

Cross talk



Setup

Using PicoQuant infra-red laser to inject light in a LPD connected to a kapton cable.

Using the common-noise diode to check pedestal shift with saturated signals.

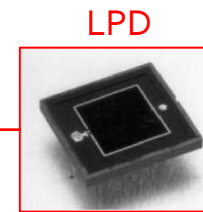
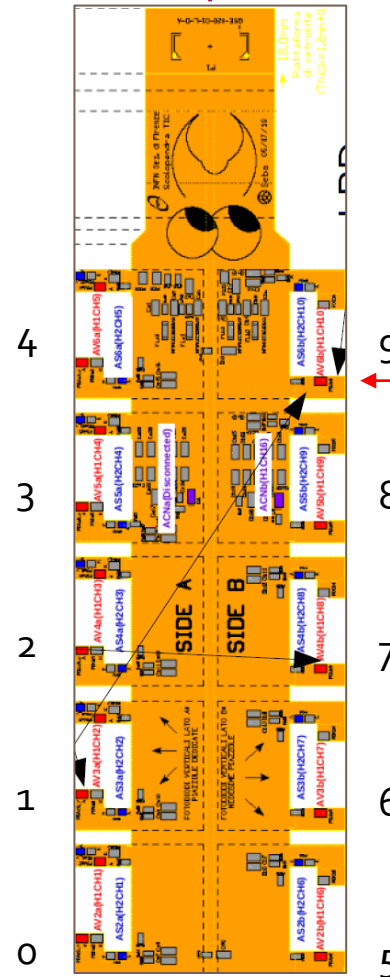
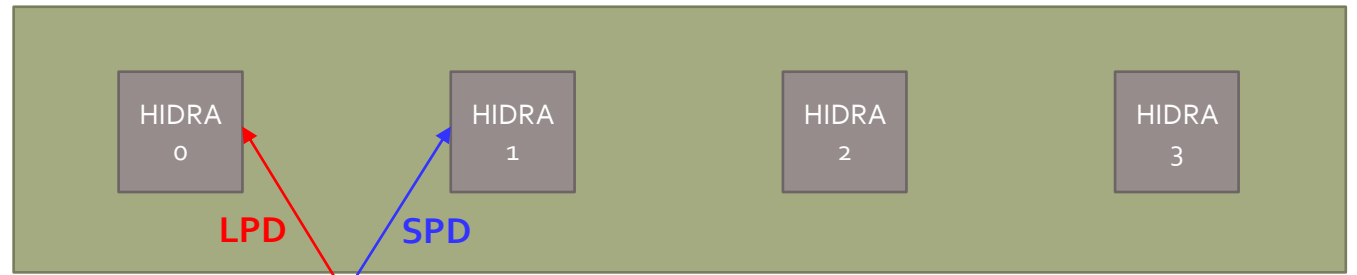
The amplitude of laser pulse is $\sim 40\%$, pulse width ~ 100 ps.

We used a pulse generator in burst mode to trigger the laser driver.

- We can generate from 1 to 40 pulses inside a single burst.
- Burst frequency: 100Hz.
- Pules frequency inside a burst: 40 MHz (burst width $\llsim 1\mu s$).

HIDRA channels:

