SPIROC2 measurements

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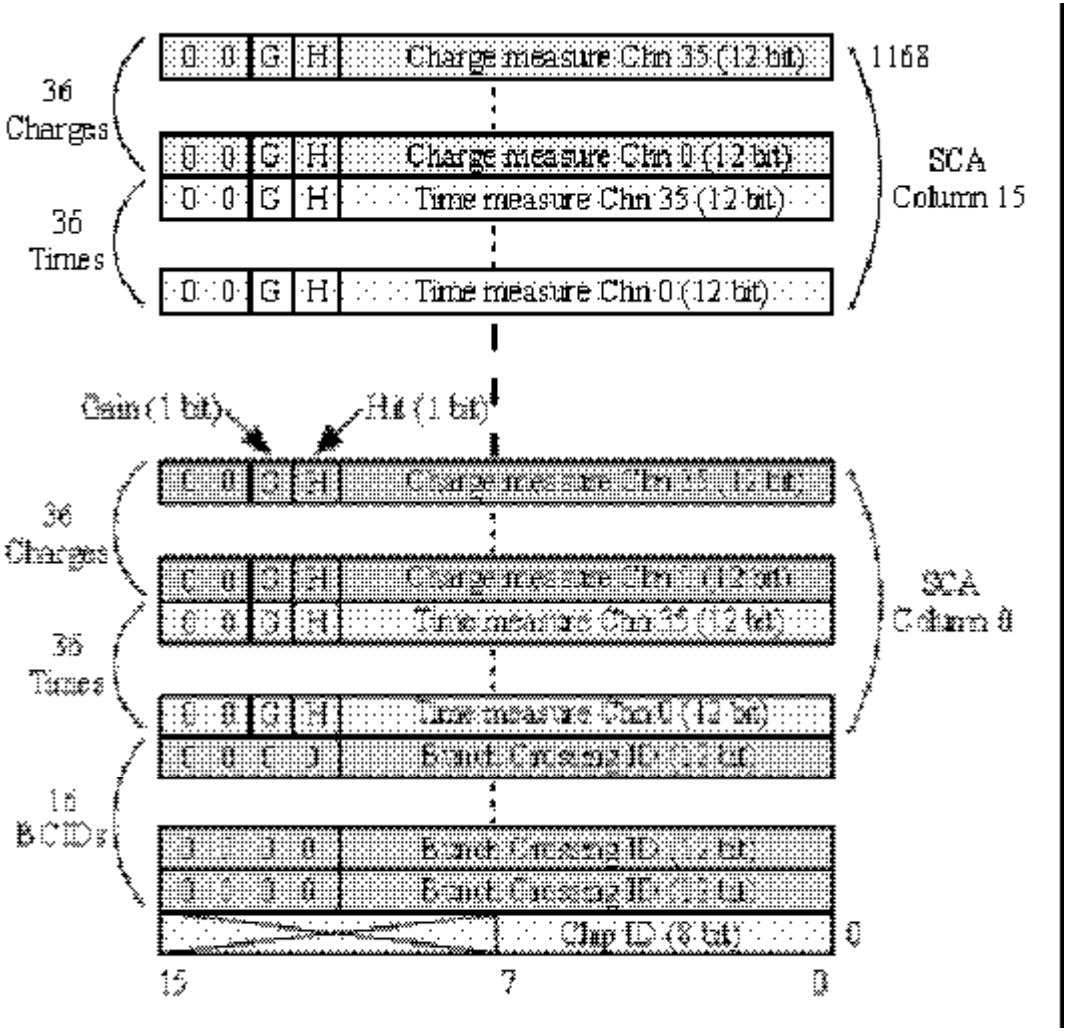
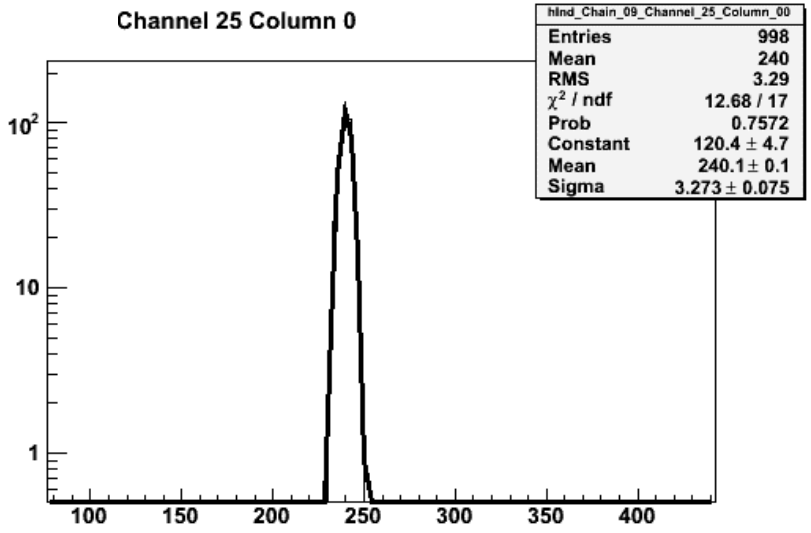
SPIROC 2B (Analog HCAL)

- external trigger or auto-trigger (signal)
- Bi-gain (autogain)
- buffer size:16 (columns)
- 2 × 36 channels
  - Charges/Times
  - **High/Low gain**

