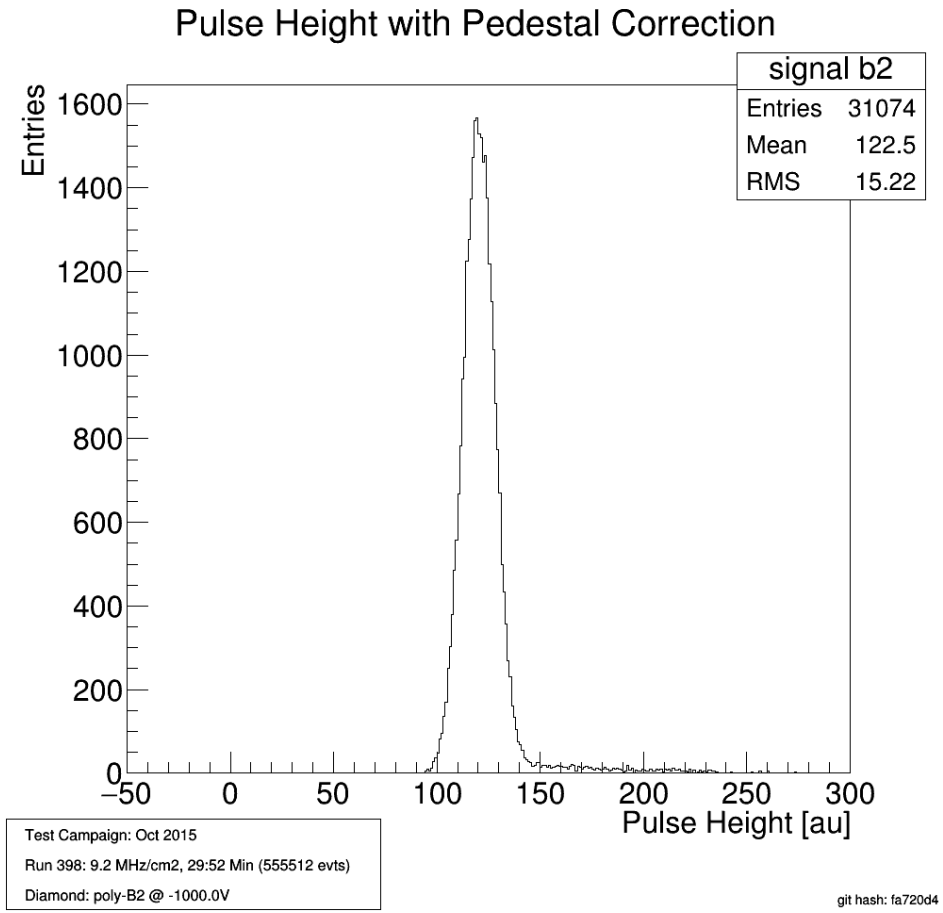

Meeting 18th February 2016

Michael Reichmann

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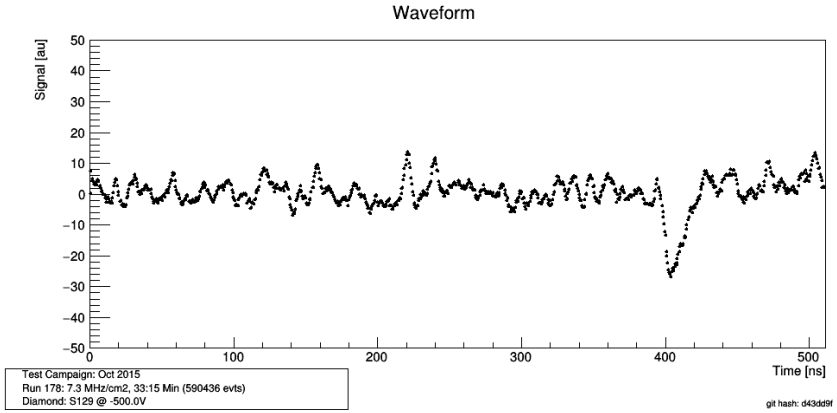
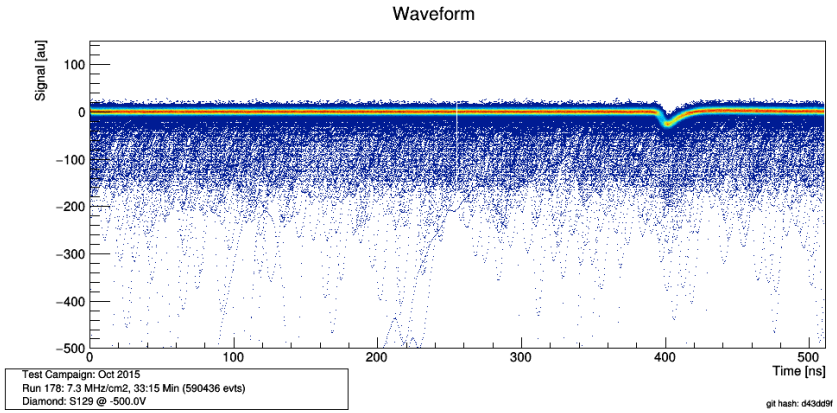
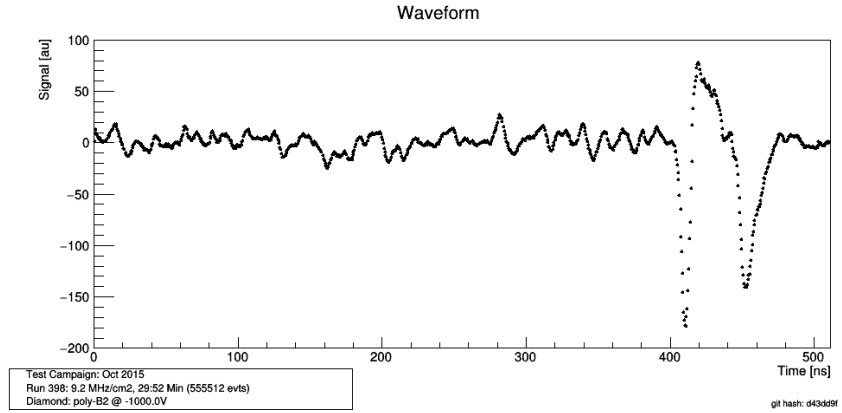
Waveforms

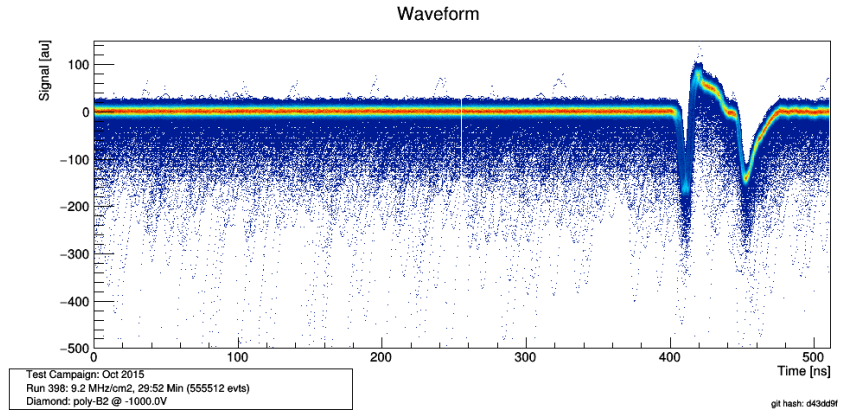
External Pulser (S129)





Internal Pulser (poly-B2)





Distribution Cuts

Used Cuts:

- Pedestal Sigma: correct for base line shifts
- saturated Events: will most certainly influence pulser signal
- Event Range: use the same event range (exclude first 5 min)
- Pulser

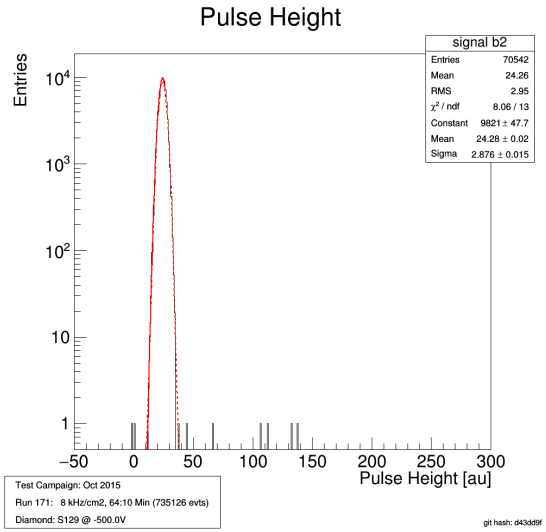
Irrelevant Cuts:

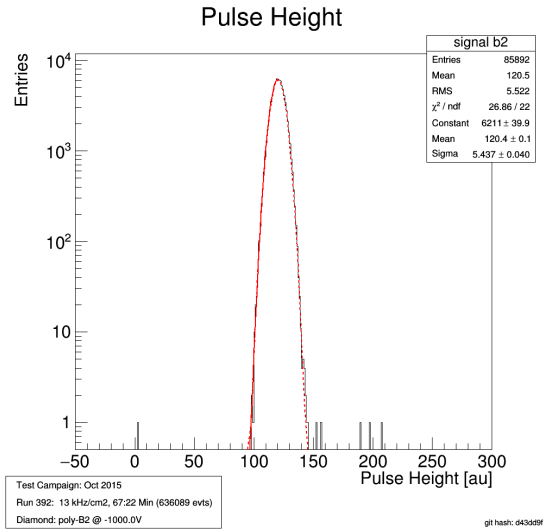
- tracks, chi2, track-angle
- bucket

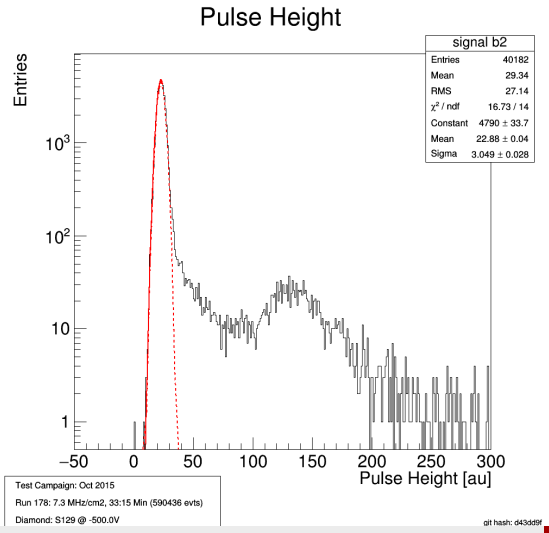
Varying Cuts:

