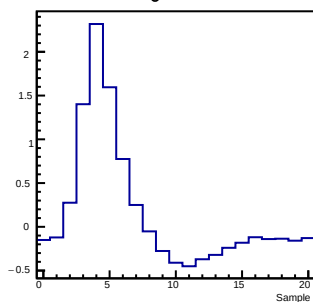
Average adc ch 5



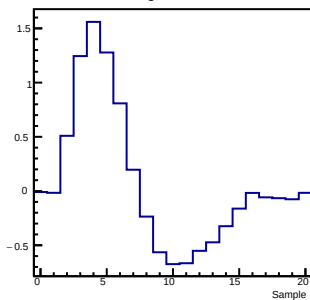
Average adc ch 6



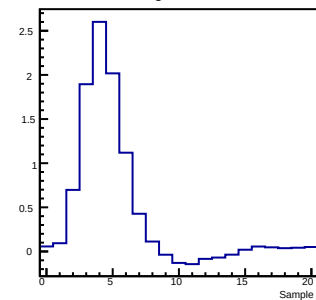
Average adc ch 7



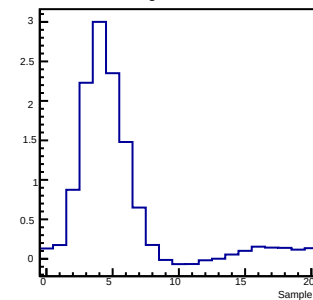
Average adc ch 8



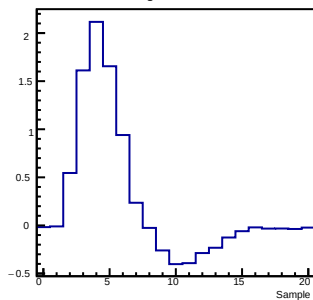
Average adc ch 9



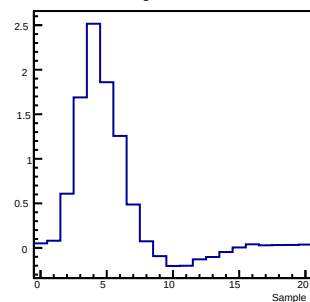
Average adc ch 10



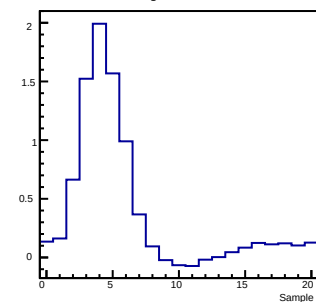
Average adc ch 11



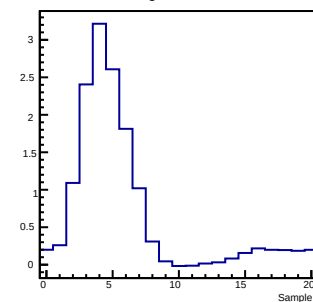
Average adc ch 12



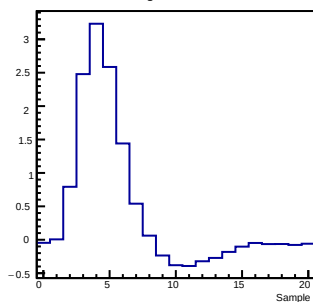
Average adc ch 13



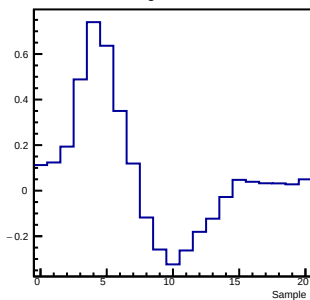
Average adc ch 14



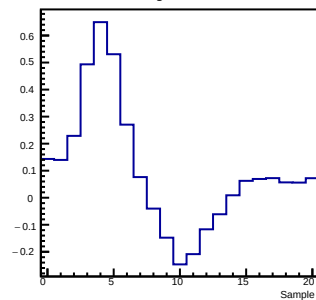
Average adc ch 15



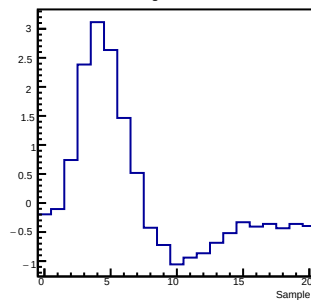