- 0÷9 LPD/SPD
- 10÷14 unused
- 15 CN diod



Files

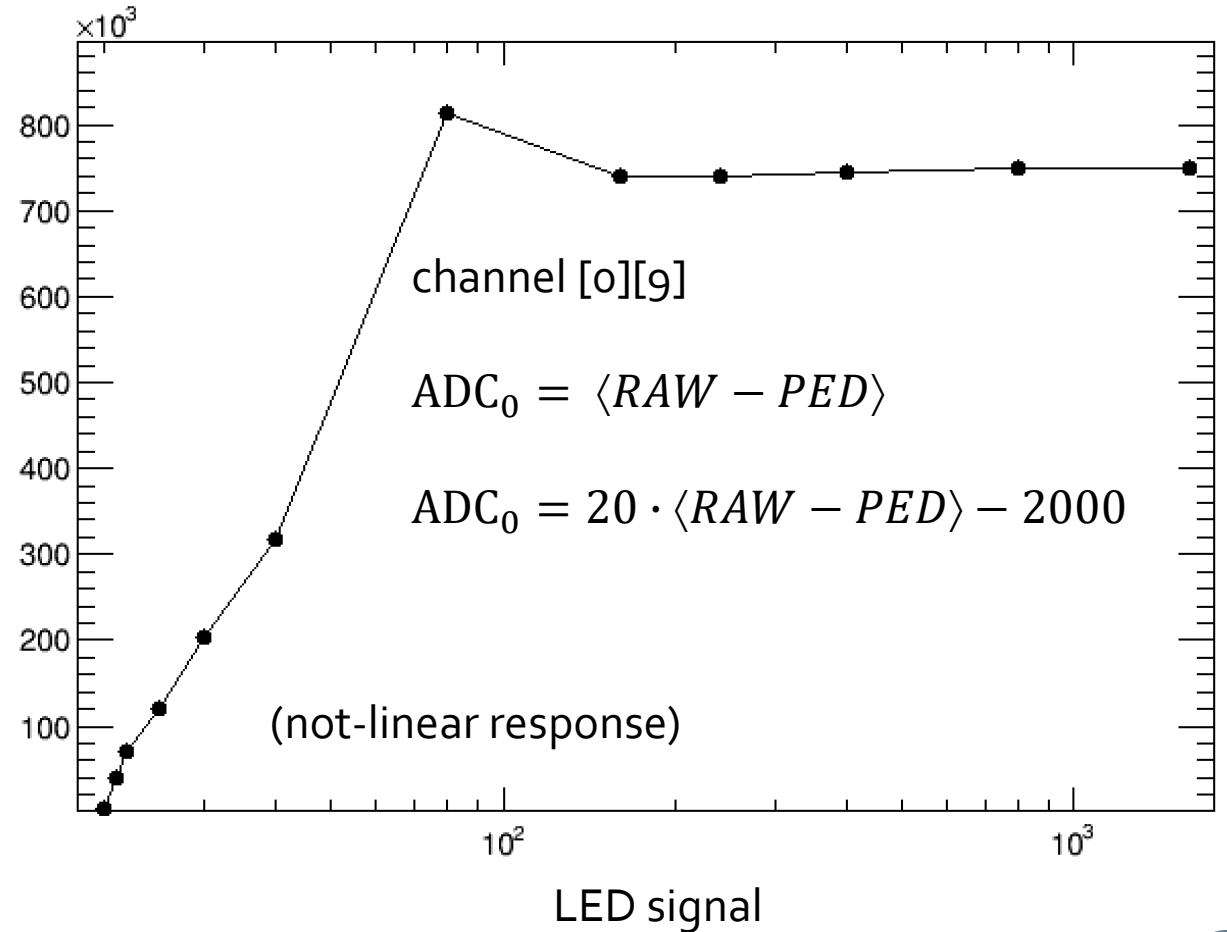
pedestal reference: 20201209_154546

HG

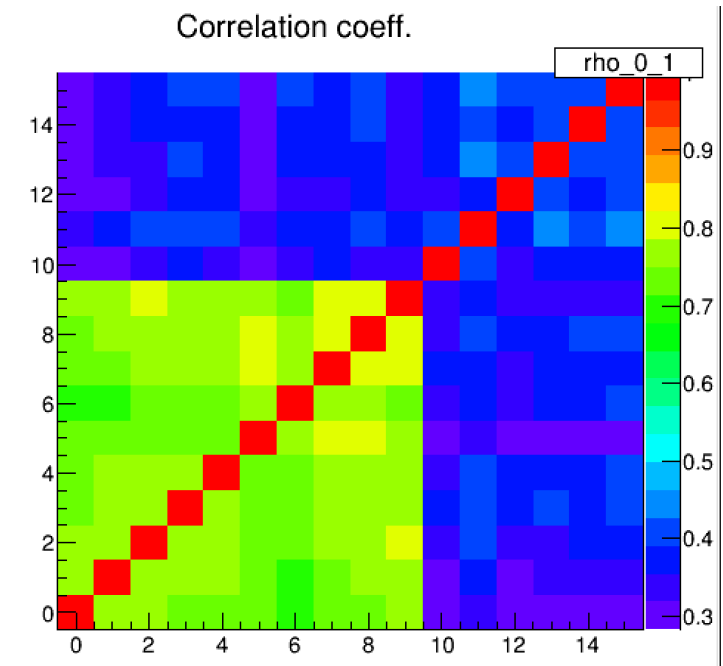
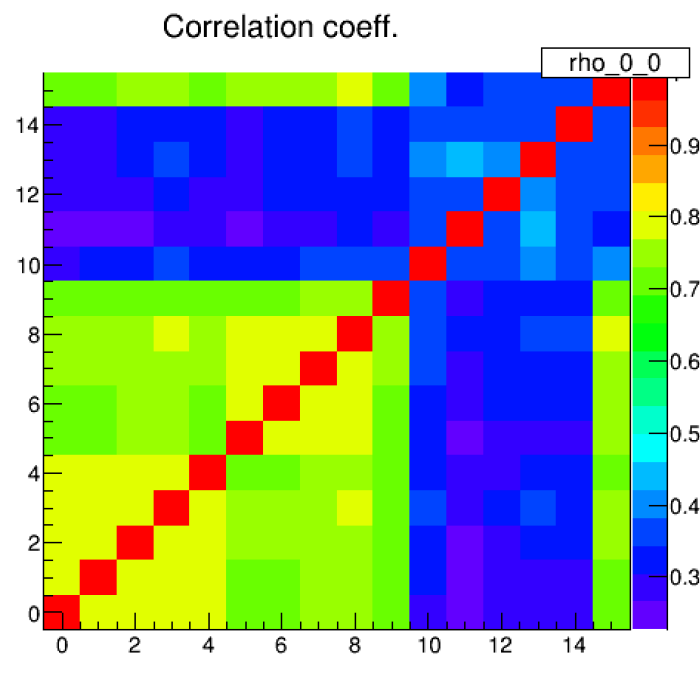
Ncycle	Amplitude	File
1	20	20201209_160939
1	30	20201209_161205
1	25	20201209_161248
1	22	20201209_161405
1	21	20201209_161439
1	40	20201209_161830