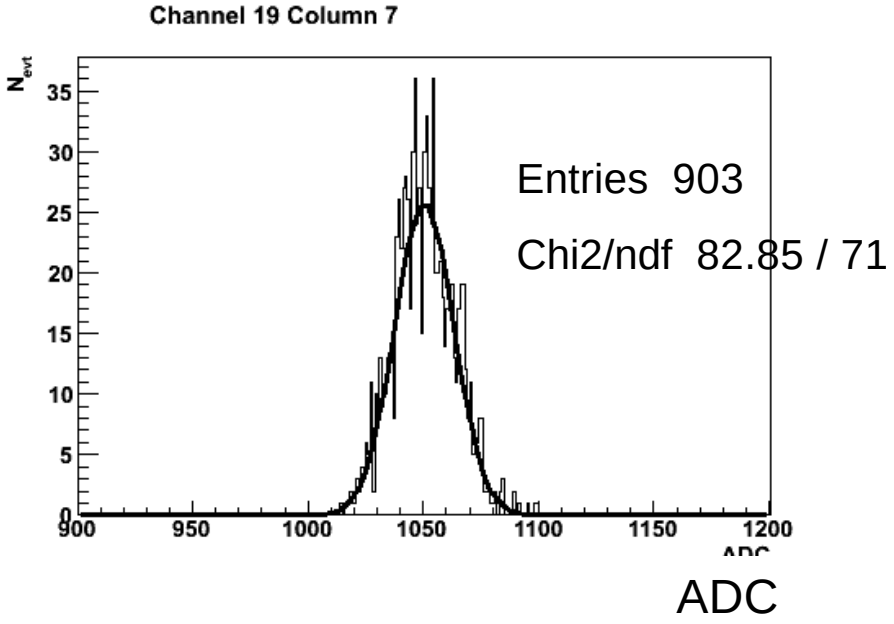


Some histos

External trigger (no signal)



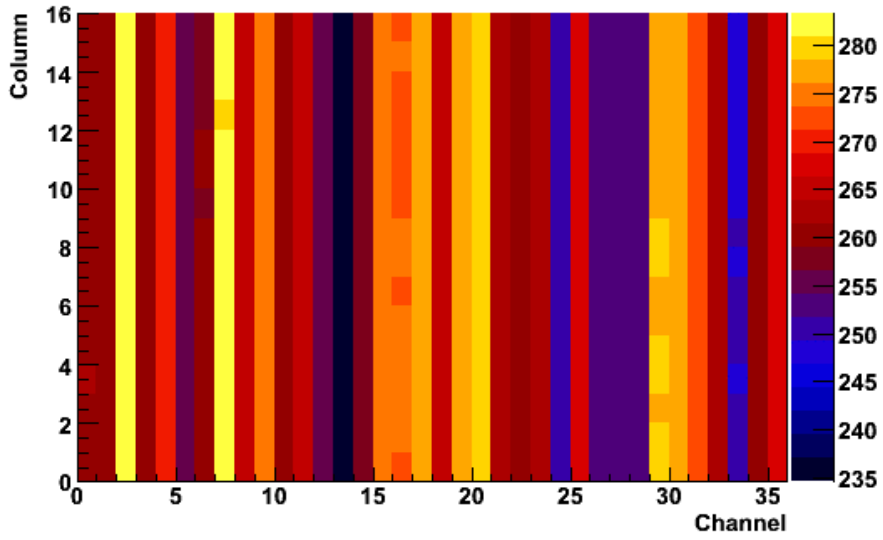
Auto-trigger (signal in channel 19)



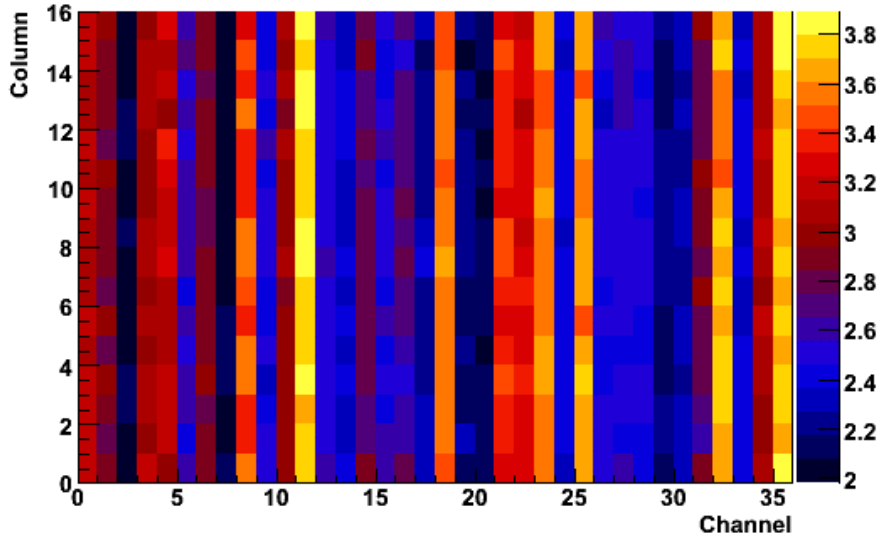
Summary

External trigger (no signal)