Average adc ch 0



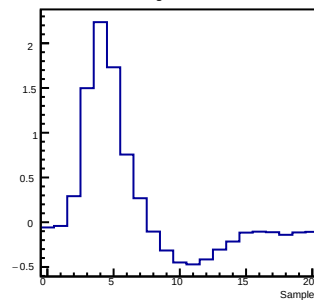
Average adc ch 1



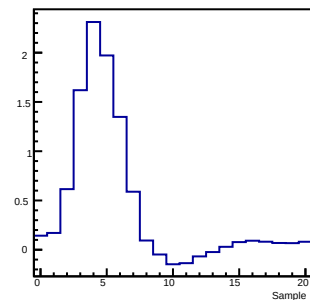
Average adc ch 2



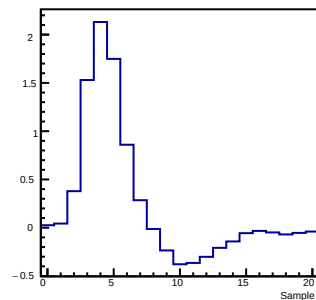
Average adc ch 3



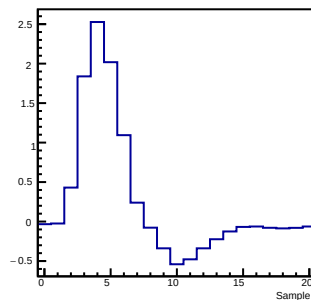
Average adc ch 4



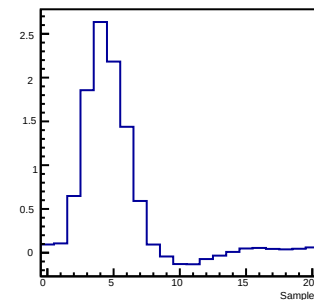
Average adc ch 5



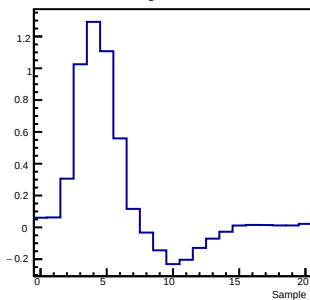
Average adc ch 6



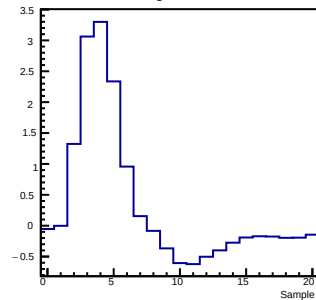
Average adc ch 7



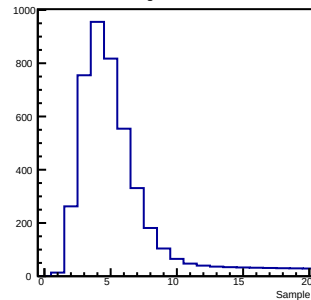
Average adc ch 8



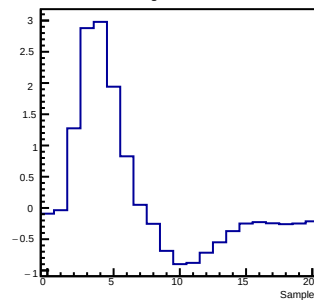
Average adc ch 9



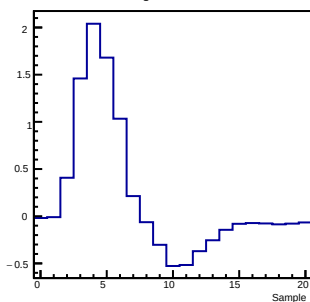
Average adc ch 10



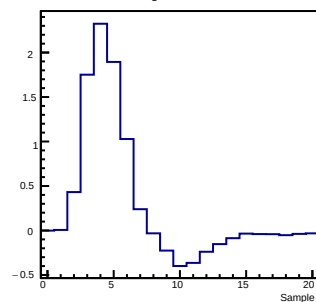
Average adc ch 11