LG saturation

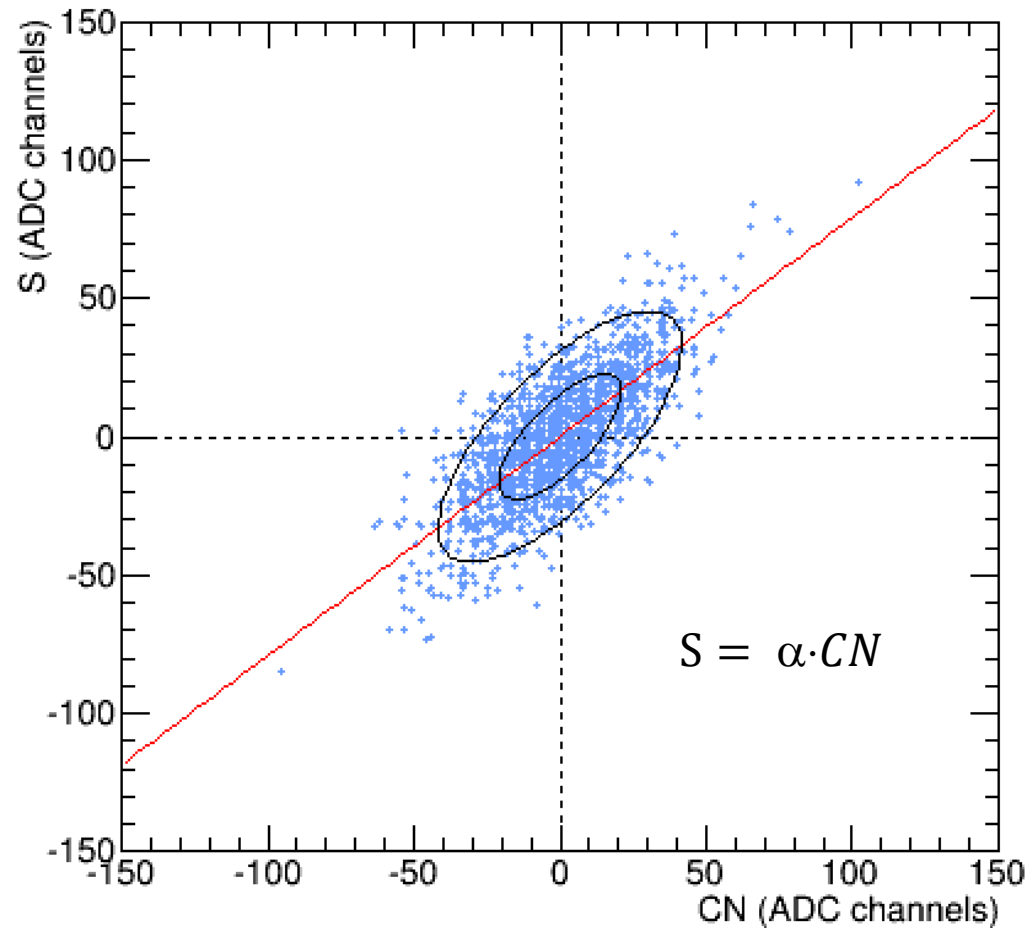
2	40	20201209_161934
4	40	20201209_162221
6	40	20201209_162257
10	40	20201209_162346
20	40	20201209_162426
40	40	20201209_1625169