Mean

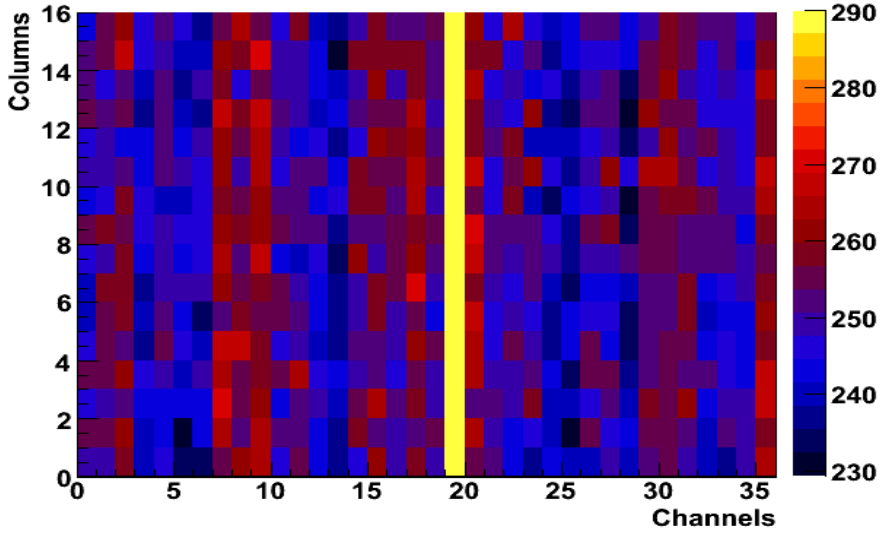


RMS

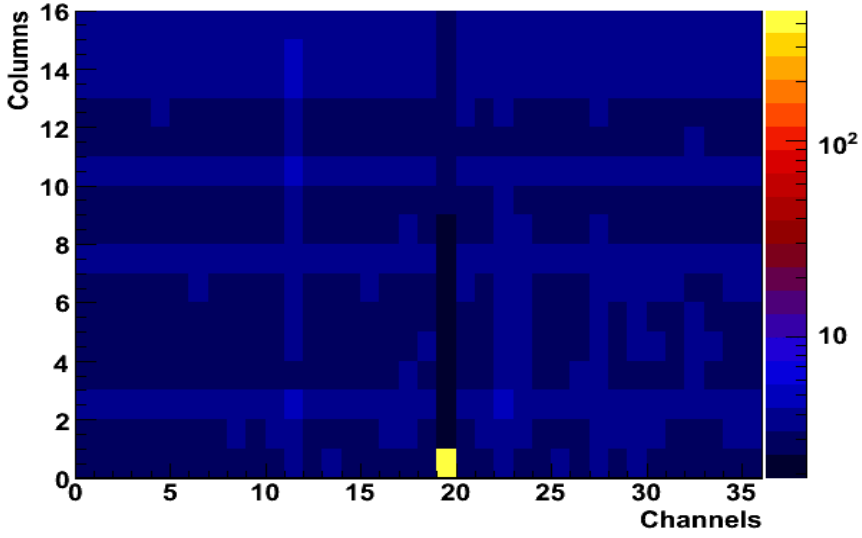


Auto-trigger (signal in channel 19)

Mean



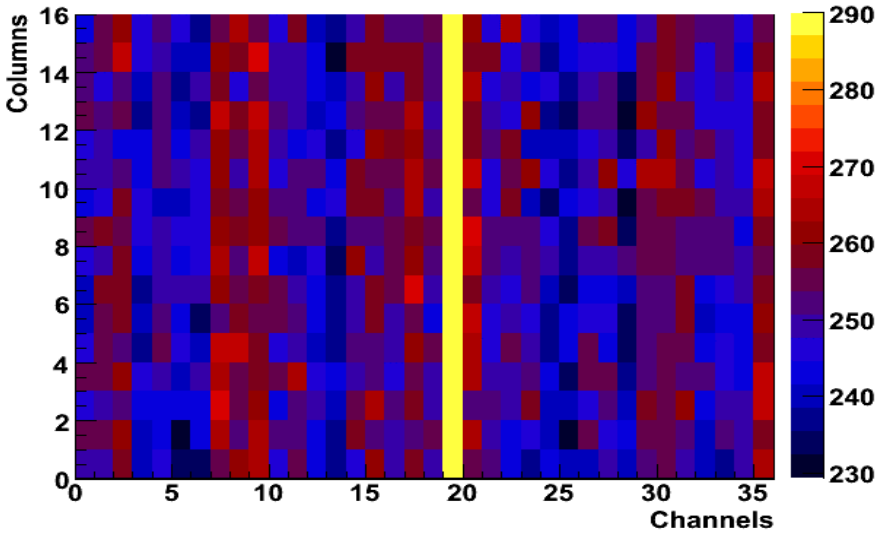
RMS

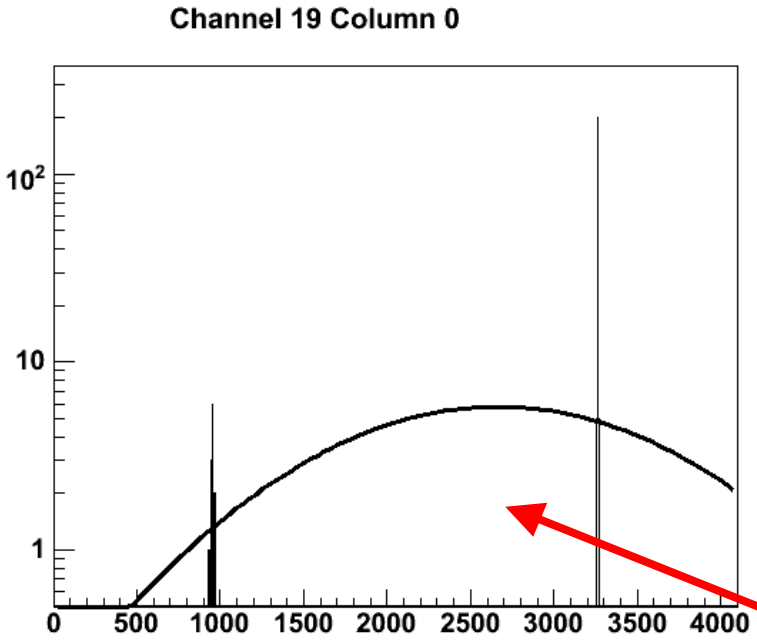


Summary

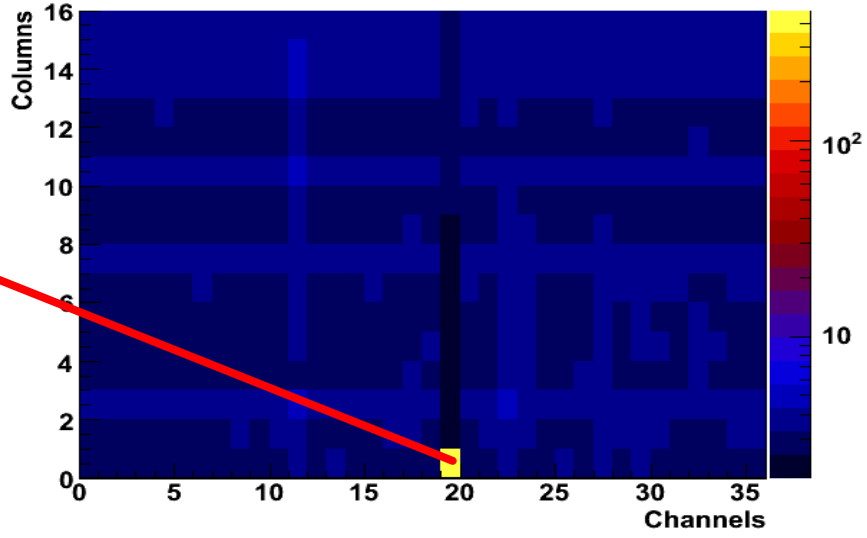
Auto-trigger (signal in channel 19)