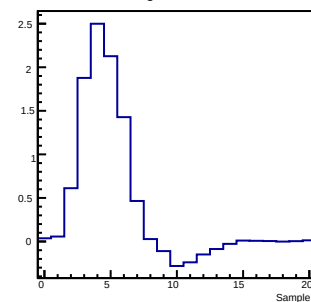
Average adc ch 12



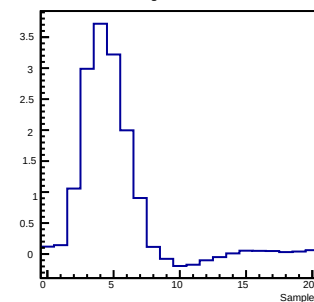
Average adc ch 13



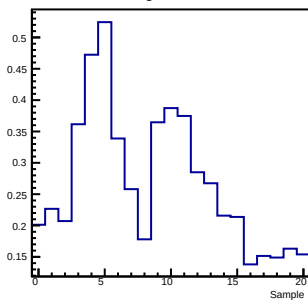
Average adc ch 14



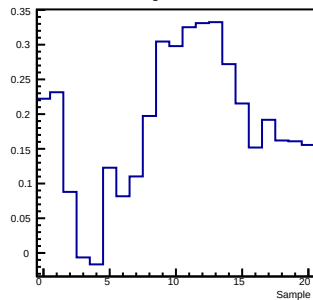
Average adc ch 15



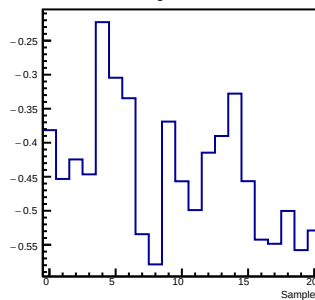
Average adc ch 0



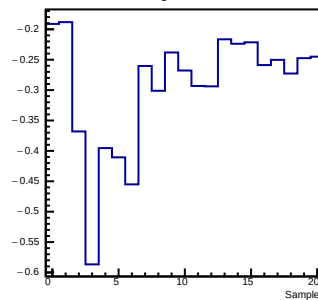
Average adc ch 1



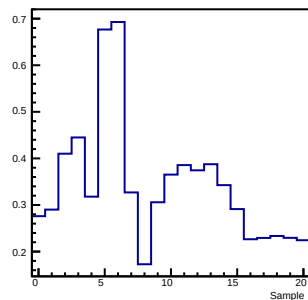
Average adc ch 2



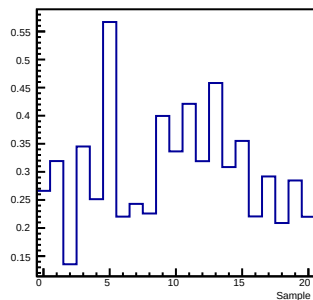
Average adc ch 3



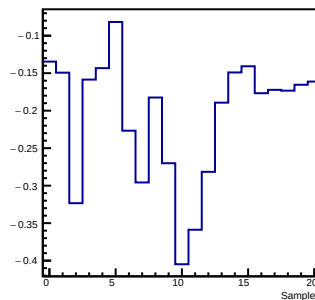
Average adc ch 4



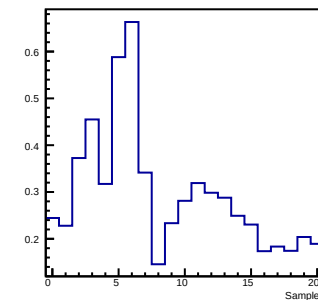
Average adc ch 5



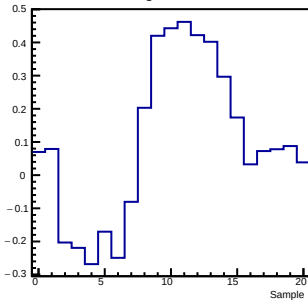
Average adc ch 6



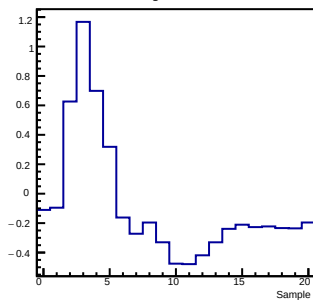