Noise



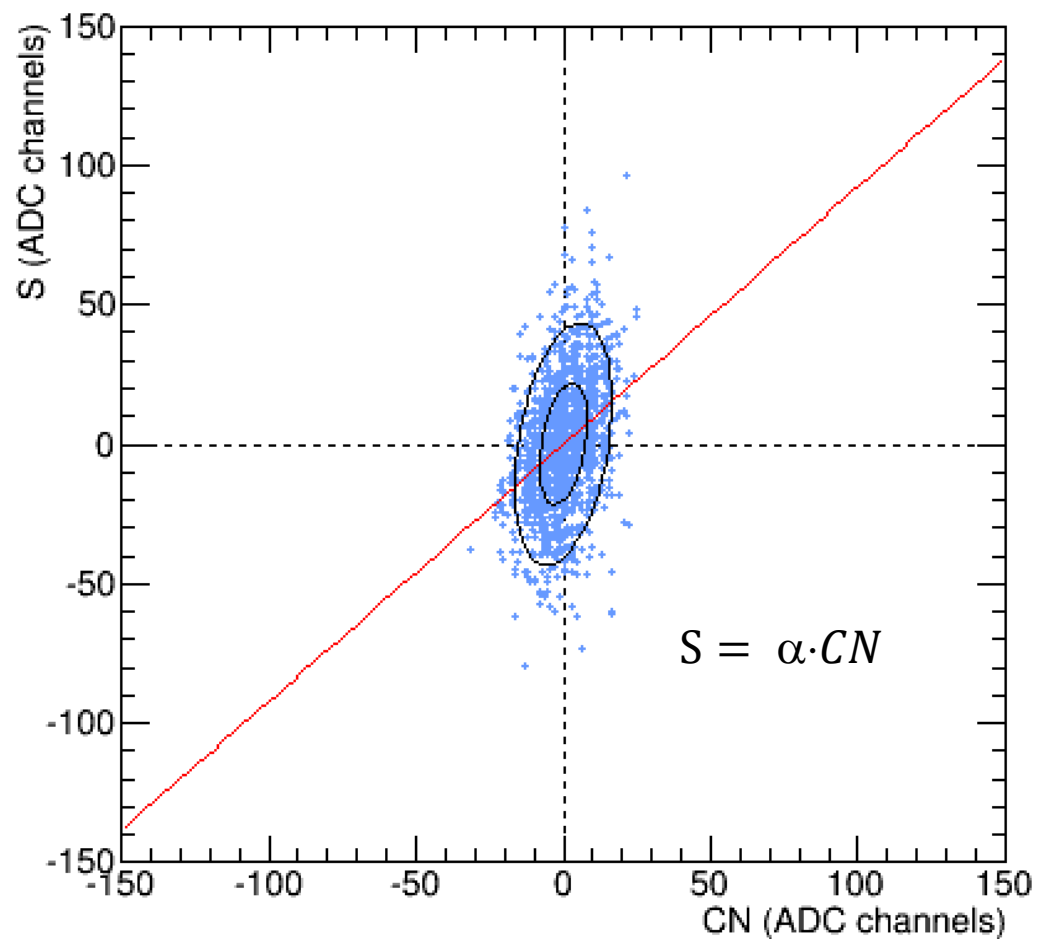
HIDRA 0 channel 9



- iHidra 0 channel 9
- xx 433.337
- xy 343.086
- yy 513.987
- yx 343.086
- eigenvalue 0 819.109 sqrt 28.6201
- eigenvalue 1 128.214 sqrt 11.3232
- Roo cos(theta) 0.664555R01 -sin(theta) - 0.747239
- R10 sin(theta) 0.747239R11 cos(theta) 0.664555
- tg(theta) -1.12442