Mean



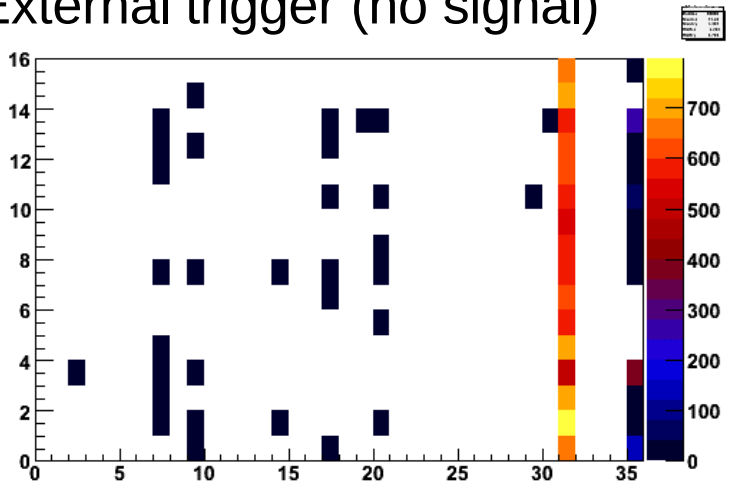


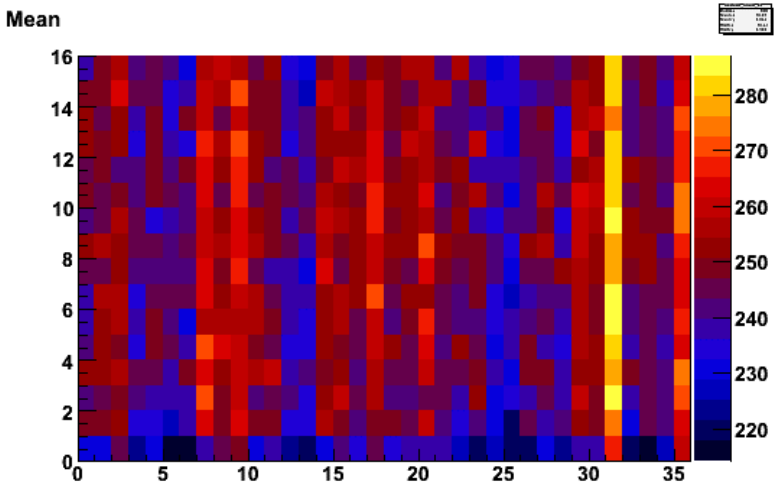
RMS



Zeros (December)

External trigger (no signal)



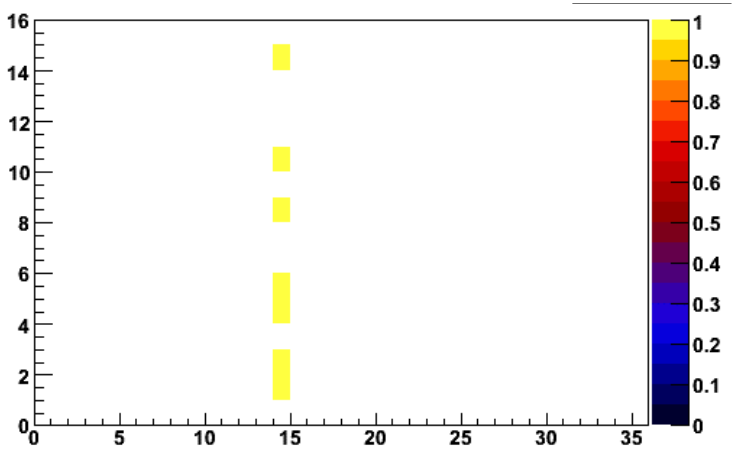


column

channel

Random zeros in the channel with higher value

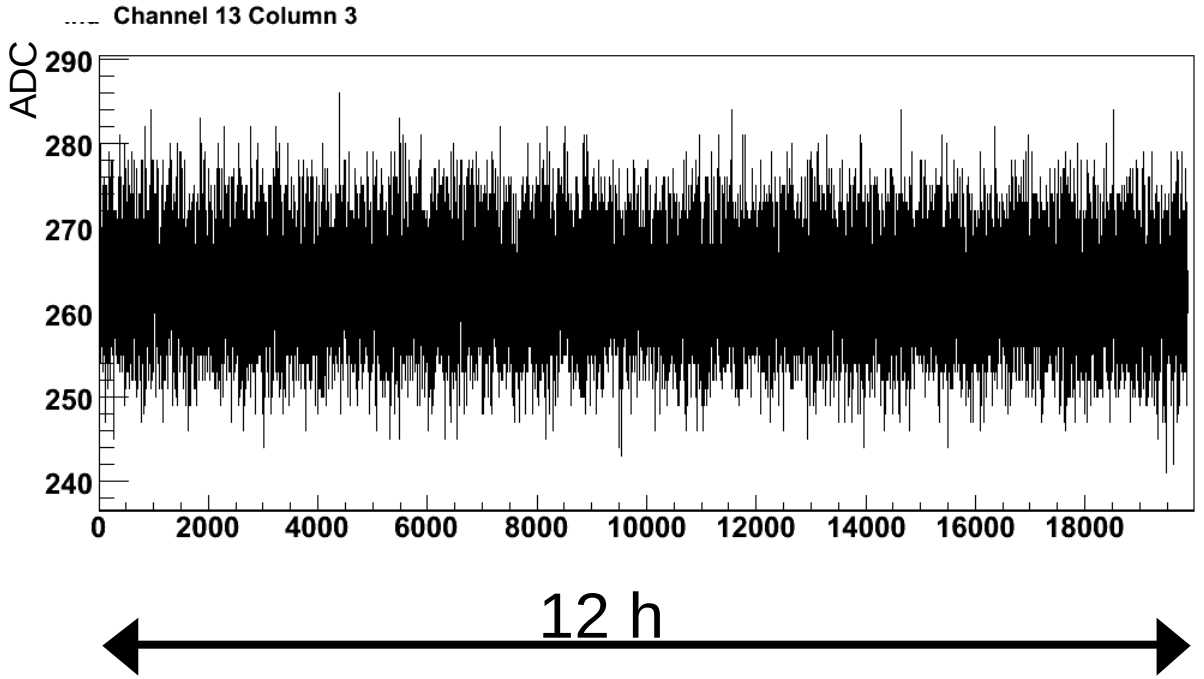
Auto-trigger (signal in channel 14)



If zero appears in an acquisition, the column is suppressed.