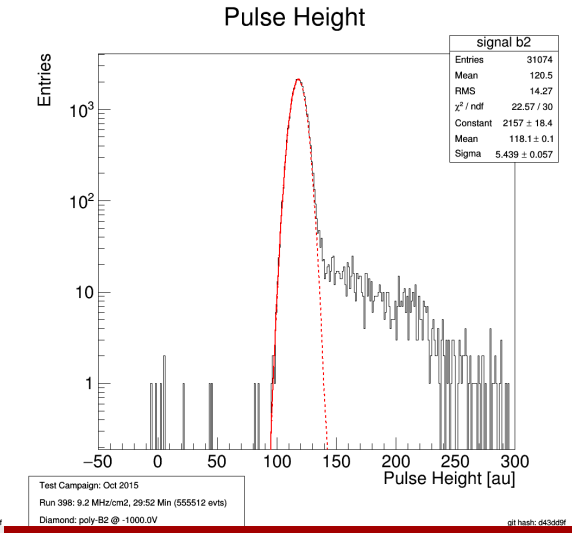
- beam interruptions

Distributions



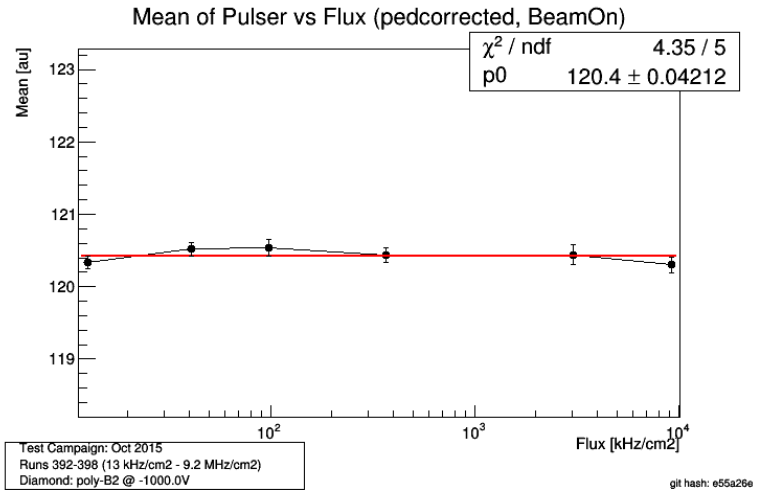


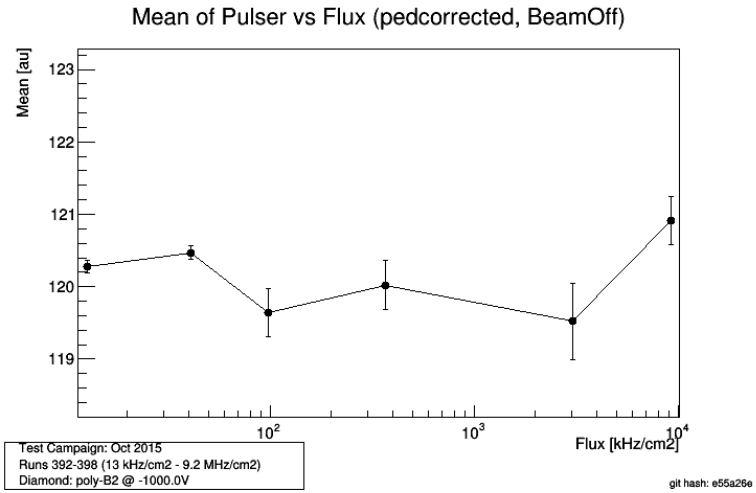


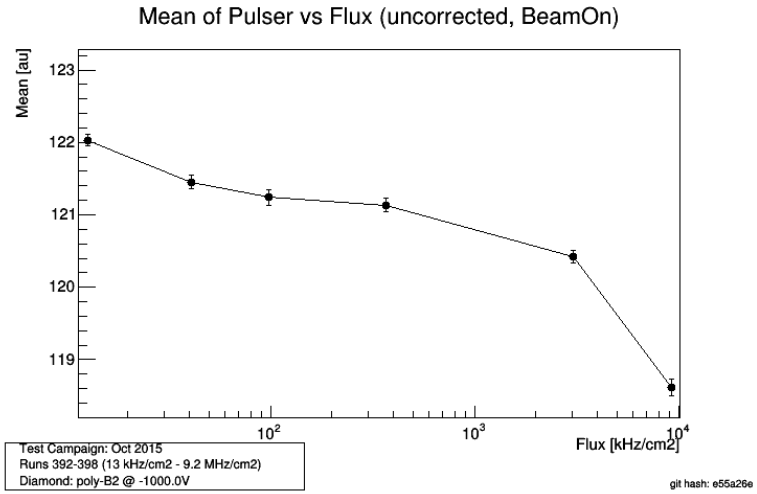


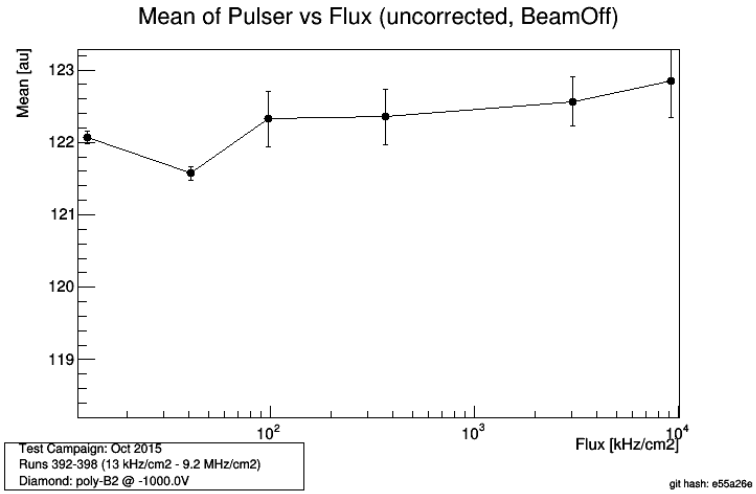
- fit only left side of the gaussian (least corrupted by signal)
- pedestal correction: substraction of the mean of the pedestal fit

II6B2 neg

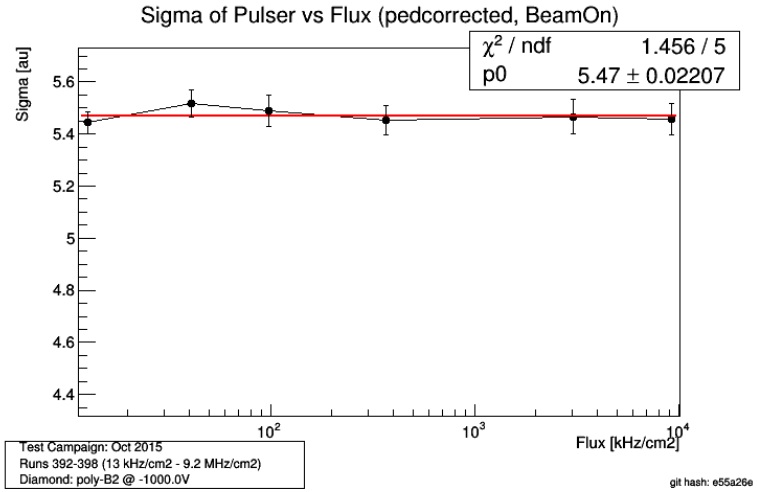

Mean of Pulser vs Flux (pedcorrected, BeamOn)
χ² / ndf 4.35 / 5
p0 120.4 ± 0.04212
Mean [au]
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 392-398 (13 kHz/cm2 - 9.2 MHz/cm2)
Diamond: poly-B2 @ -1000.0V
git hash: e55a26e

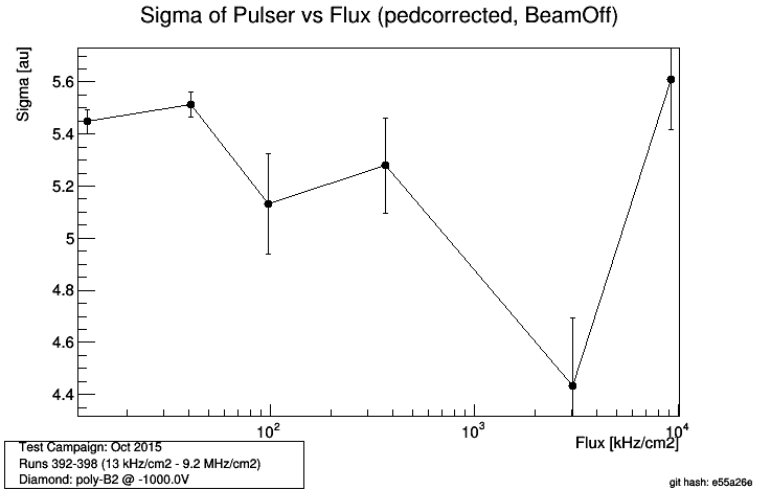

Mean of Pulser vs Flux (pedcorrected, BeamOff)
Mean [au]
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 392-398 (13 kHz/cm2 - 9.2 MHz/cm2)
Diamond: poly-B2 @ -1000.0V
git hash: e55a26e

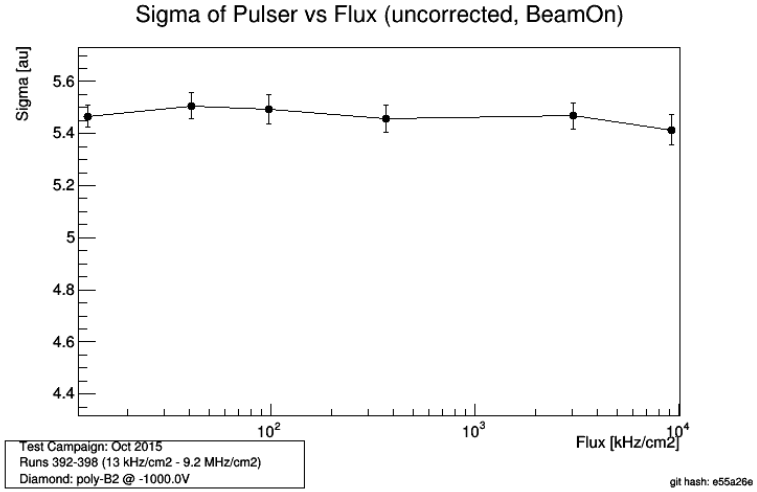

Mean of Pulser vs Flux (uncorrected, BeamOn)
Mean [au]
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 392-398 (13 kHz/cm2 - 9.2 MHz/cm2)
Diamond: poly-B2 @ -1000.0V
git hash: e55a26e

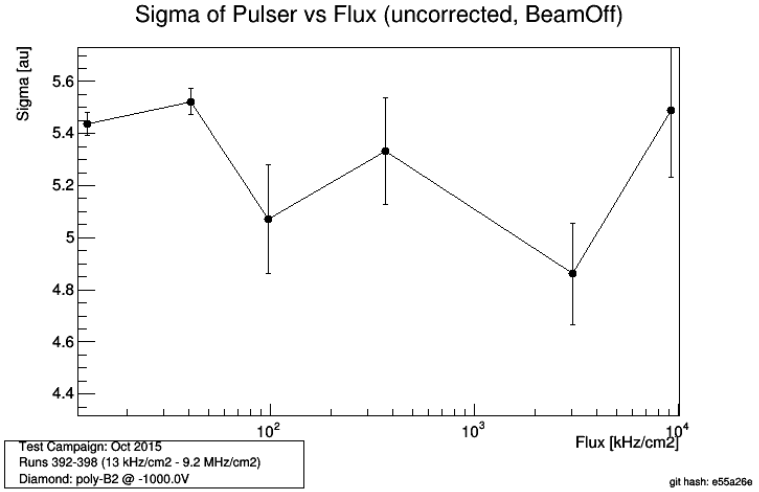

Mean of Pulser vs Flux (uncorrected, BeamOff)
Mean [au]
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 392-398 (13 kHz/cm2 - 9.2 MHz/cm2)
Diamond: poly-B2 @ -1000.0V
git hash: e55a26e