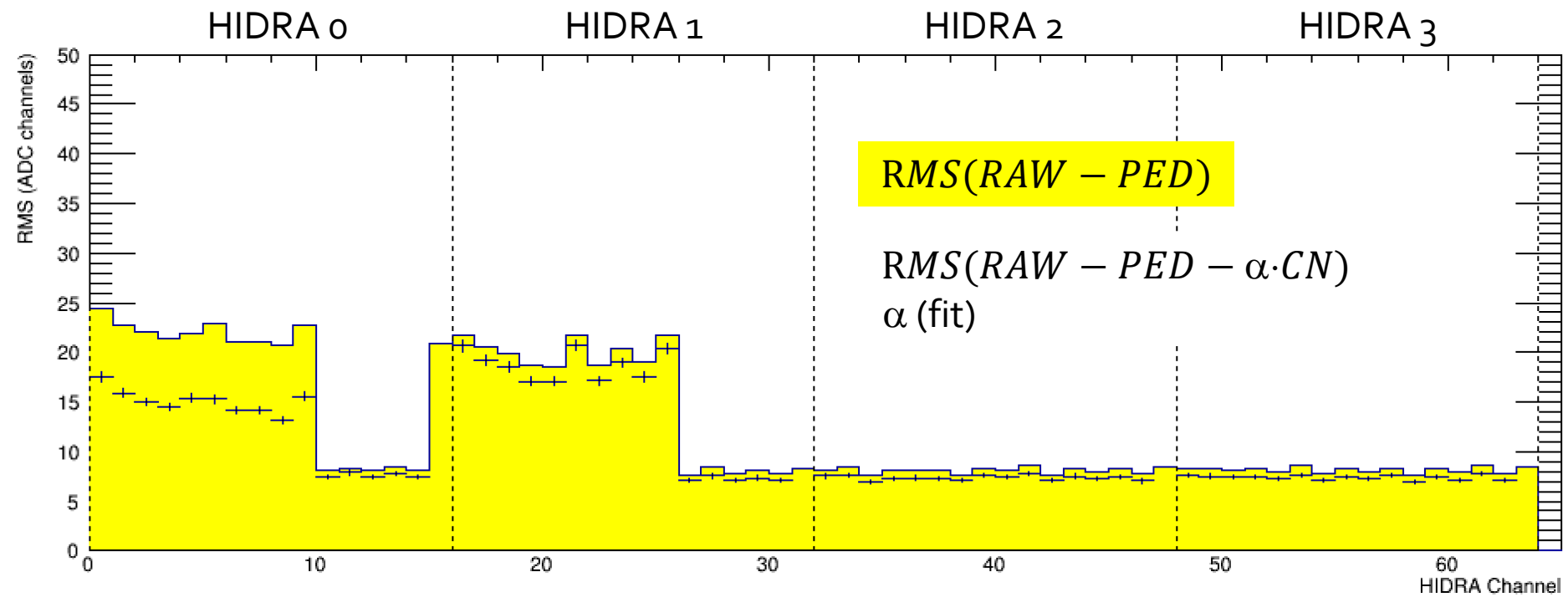
HIDRA 1 channel 9



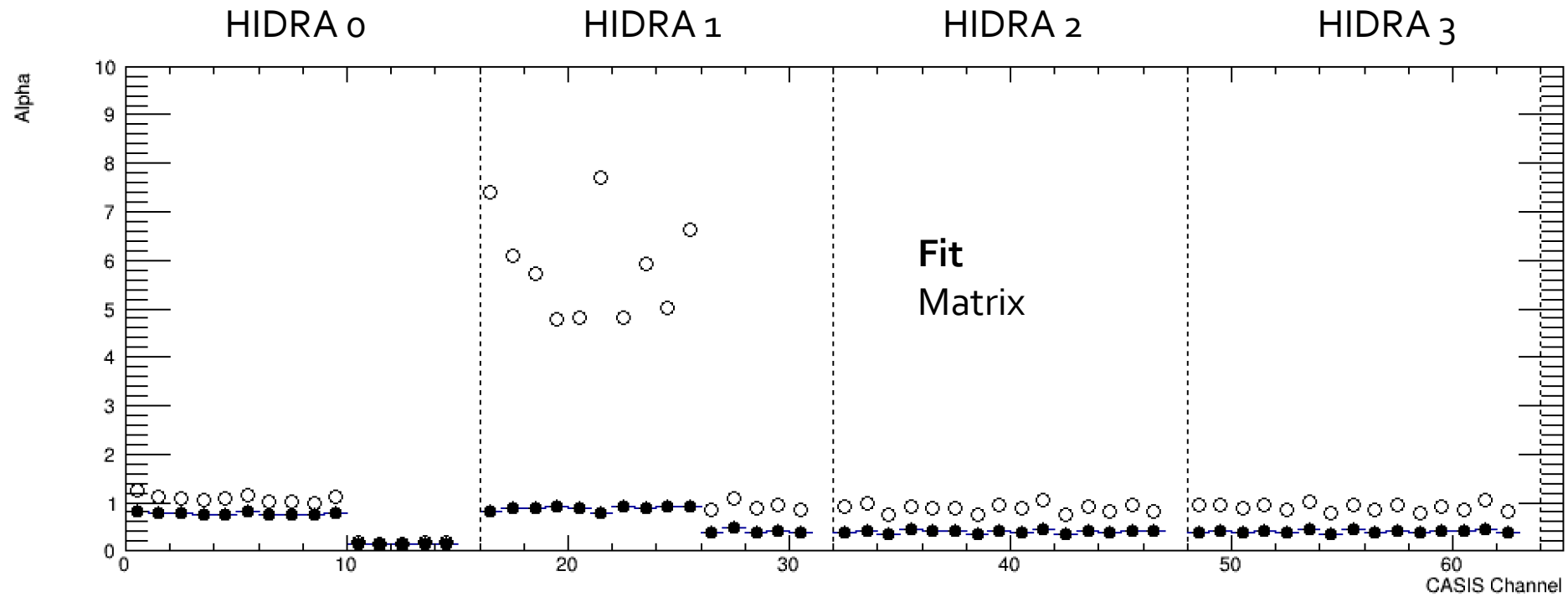
- iHidra 1 channel 9
- xx 67.5007
- xy 62.282
- yy 471.704
- yx 62.282
- eigenvalue 0 481.083 sqrt 21.9336
- eigenvalue 1 58.1216 sqrt 7.62375
- Roo cos(theta) 0.148912R01 -sin(theta) - 0.98885
- R10 sin(theta) 0.98885R11 cos(theta) 0.148912
- tg(theta) -6.64048