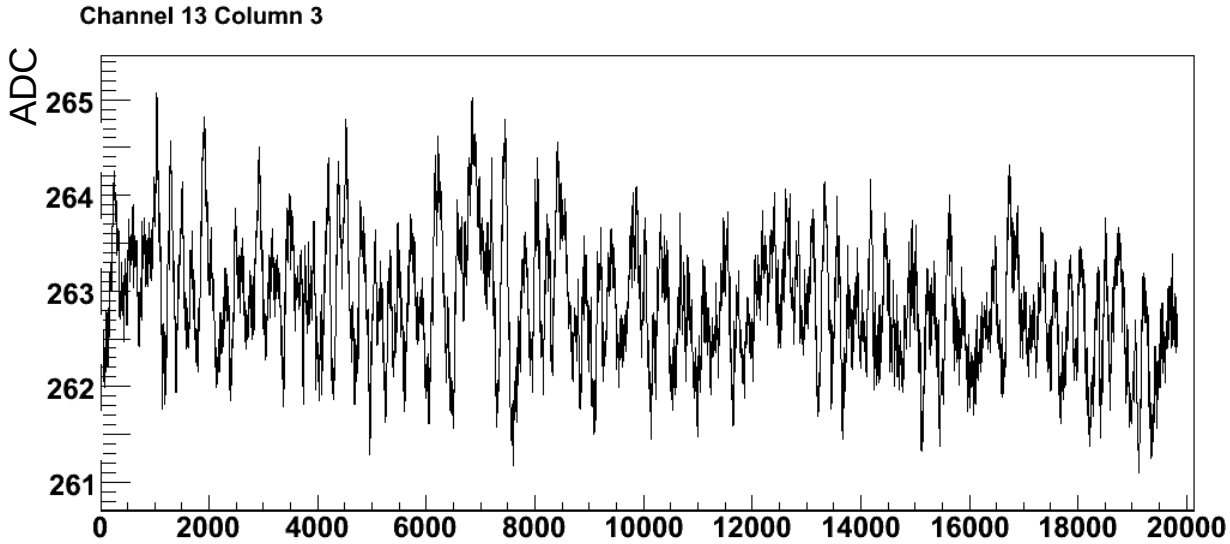
Stability

External trigger (no signal)
20000 acquisitions/12h

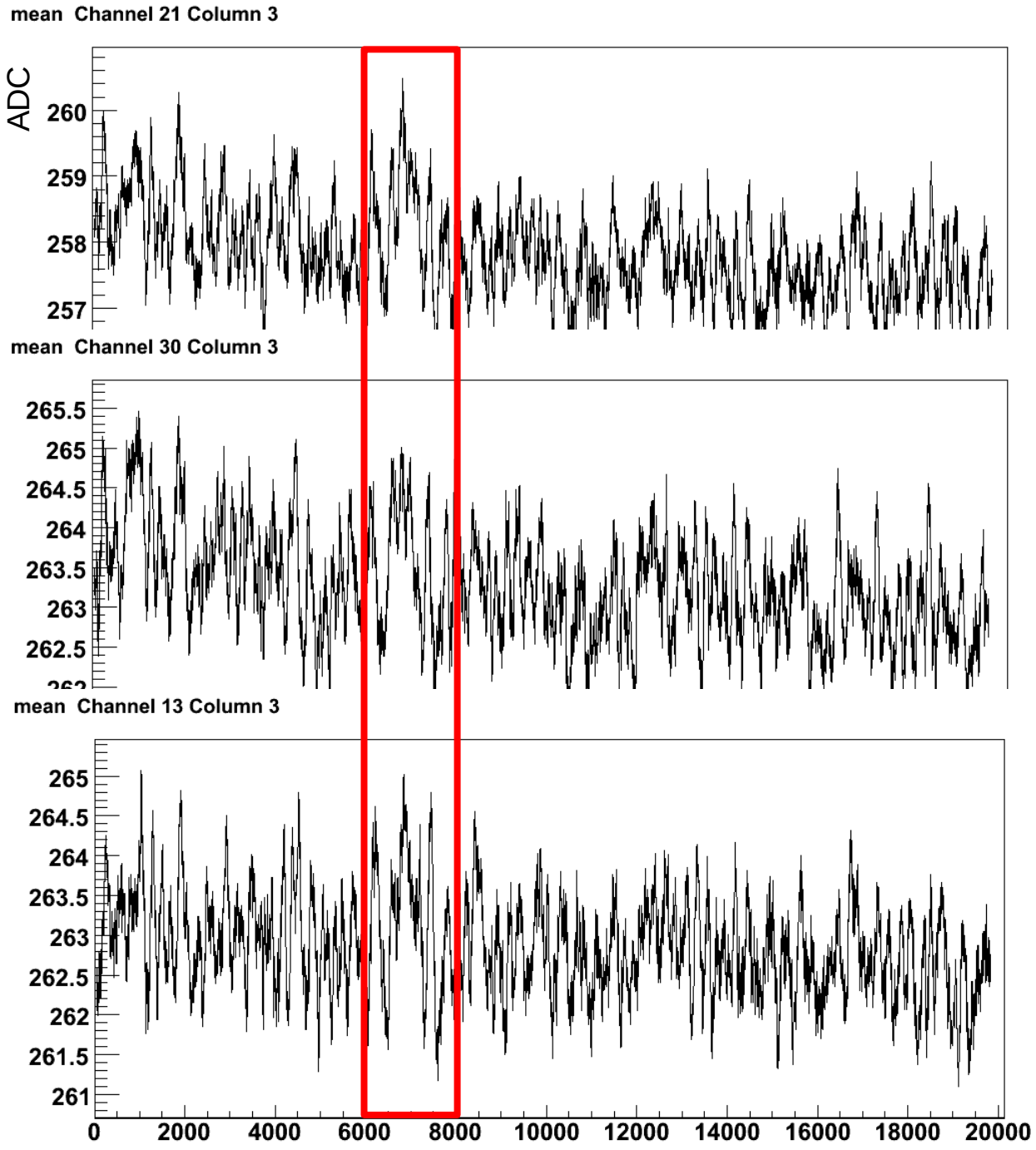


Sliding mean

(mean over 50 previous values and 50 next values)