Rate Dependence

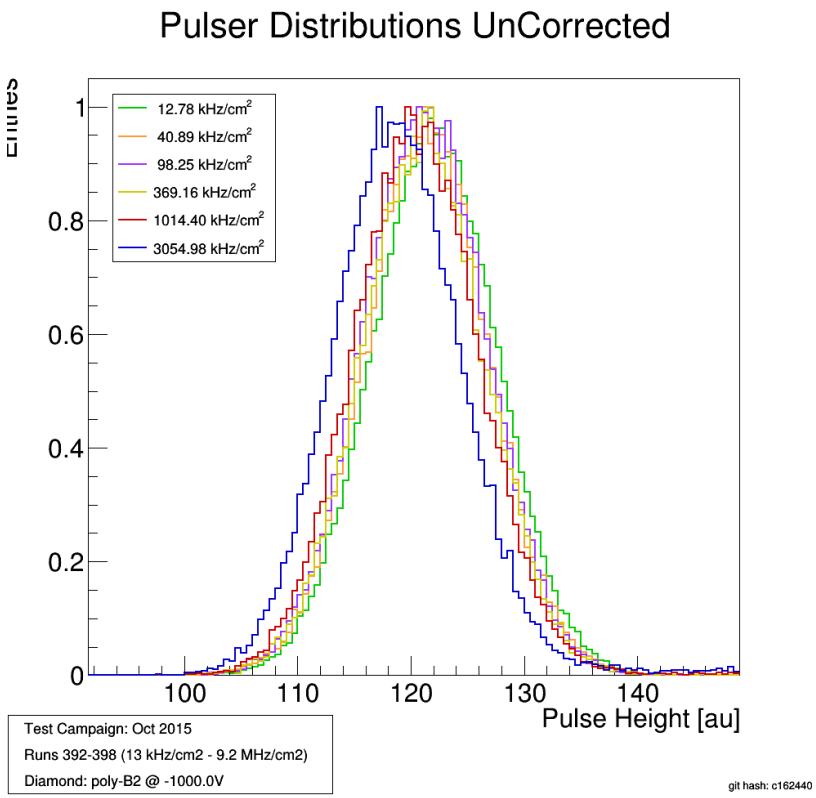


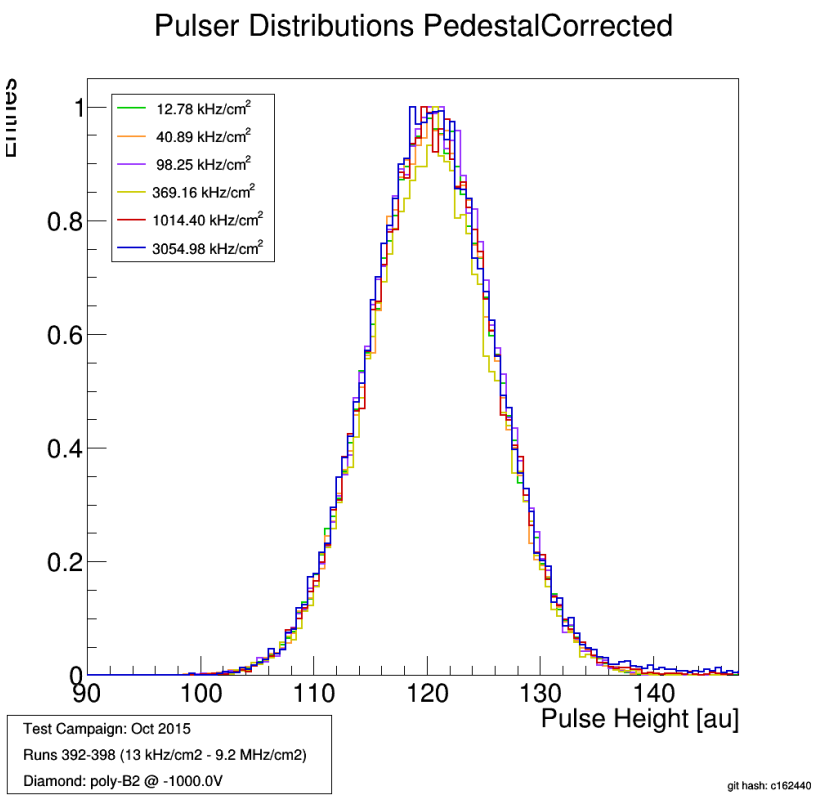




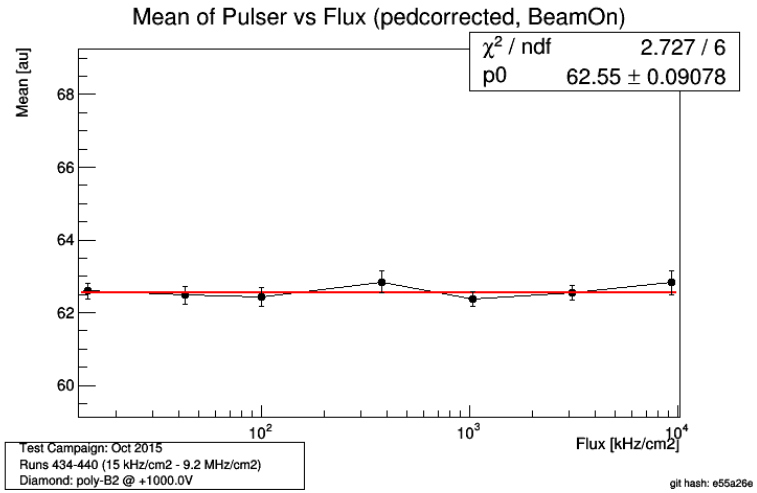


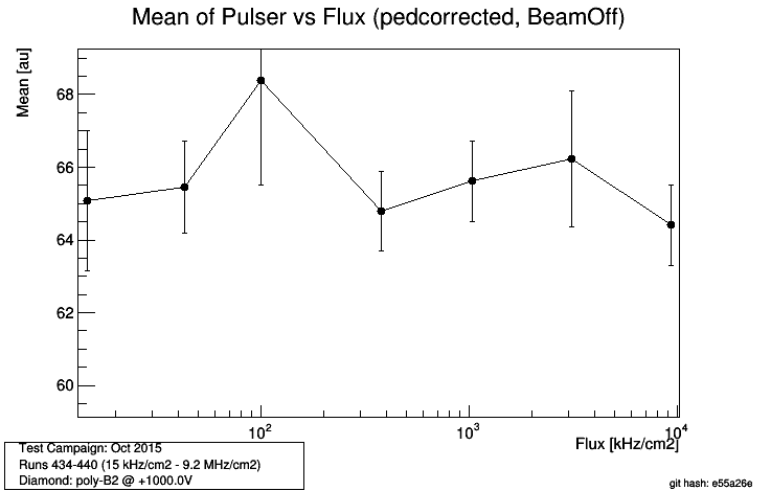
Histograms

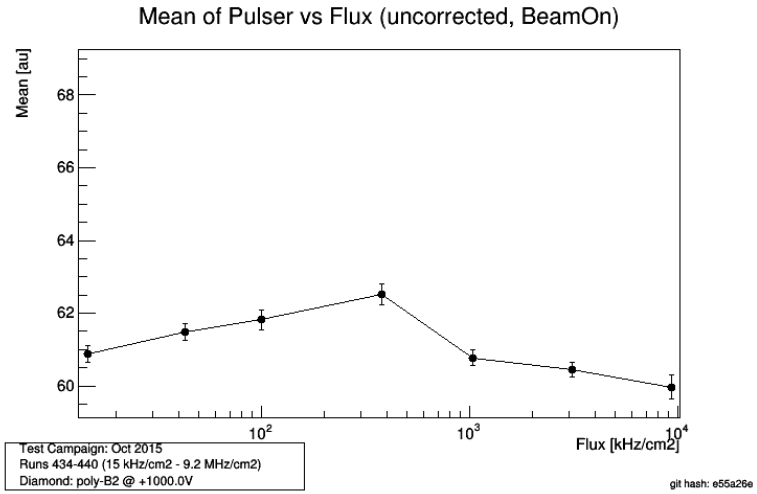

Pulser Distributions UnCorrected
Entries
12.78 kHz/cm²
40.89 kHz/cm²
98.25 kHz/cm²
369.16 kHz/cm²
1014.40 kHz/cm²
3054.98 kHz/cm²
0
0.2
0.4
0.6
0.8
1
100
110
120
130
140
Pulse Height [au]
Test Campaign: Oct 2015
Runs 392-398 (13 kHz/cm2 - 9.2 MHz/cm2)
Diamond: poly-B2 @ -1000.0V
git hash: c162440

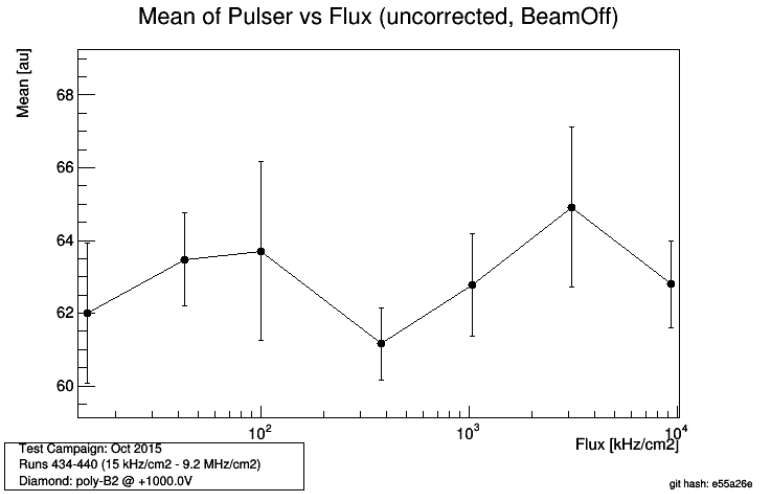

Pulser Distributions PedestalCorrected
Entries
12.78 kHz/cm²
40.89 kHz/cm²
98.25 kHz/cm²
369.16 kHz/cm²
1014.40 kHz/cm²
3054.98 kHz/cm²
0
0.2
0.4
0.6
0.8
1
90
100
110
120
130
140
Pulse Height [au]
Test Campaign: Oct 2015
Runs 392-398 (13 kHz/cm2 - 9.2 MHz/cm2)
Diamond: poly-B2 @ -1000.0V
git hash: c162440

II6B2 pos

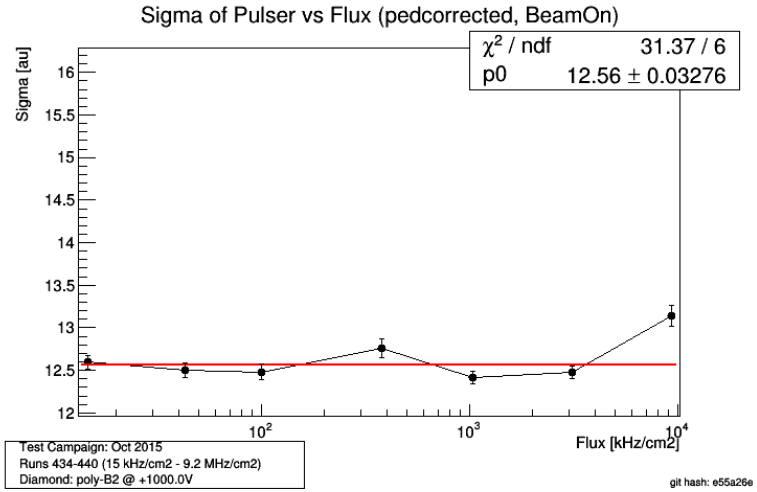

Mean of Pulser vs Flux (pedcorrected, BeamOn)
χ² / ndf 2.727 / 6
p0 62.55 ± 0.09078
Mean [au]
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 434-440 (15 kHz/cm2 - 9.2 MHz/cm2)
Diamond: poly-B2 @ +1000.0V
git hash: e55a26e