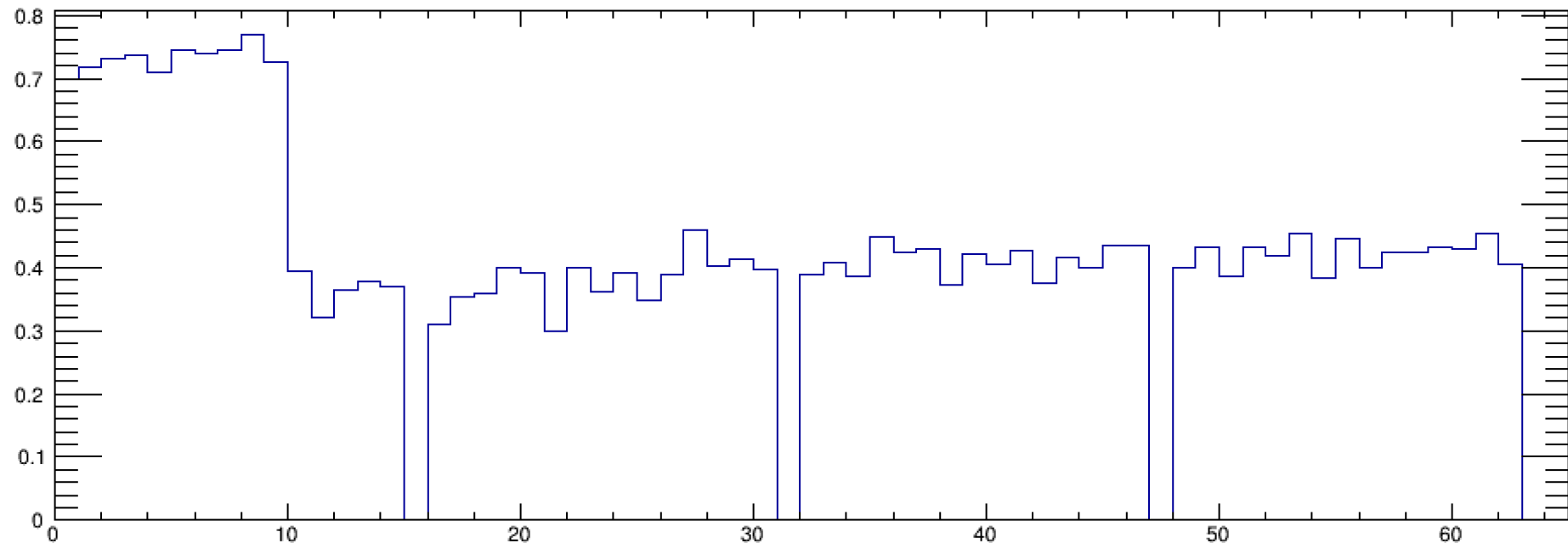
Noise

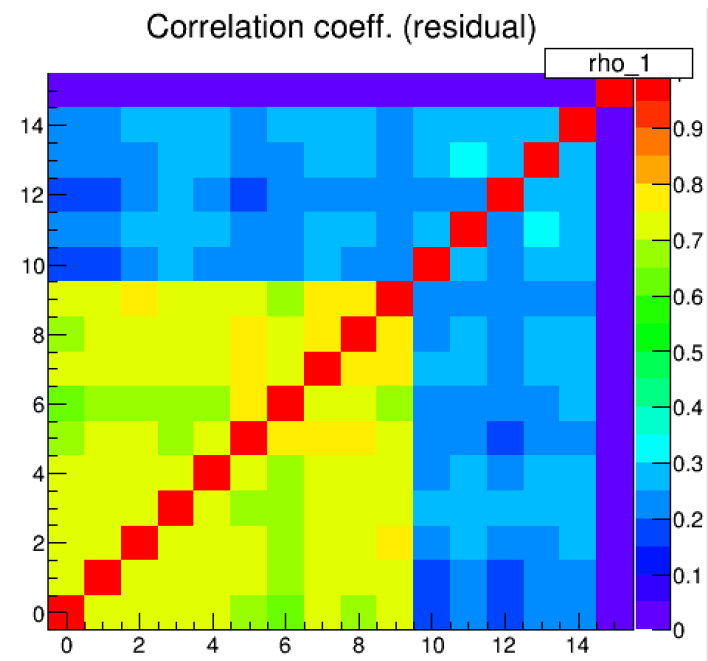
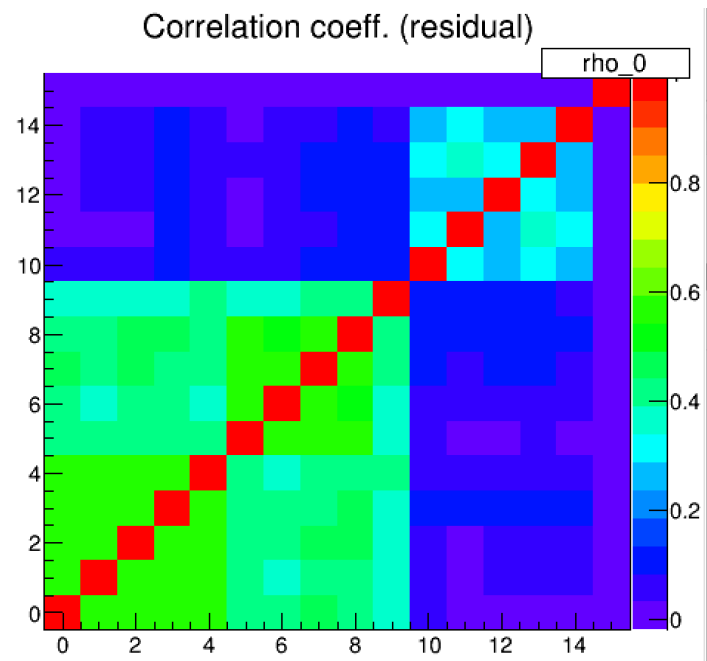