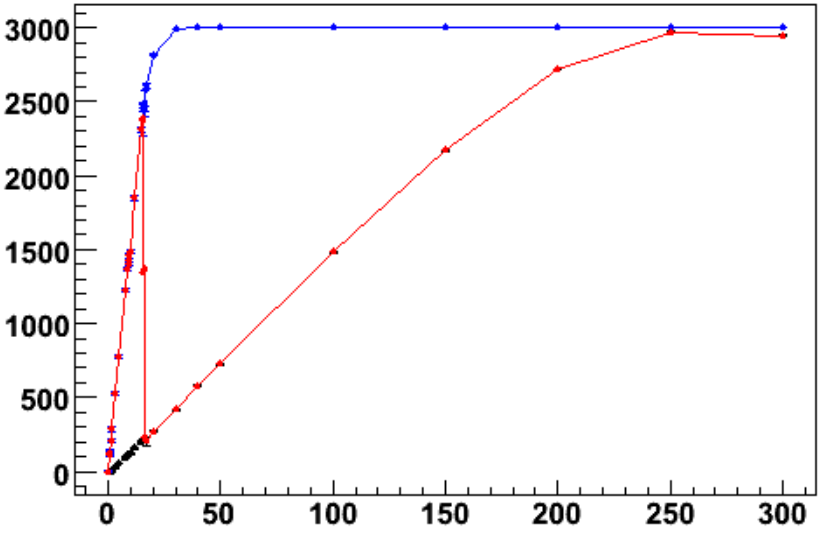
Same column


mean Channel 21 Column 3
ADC
260
259
258
257
mean Channel 30 Column 3
265.5
265
264.5
264
263.5
263
262.5
mean Channel 13 Column 3
265
264.5
264
263.5
263
262.5
262
261.5
261
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000