Average adc ch 7



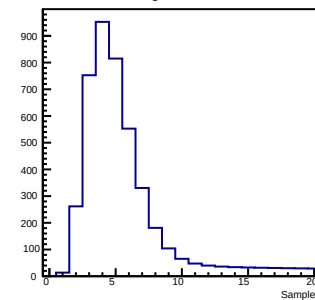
Average adc ch 8



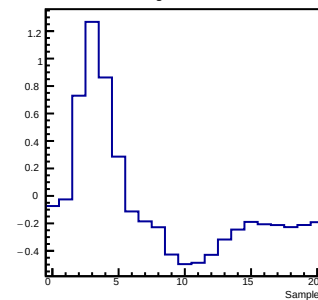
Average adc ch 9



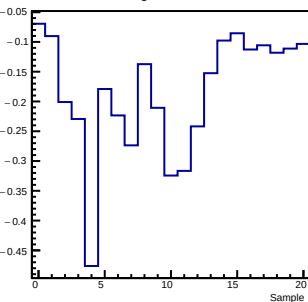
Average adc ch 10



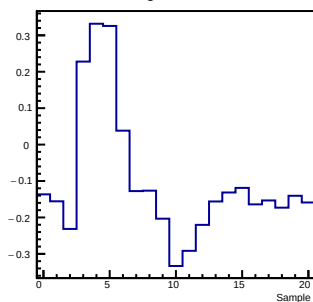
Average adc ch 11



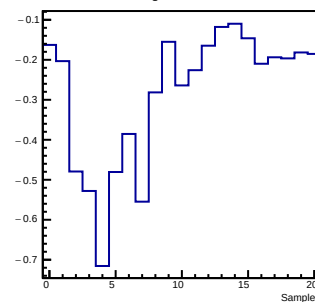
Average adc ch 12



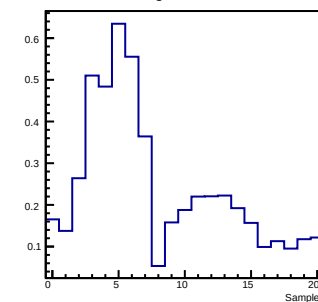
Average adc ch 13



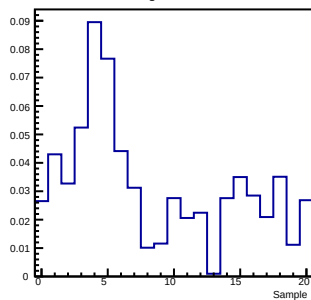
Average adc ch 14



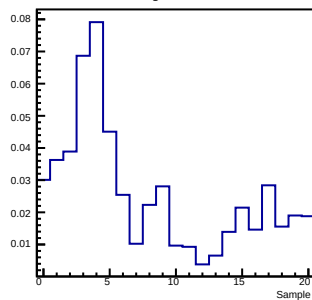
Average adc ch 15



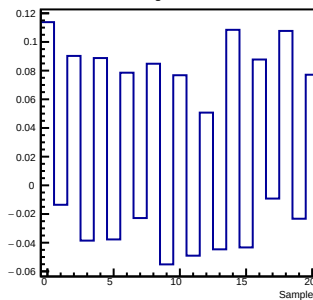
Average adc ch 0



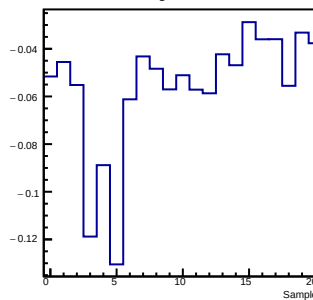
Average adc ch 1



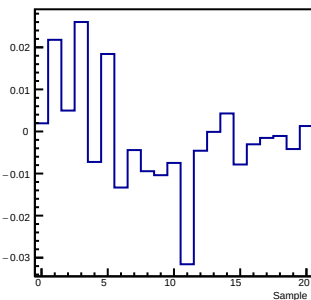
Average adc ch 2