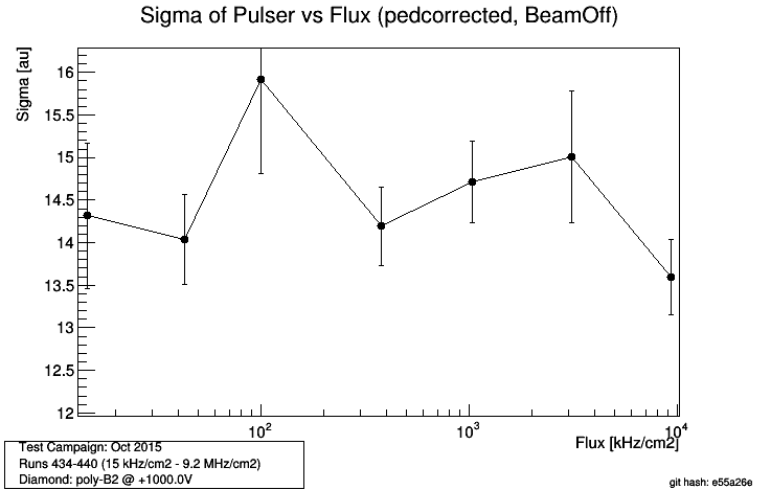

Mean of Pulser vs Flux (pedcorrected, BeamOff)
Mean [au]
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 434-440 (15 kHz/cm2 - 9.2 MHz/cm2)
Diamond: poly-B2 @ +1000.0V
git hash: e55a26e

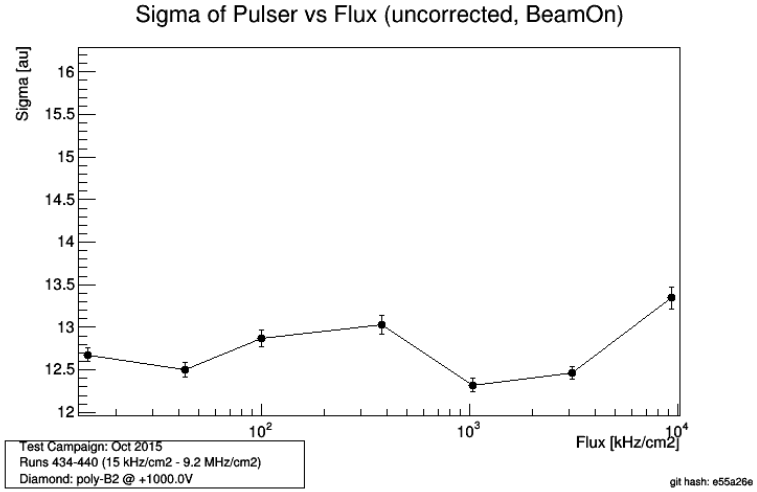

Mean of Pulser vs Flux (uncorrected, BeamOn)
Mean [au]
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 434-440 (15 kHz/cm2 - 9.2 MHz/cm2)
Diamond: poly-B2 @ +1000.0V
git hash: e55a26e

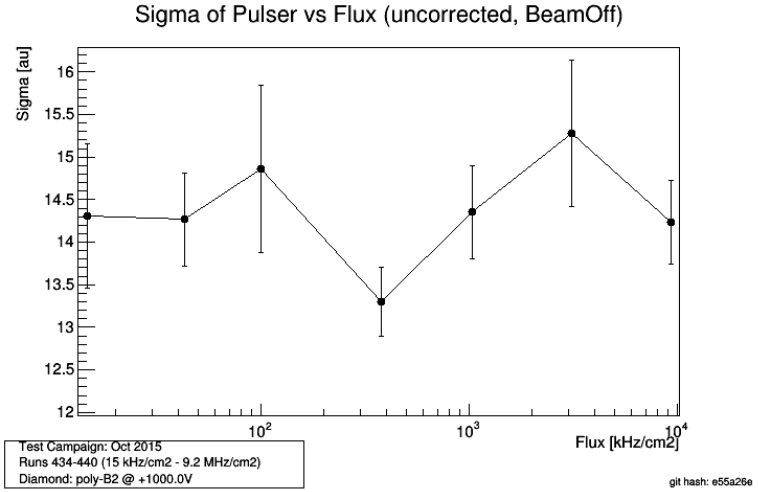

Mean of Pulser vs Flux (uncorrected, BeamOff)
Mean [au]
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 434-440 (15 kHz/cm2 - 9.2 MHz/cm2)
Diamond: poly-B2 @ +1000.0V
git hash: e55a26e

Rate Dependence

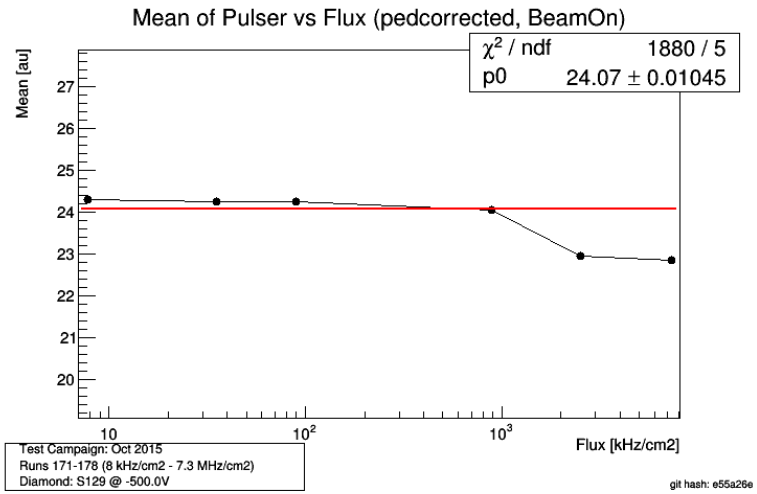


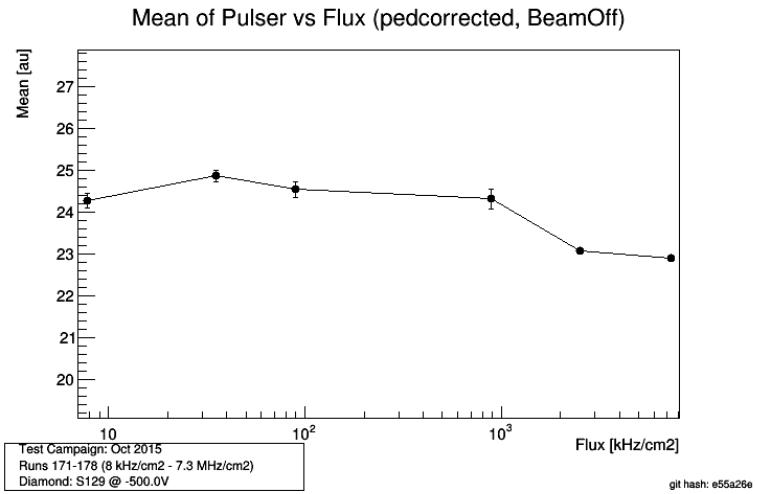


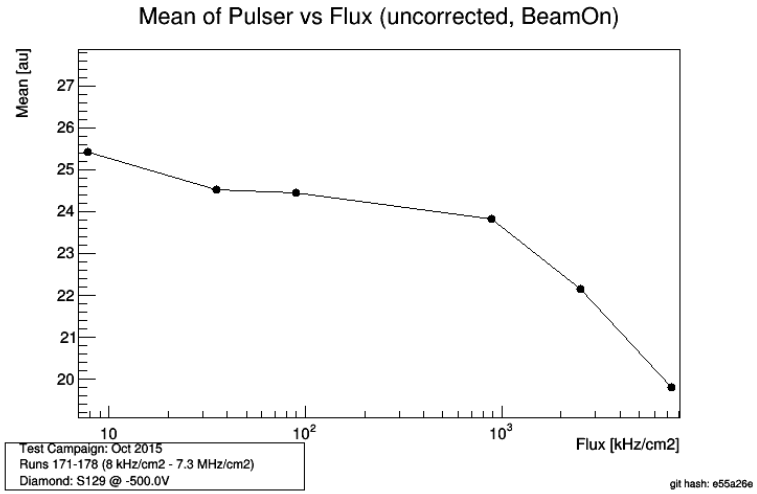


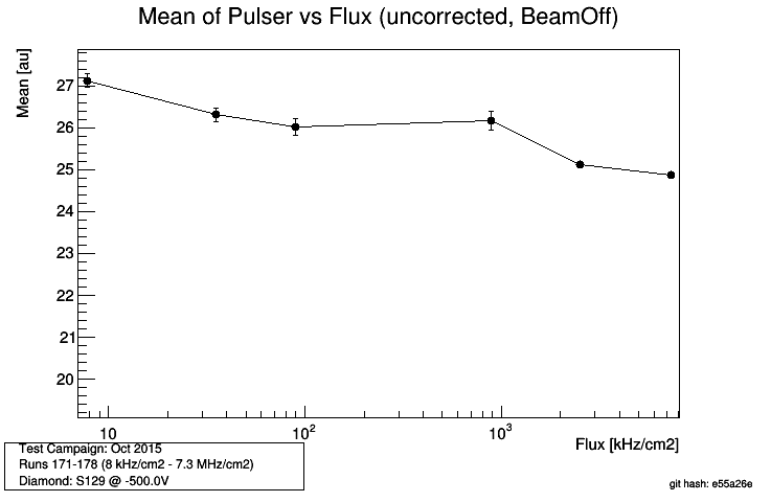


S129 neg

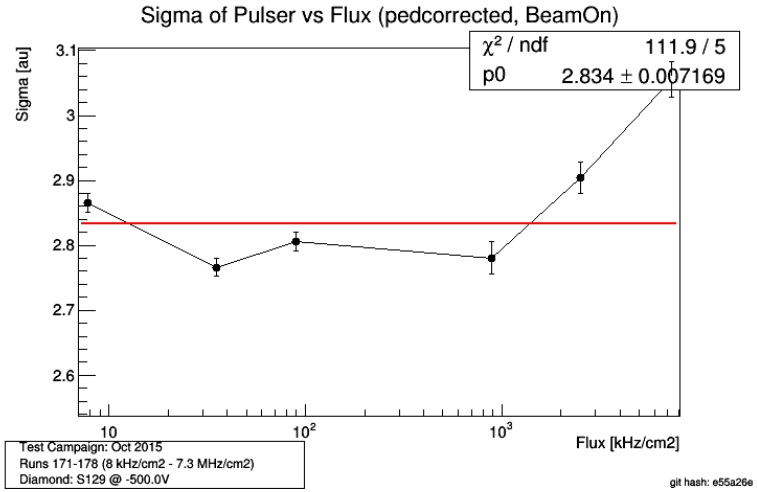

Mean of Pulser vs Flux (pedcorrected, BeamOn)
χ^2 / ndf 1880 / 5
p0 24.07 ± 0.01045
Mean [au]
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 171-178 (8 kHz/cm2 - 7.3 MHz/cm2)
Diamond: S129 @ -500.0V
git hash: e55a26e