Linearity

Signal in Channel 19

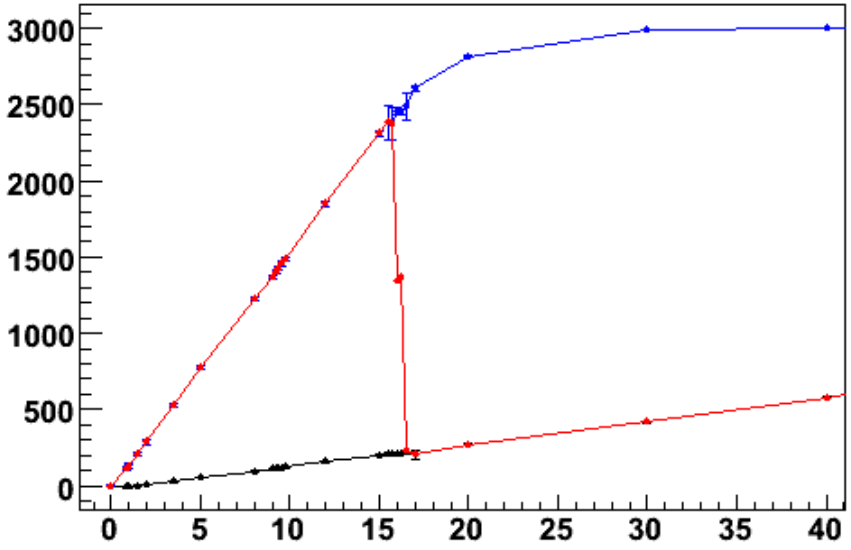
ADC



High gain

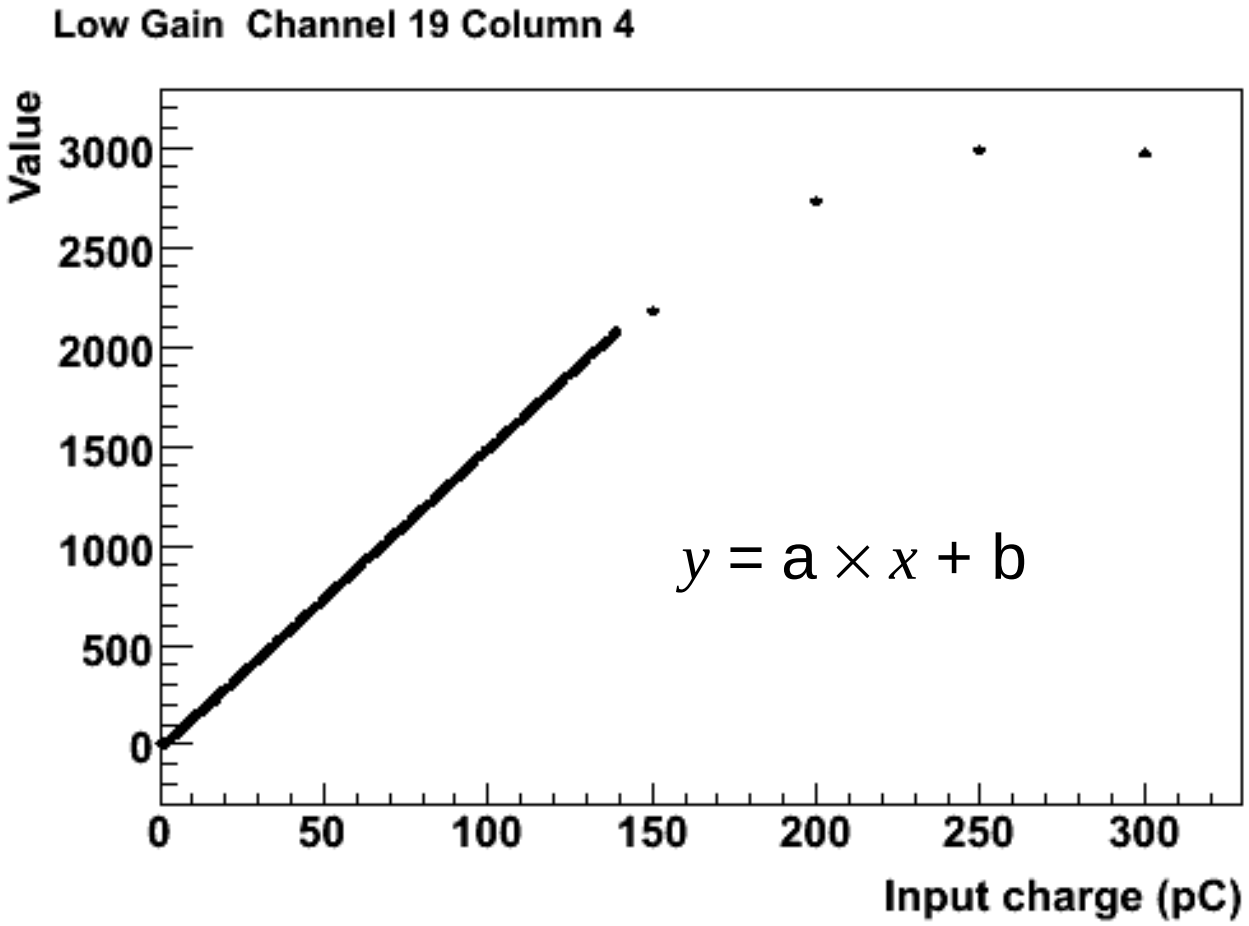
Low gain

Gain selection



Signal (pC)

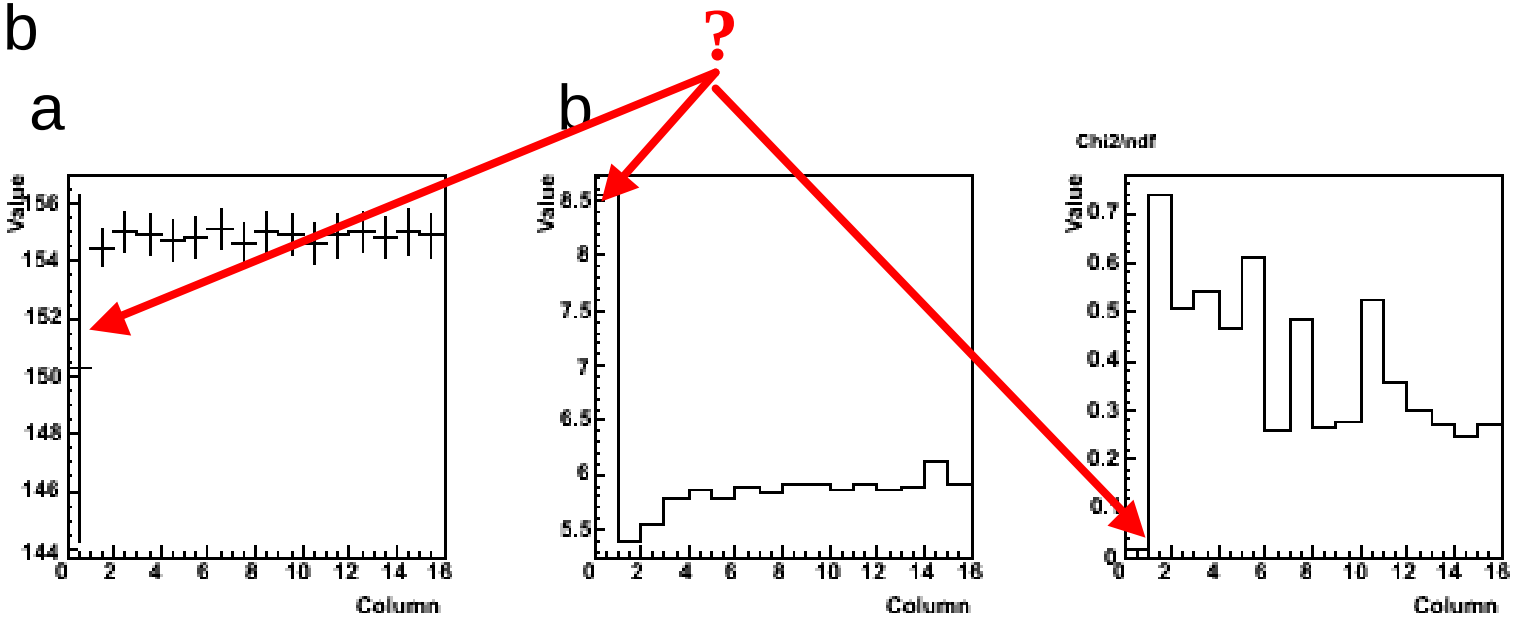
Linearity


Low Gain Channel 19 Column 4
Value
3000
2500
2000
1500
1000
500
0
0
50
100
150
200
250
300
Input charge (pC)
$y = a \times x + b$