Alpha



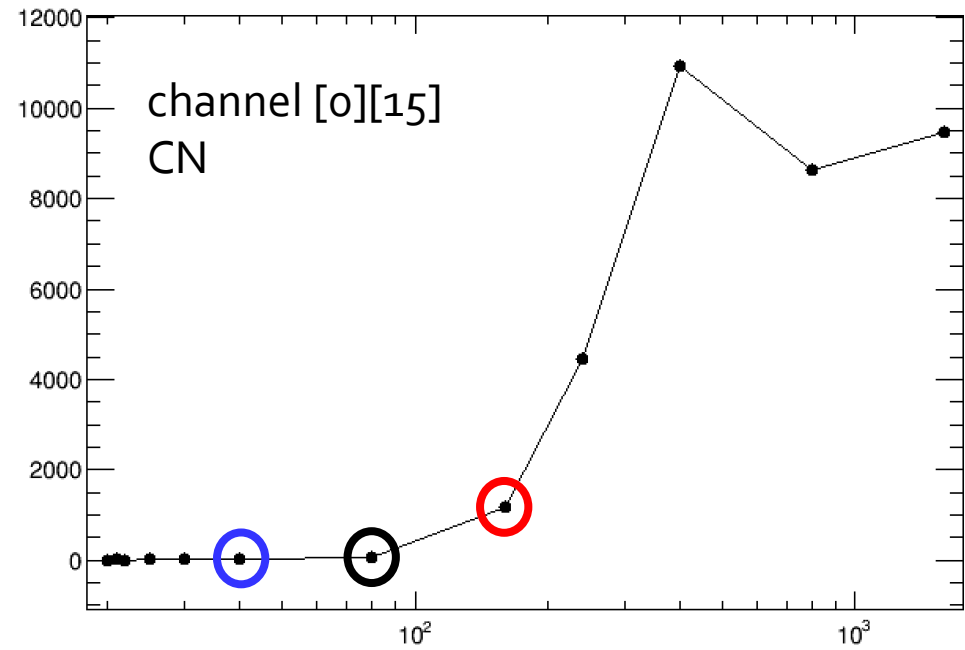
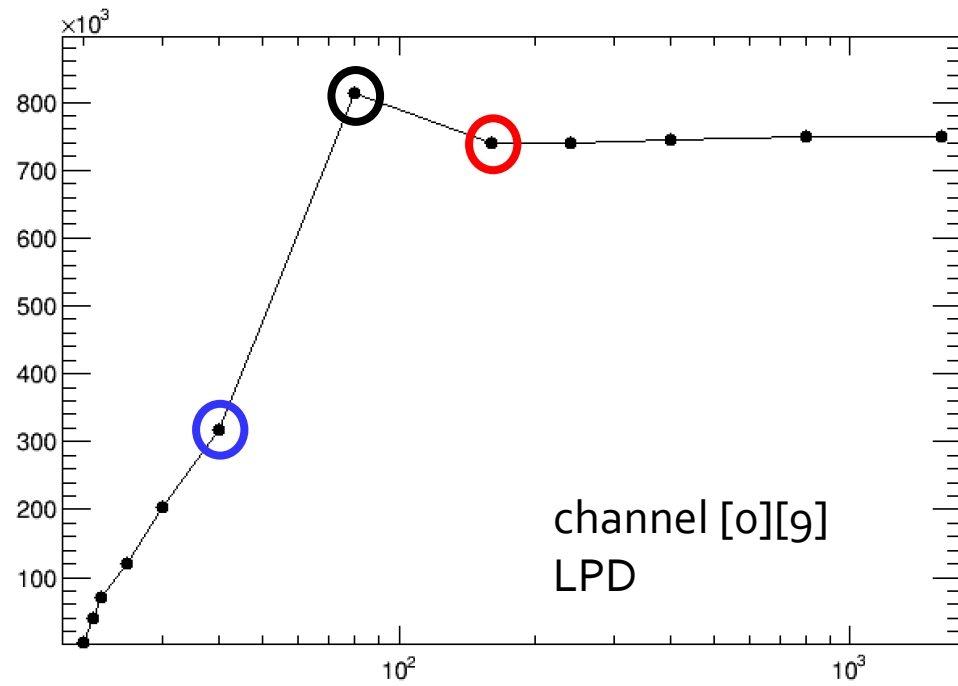
Correlation coefficient with CN channel