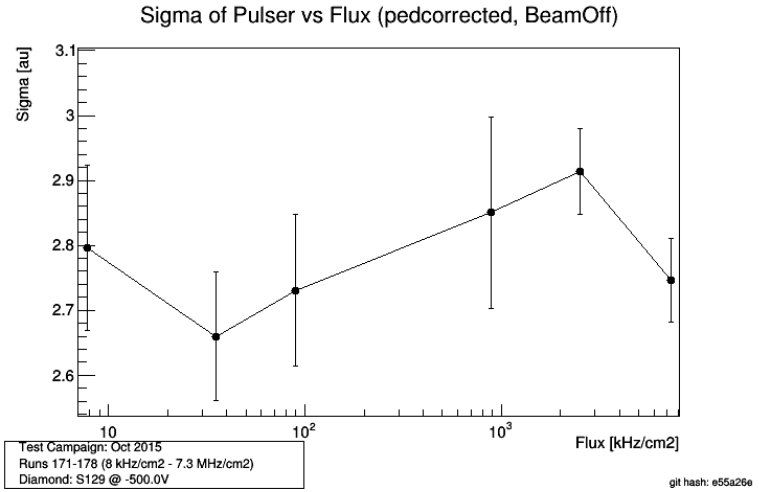

Mean of Pulser vs Flux (pedcorrected, BeamOff)
Mean [au]
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 171-178 (8 kHz/cm2 - 7.3 MHz/cm2)
Diamond: S129 @ -500.0V
git hash: e55a26e

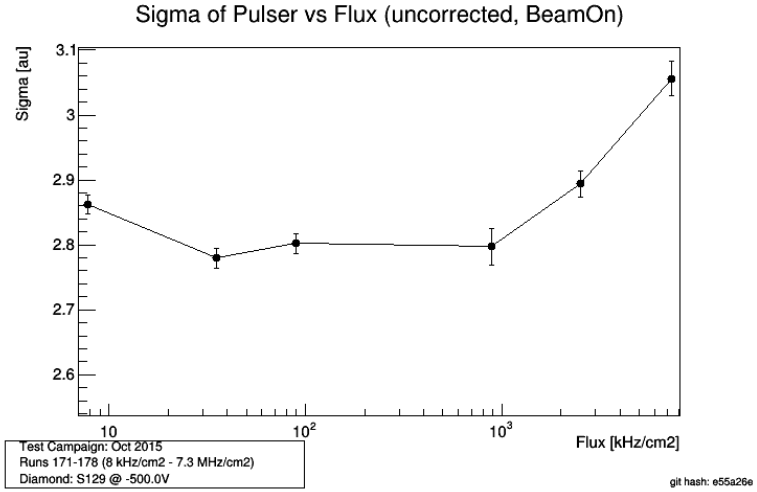

Mean of Pulser vs Flux (uncorrected, BeamOn)
Mean [au]
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 171-178 (8 kHz/cm2 - 7.3 MHz/cm2)
Diamond: S129 @ -500.0V
git hash: e55a26e

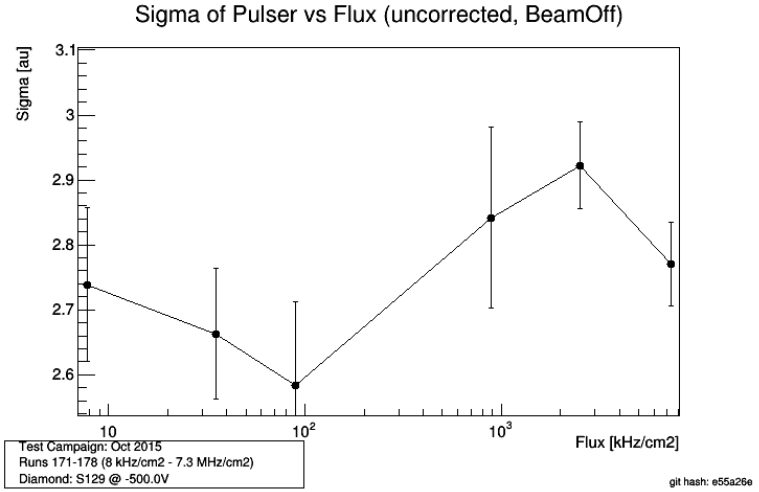

Mean of Pulser vs Flux (uncorrected, BeamOff)
Mean [au]
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 171-178 (8 kHz/cm2 - 7.3 MHz/cm2)
Diamond: S129 @ -500.0V
git hash: e55a26e

Rate Dependence

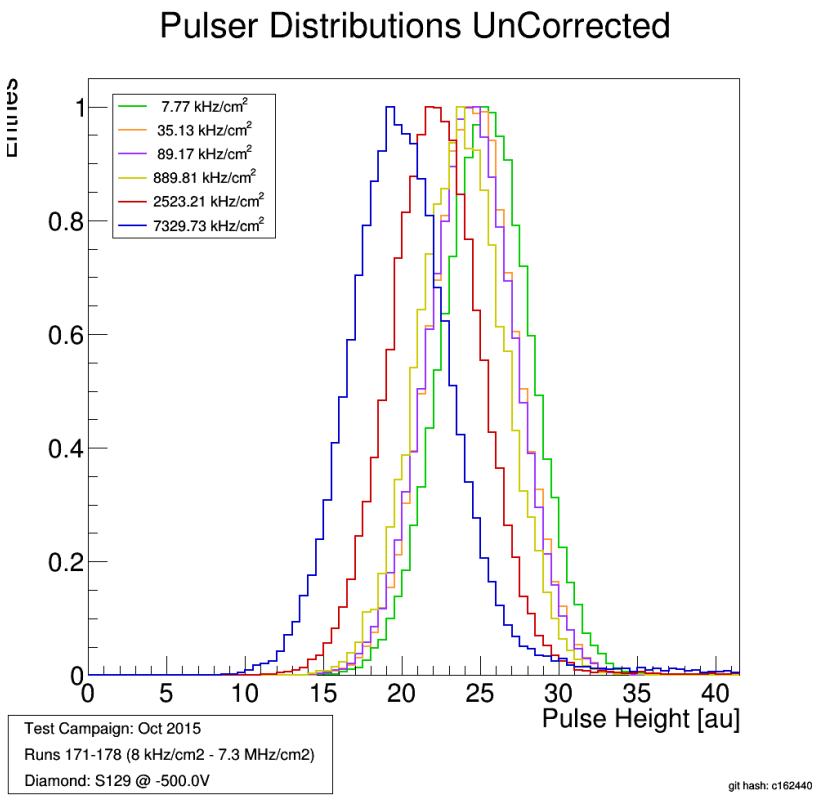


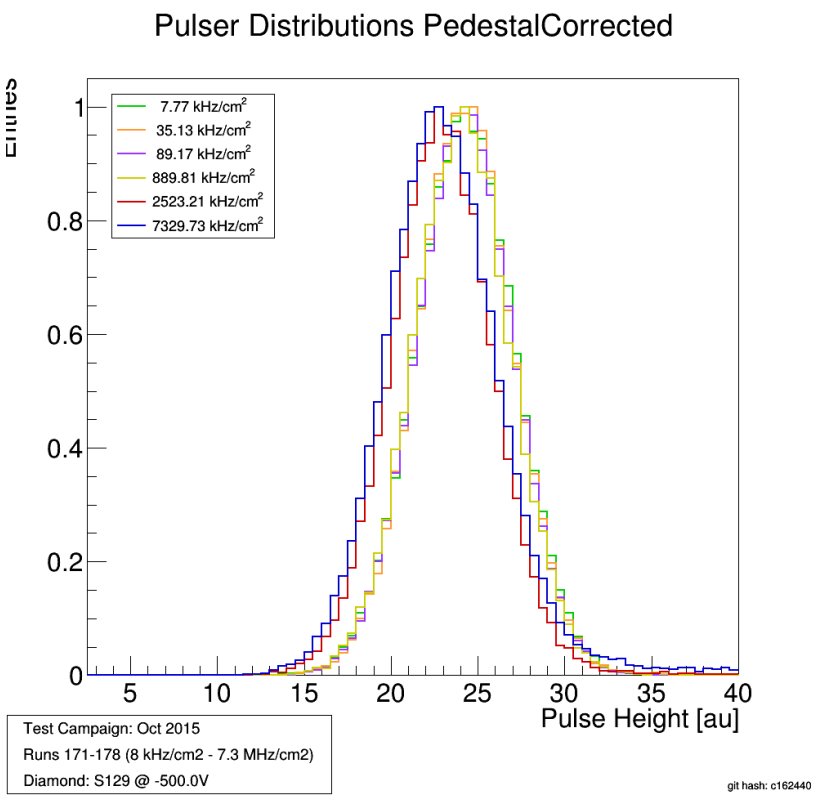




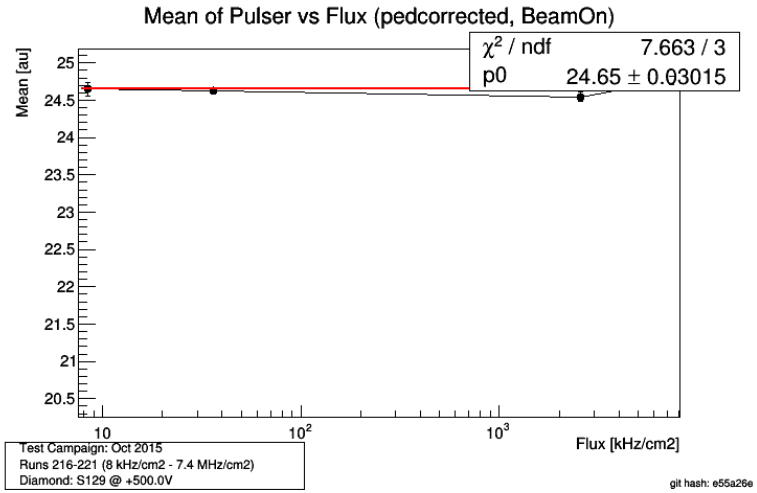


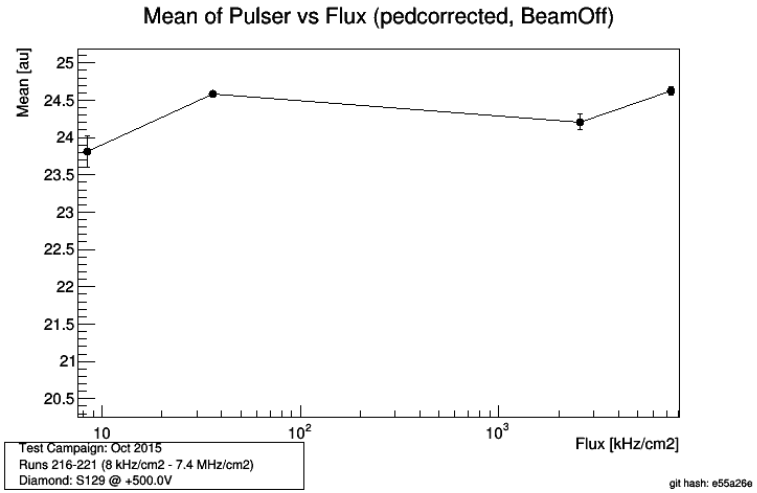
Histograms

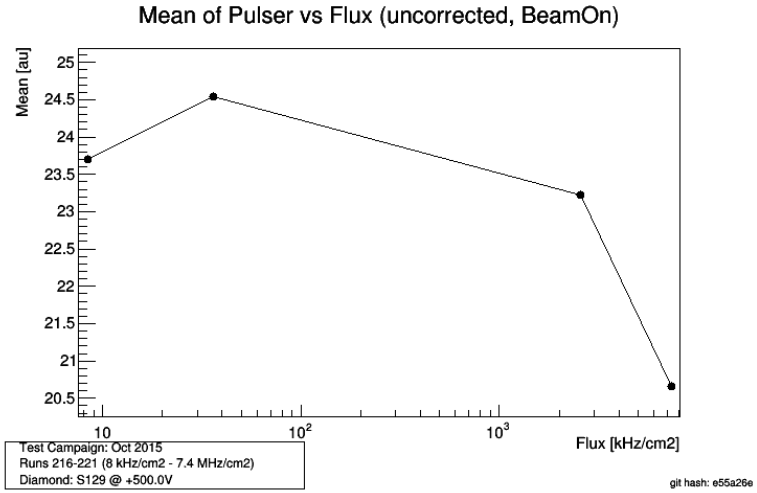

Pulser Distributions UnCorrected
Entries
7.77 kHz/cm²
35.13 kHz/cm²
89.17 kHz/cm²
889.81 kHz/cm²
2523.21 kHz/cm²
7329.73 kHz/cm²
0
0.2
0.4
0.6
0.8
1
0
5
10
15
20
25
30
35
40
Pulse Height [au]
Test Campaign: Oct 2015
Runs 171-178 (8 kHz/cm2 - 7.3 MHz/cm2)
Diamond: S129 @ -500.0V
git hash: c162440