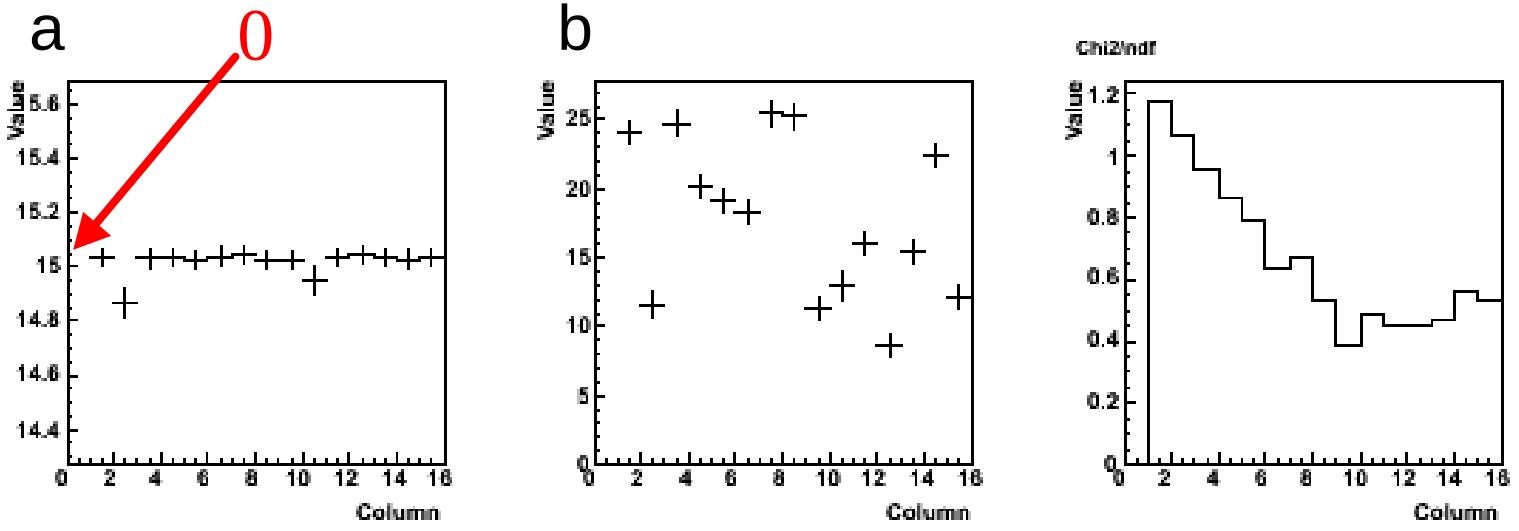
Linearity

$y = a \times x + b$

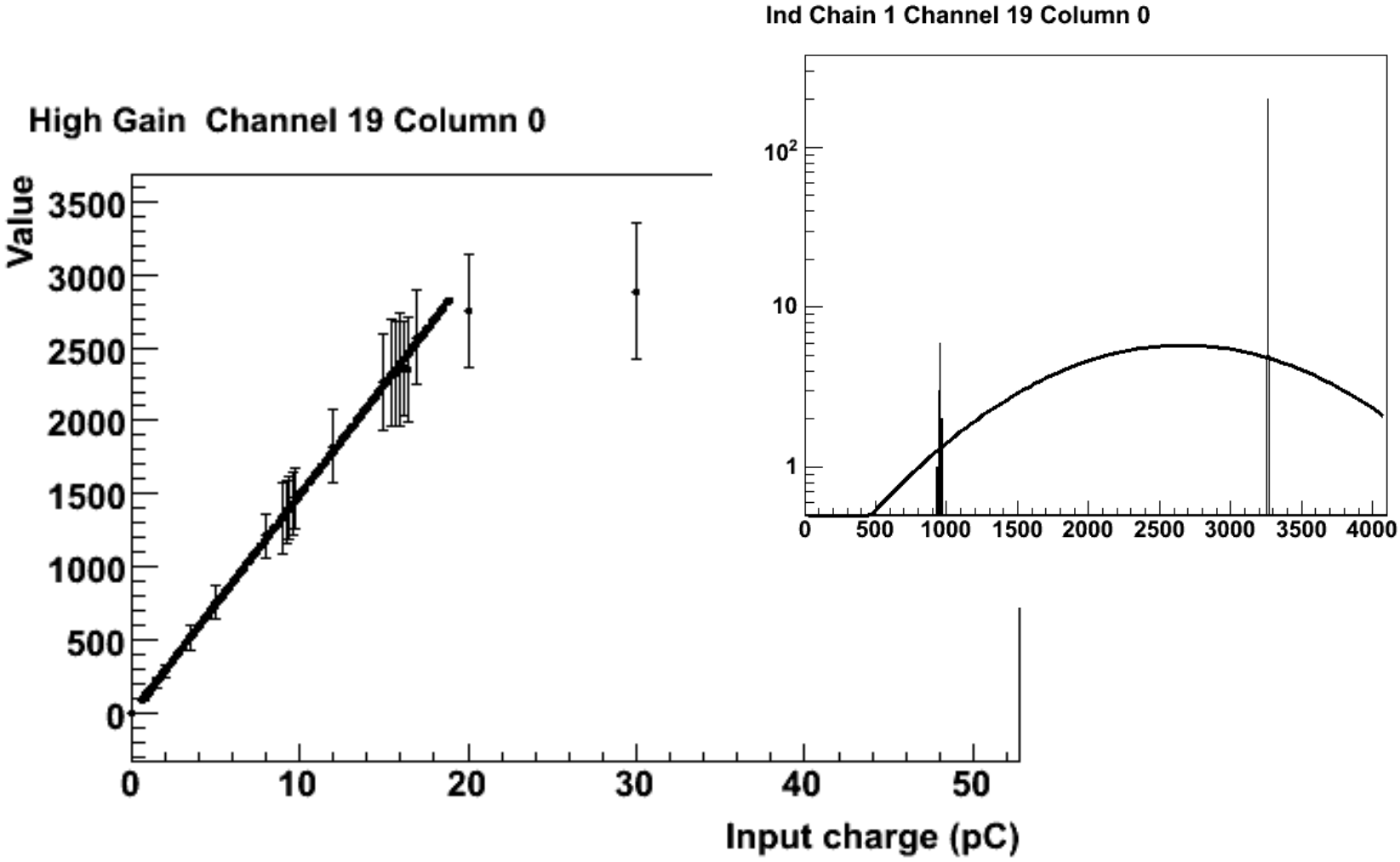
High Gain



Low Gain



Linearity


High Gain Channel 19 Column 0
Value
3500
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
Input charge (pC)

Ind Chain 1 Channel 19 Column 0
10^2
10
1
0
500
1000
1500
2000
2500
3000
3500
4000

Work in progress….

Thanks for your attention