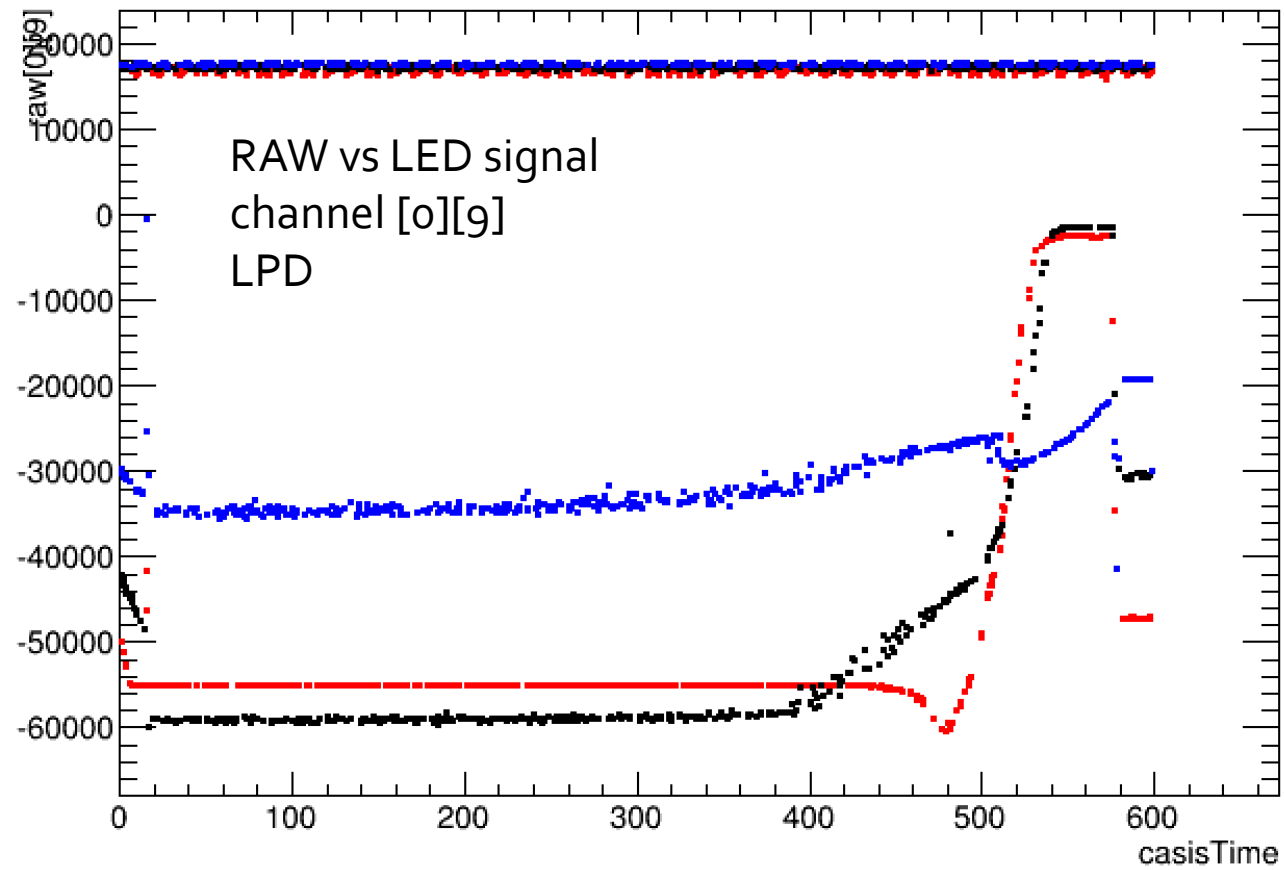


LED signal

$\langle ADC - PED \rangle$ vs LED signal



raw[0][9]:casisTime

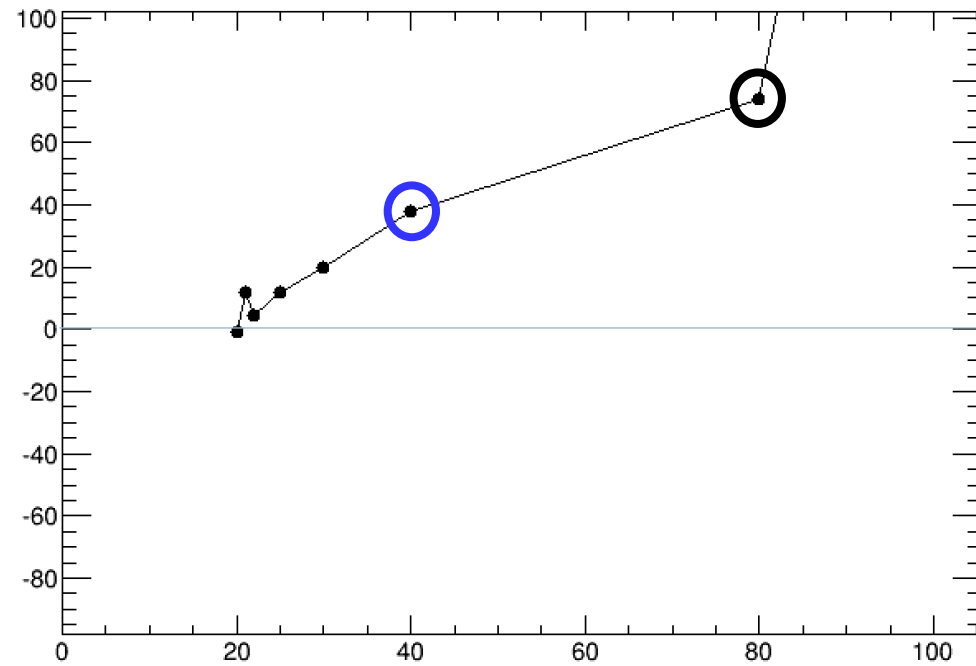
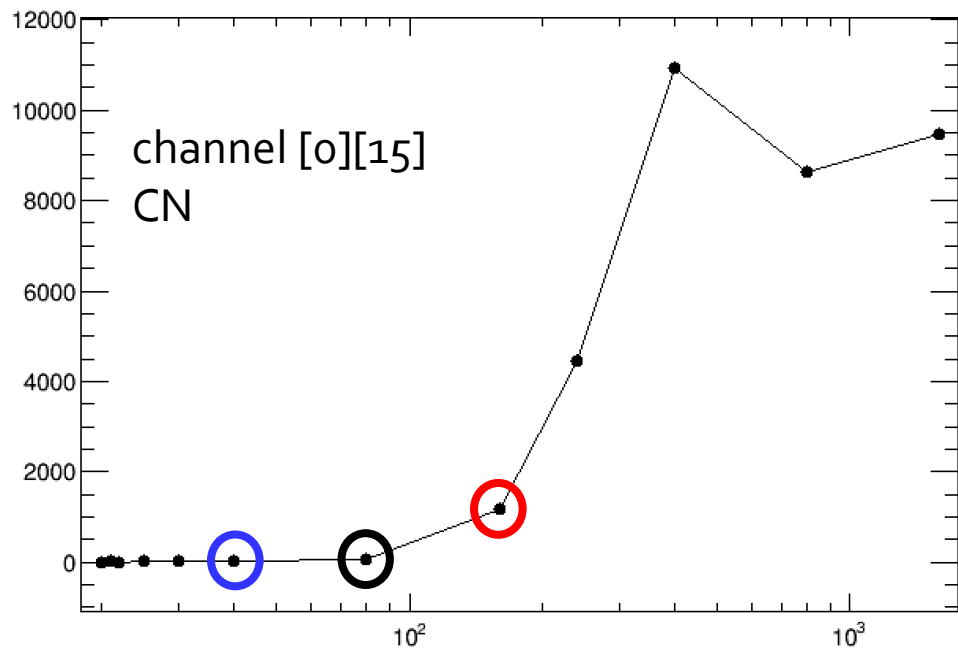


LED signal

- 40
- 80
- 160



$\langle ADC - PED \rangle$ vs LED signal



(channel noise ~ 20 ADC counts)



$\langle ADC - PED \rangle$ vs LED signal