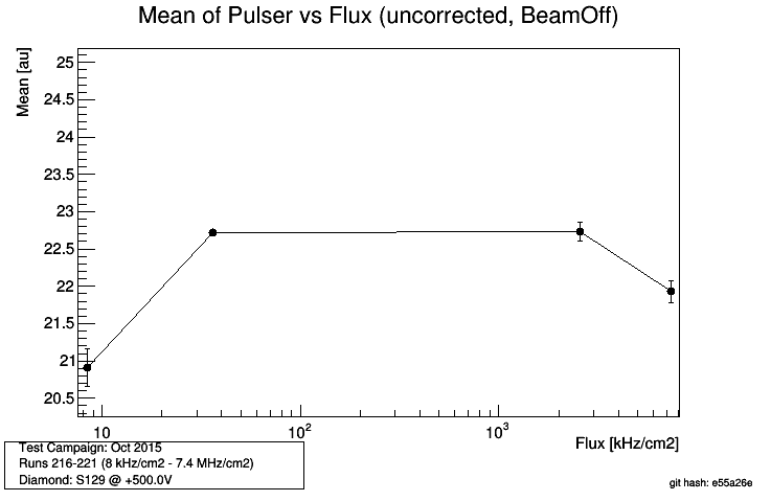

Pulser Distributions PedestalCorrected
Entries
7.77 kHz/cm²
35.13 kHz/cm²
89.17 kHz/cm²
889.81 kHz/cm²
2523.21 kHz/cm²
7329.73 kHz/cm²
0
0.2
0.4
0.6
0.8
1
5
10
15
20
25
30
35
40
Pulse Height [au]
Test Campaign: Oct 2015
Runs 171-178 (8 kHz/cm2 - 7.3 MHz/cm2)
Diamond: S129 @ -500.0V
git hash: c162440

S129 pos

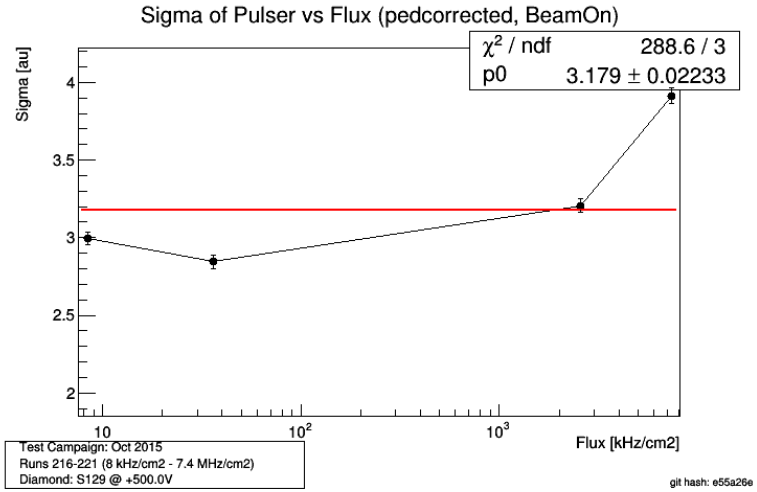

Mean of Pulser vs Flux (pedcorrected, BeamOn)
χ² / ndf 7.663 / 3
p0 24.65 ± 0.03015
Mean [au]
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 216-221 (8 kHz/cm2 - 7.4 MHz/cm2)
Diamond: S129 @ +500.0V
git hash: e55a26e

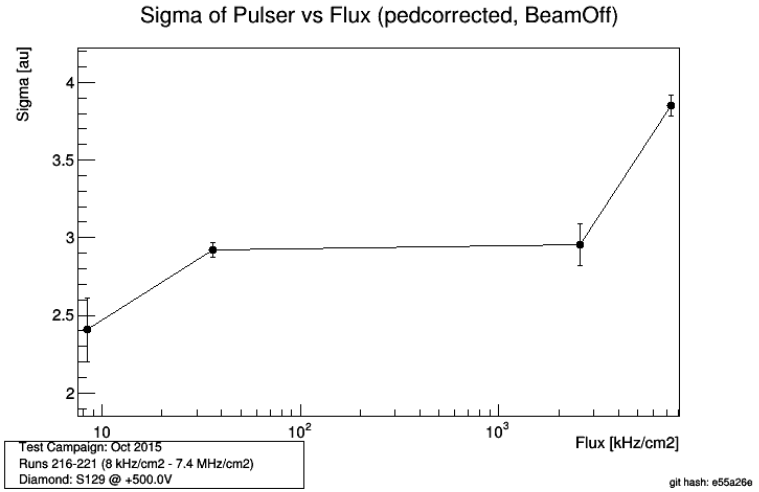

Mean of Pulser vs Flux (pedcorrected, BeamOff)
Mean [au]
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 216-221 (8 kHz/cm2 - 7.4 MHz/cm2)
Diamond: S129 @ +500.0V
git hash: e55a26e

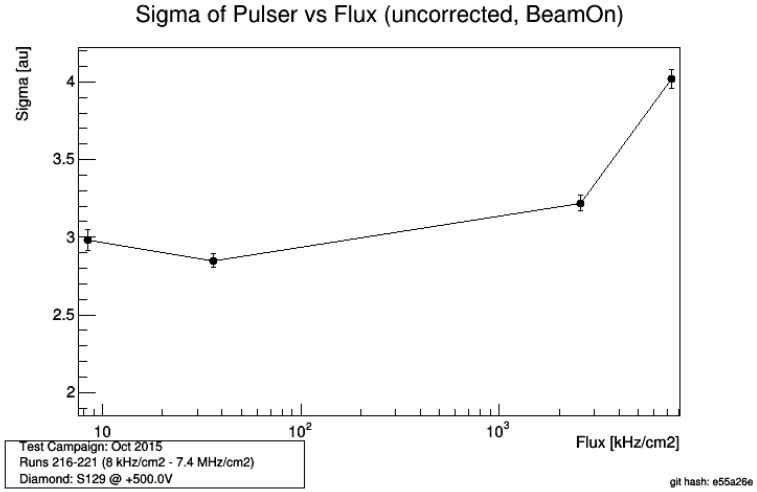

Mean of Pulser vs Flux (uncorrected, BeamOn)
Mean [au]
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 216-221 (8 kHz/cm2 - 7.4 MHz/cm2)
Diamond: S129 @ +500.0V
git hash: e55a26e

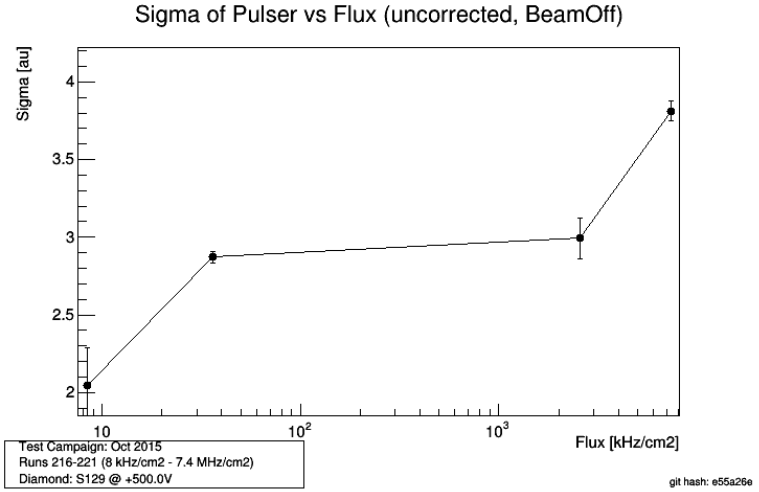

Mean of Pulser vs Flux (uncorrected, BeamOff)
Mean [au]
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 216-221 (8 kHz/cm2 - 7.4 MHz/cm2)
Diamond: S129 @ +500.0V
git hash: e55a26e