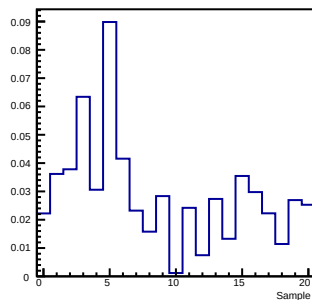
Average adc ch 3



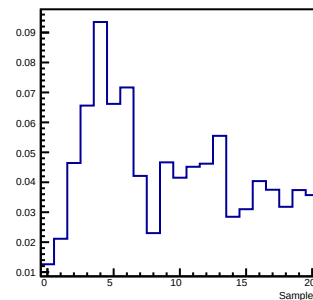
Average adc ch 4



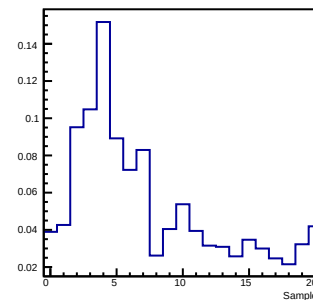
Average adc ch 5



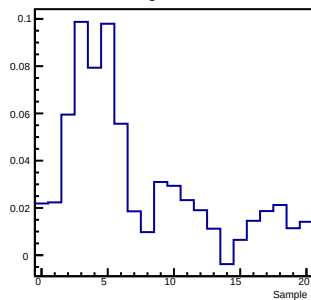
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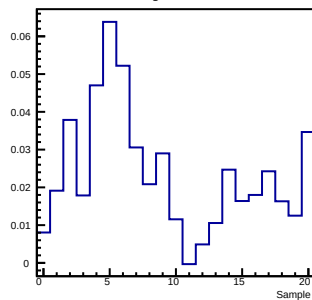
Average adc ch 7



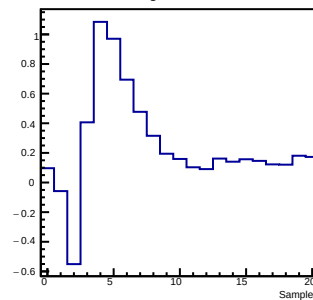
Average adc ch 8



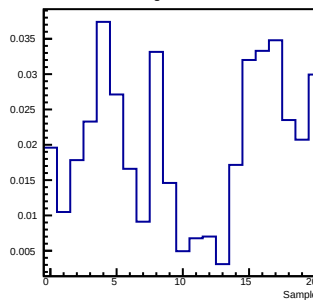
Average adc ch 9



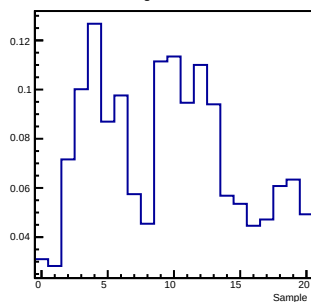
Average adc ch 10



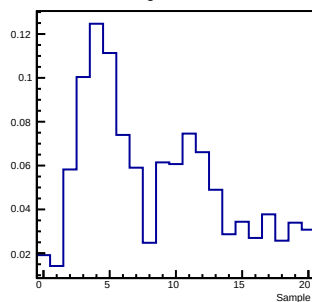
Average adc ch 11



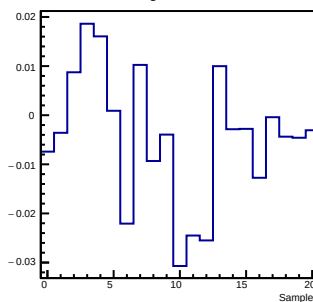
Average adc ch 12



Average adc ch 13



Average adc ch 14



Average adc ch 15