Rate Dependence

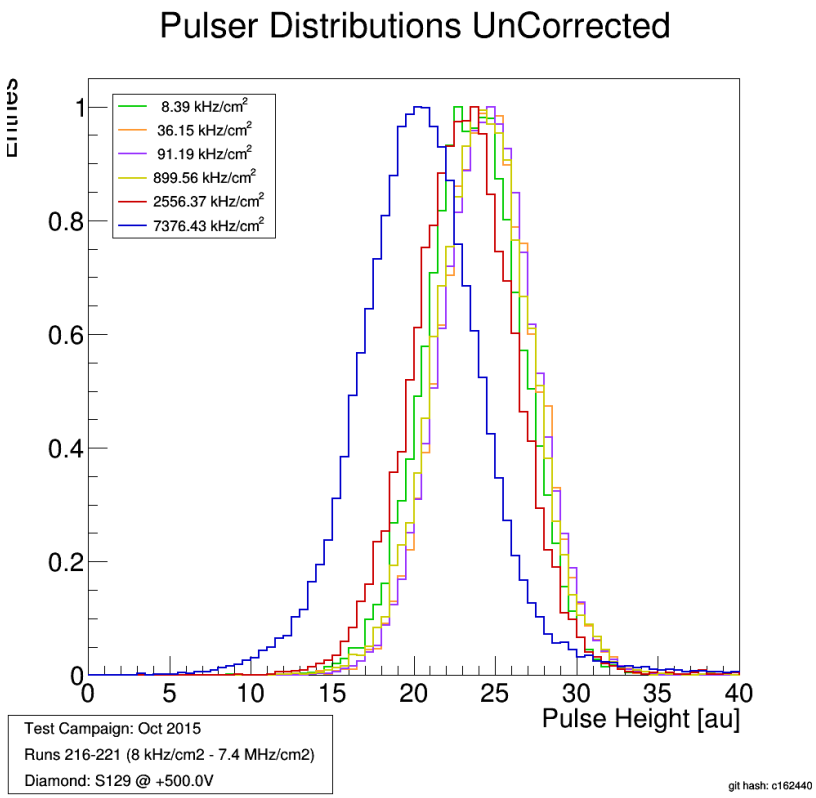


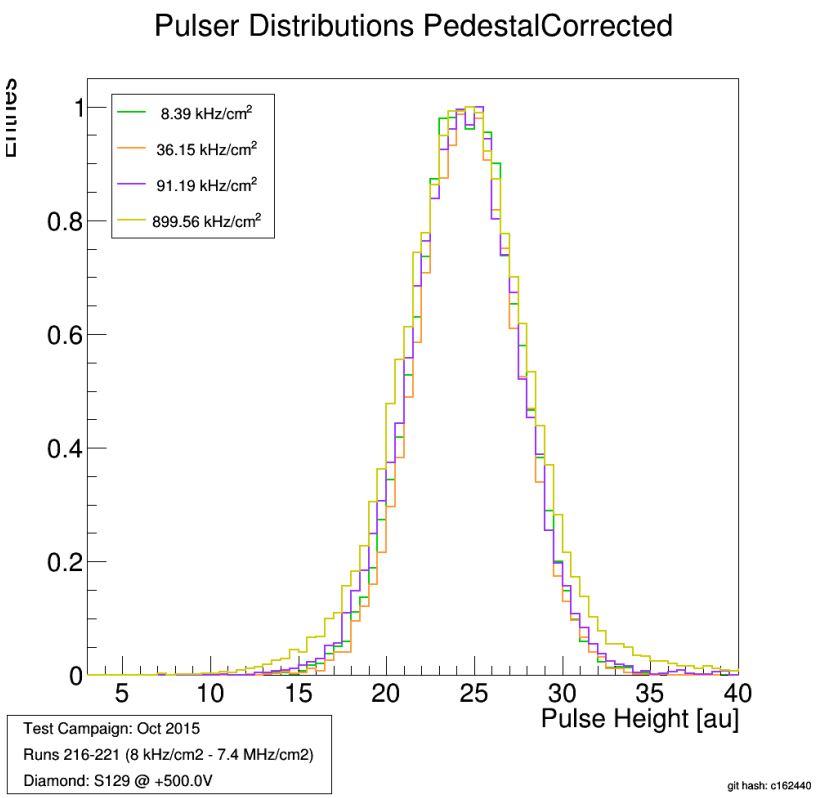




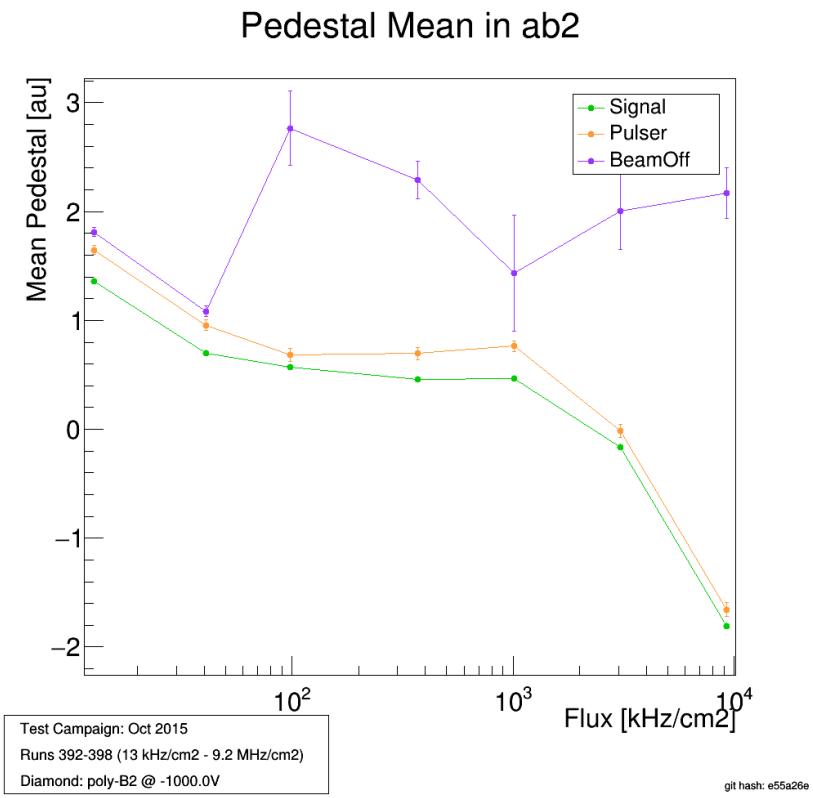


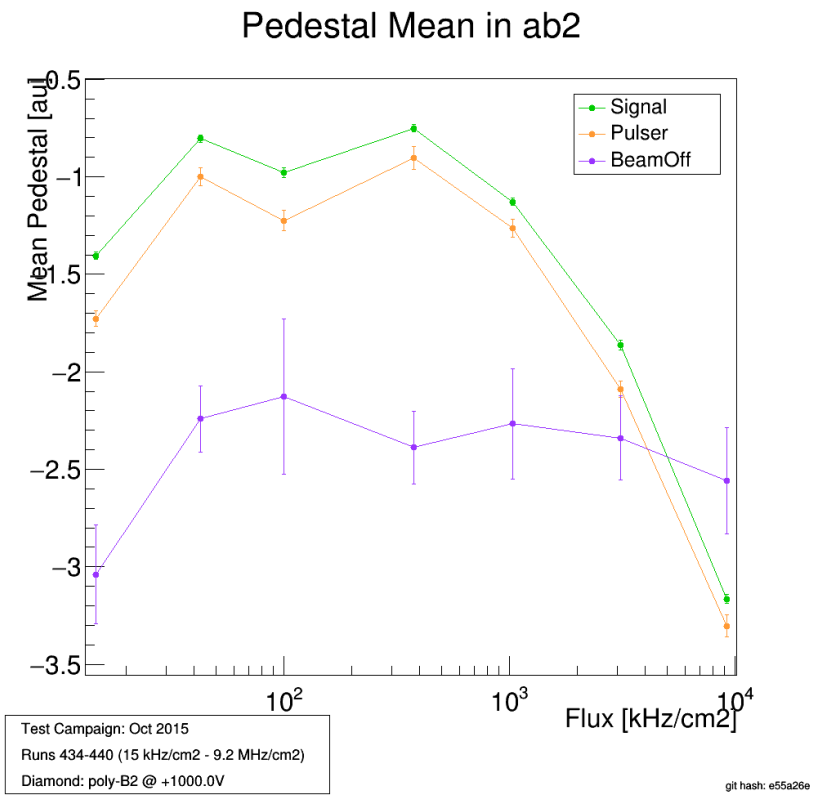
Histograms


Pulser Distributions UnCorrected
Entries
8.39 kHz/cm²
36.15 kHz/cm²
91.19 kHz/cm²
899.56 kHz/cm²
2556.37 kHz/cm²
7376.43 kHz/cm²
Pulse Height [au]
Test Campaign: Oct 2015
Runs 216-221 (8 kHz/cm2 - 7.4 MHz/cm2)
Diamond: S129 @ +500.0V
git hash: c162440

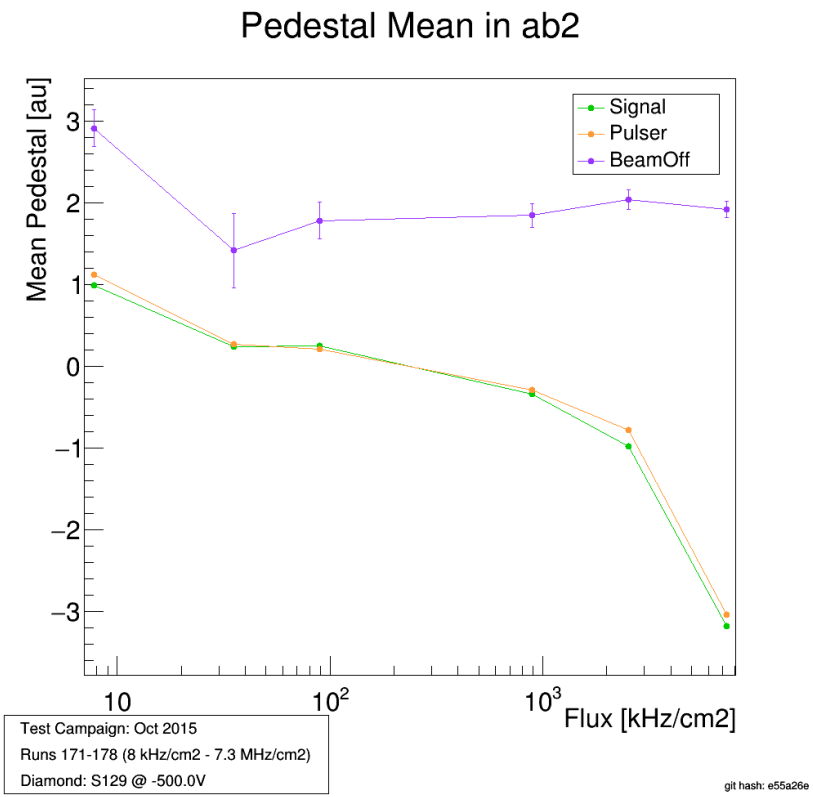

Pulser Distributions PedestalCorrected
Entries
8.39 kHz/cm²
36.15 kHz/cm²
91.19 kHz/cm²
899.56 kHz/cm²
Pulse Height [au]
Test Campaign: Oct 2015
Runs 216-221 (8 kHz/cm2 - 7.4 MHz/cm2)
Diamond: S129 @ +500.0V
git hash: c162440

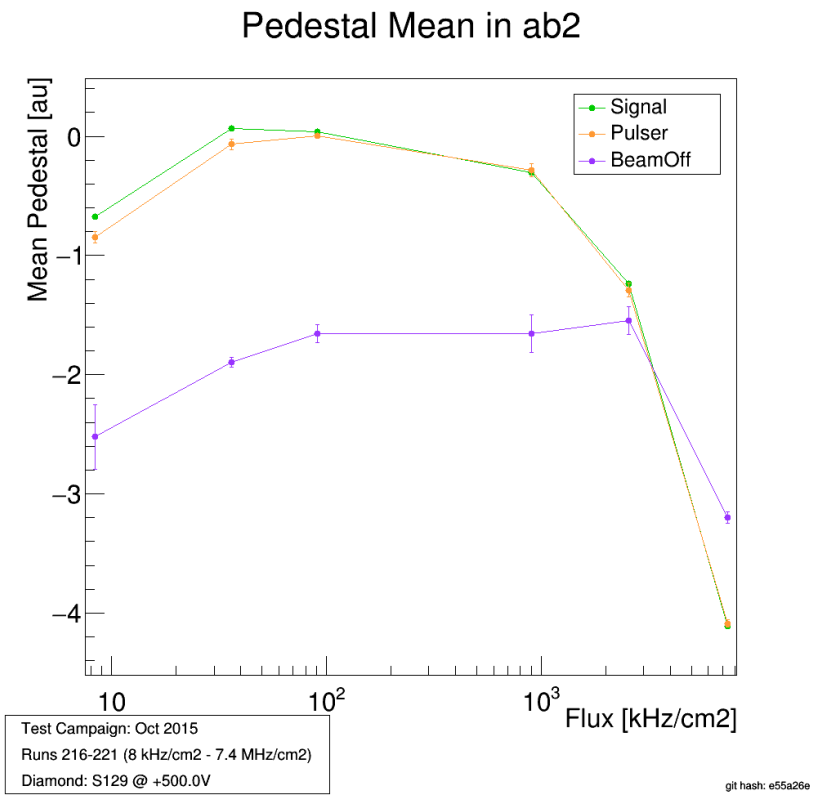
II6B2


Pedestal Mean in ab2
Mean Pedestal [au]
Flux [kHz/cm2]
Signal
Pulser
BeamOff
Test Campaign: Oct 2015
Runs 392-398 (13 kHz/cm2 - 9.2 MHz/cm2)
Diamond: poly-B2 @ -1000.0V
git hash: e55a26e

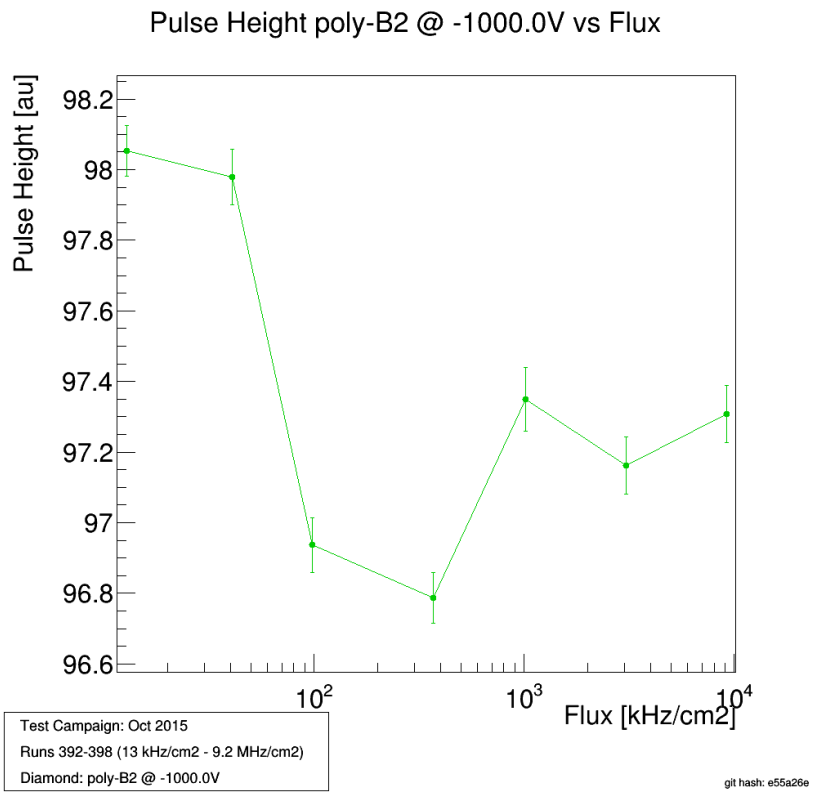

Pedestal Mean in ab2
Mean Pedestal [au]
Flux [kHz/cm2]
Signal
Pulser
BeamOff
Test Campaign: Oct 2015
Runs 434-440 (15 kHz/cm2 - 9.2 MHz/cm2)
Diamond: poly-B2 @ +1000.0V
git hash: e55a26e

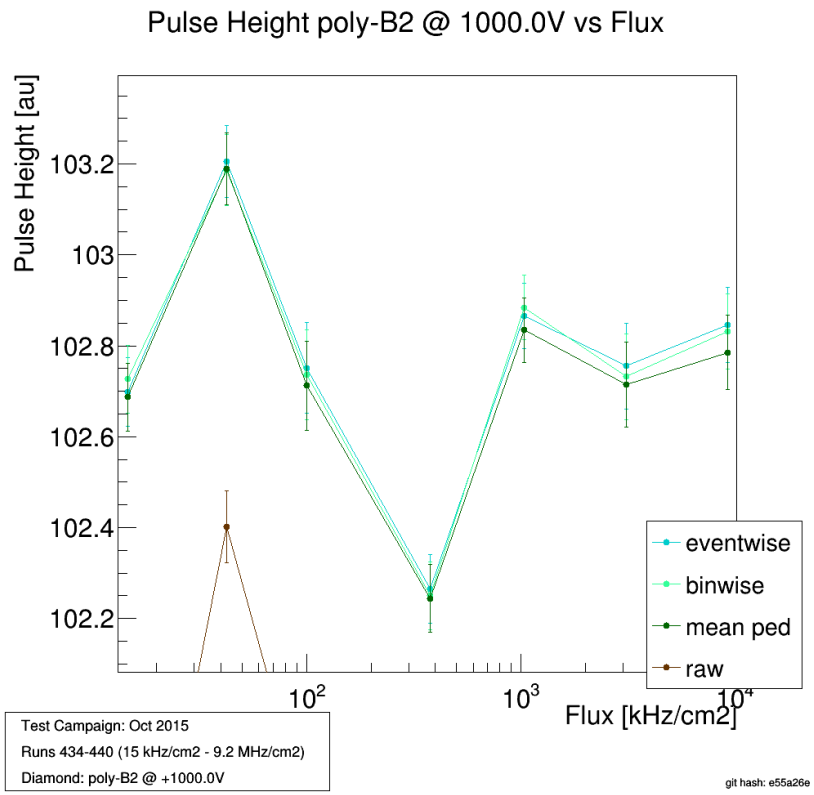
S129


Pedestal Mean in ab2
Mean Pedestal [au]
Signal
Pulser
BeamOff
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 171-178 (8 kHz/cm2 - 7.3 MHz/cm2)
Diamond: S129 @ -500.0V
git hash: e55a26e

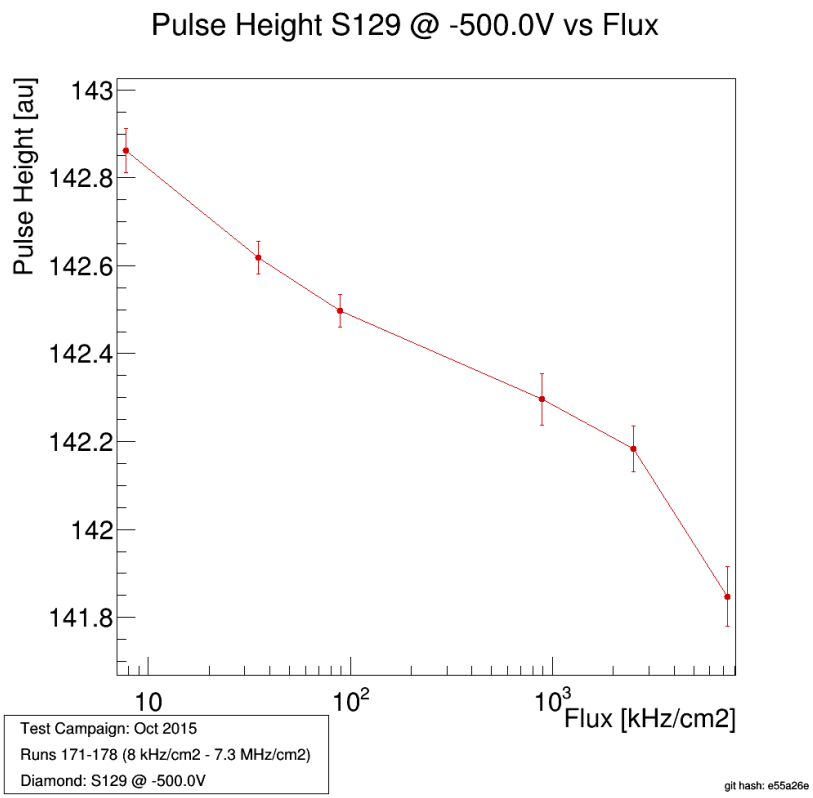

Pedestal Mean in ab2
Mean Pedestal [au]
Signal
Pulser
BeamOff
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 216-221 (8 kHz/cm2 - 7.4 MHz/cm2)
Diamond: S129 @ +500.0V
git hash: e55a26e

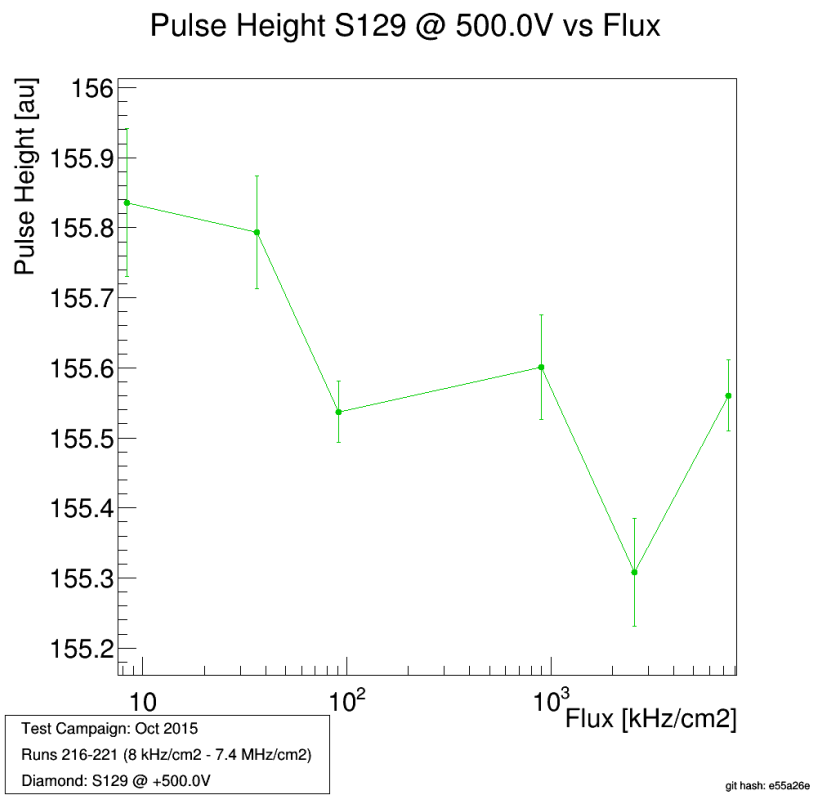
II6B2


Pulse Height poly-B2 @ -1000.0V vs Flux
Pulse Height [au]
98.2
98
97.8
97.6
97.4
97.2
97
96.8
96.6
10^2
10^3
10^4
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 392-398 (13 kHz/cm2 - 9.2 MHz/cm2)
Diamond: poly-B2 @ -1000.0V
git hash: e55a26e


Pulse Height poly-B2 @ 1000.0V vs Flux
Pulse Height [au]
103.2
103
102.8
102.6
102.4
102.2
10^2
10^3
10^4
Flux [kHz/cm2]
eventwise
binwise
mean ped
raw
Test Campaign: Oct 2015
Runs 434-440 (15 kHz/cm2 - 9.2 MHz/cm2)
Diamond: poly-B2 @ +1000.0V
git hash: e55a26e

II6B2


Pulse Height S129 @ -500.0V vs Flux
Pulse Height [au]
143
142.8
142.6
142.4
142.2
142
141.8
10
10^2
10^3
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 171-178 (8 kHz/cm2 - 7.3 MHz/cm2)
Diamond: S129 @ -500.0V
git hash: e55a26e


Pulse Height S129 @ 500.0V vs Flux
Pulse Height [au]
156
155.9
155.8
155.7
155.6
155.5
155.4
155.3
155.2
10
10^2
10^3
Flux [kHz/cm2]
Test Campaign: Oct 2015
Runs 216-221 (8 kHz/cm2 - 7.4 MHz/cm2)
Diamond: S129 @ +500.0V
git hash: e55a26e

Conclusion

- measurements with two different pulsers:
  - internal
  - external

- poly has wider distribution