Status Report #17

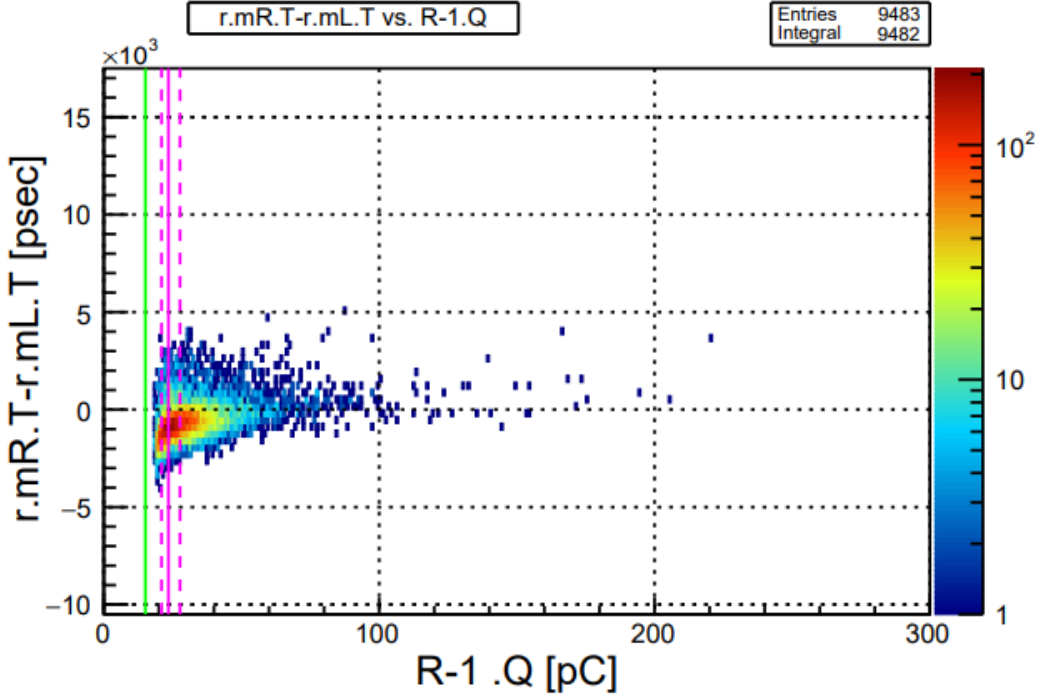
2020. 03. 04 (Wed)

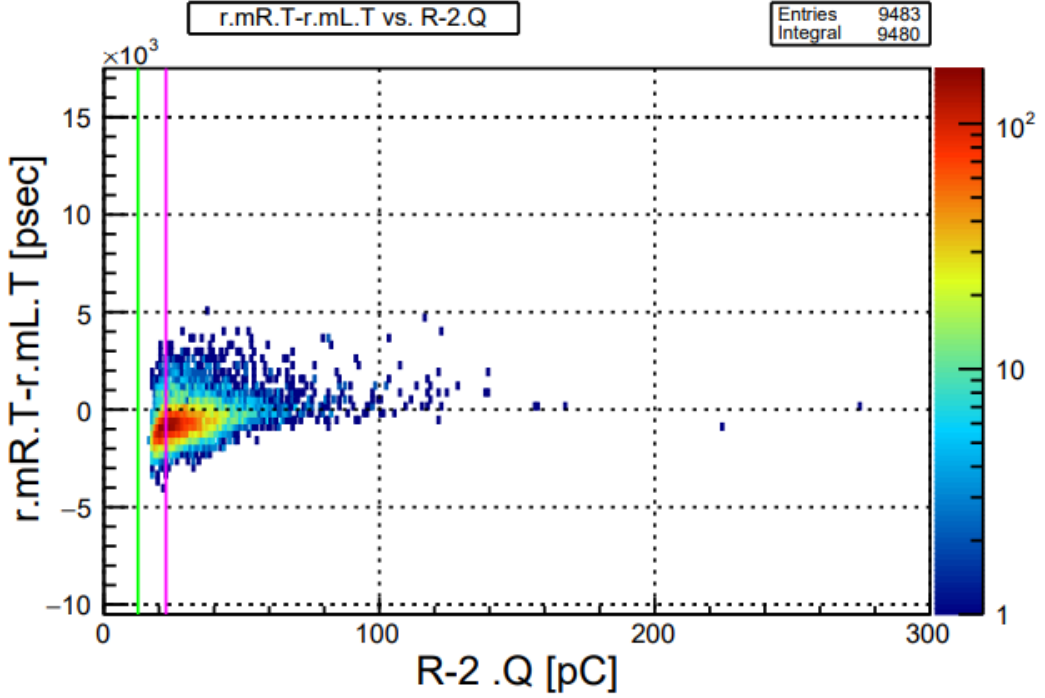
B4 FUJIWARA Tomomasa

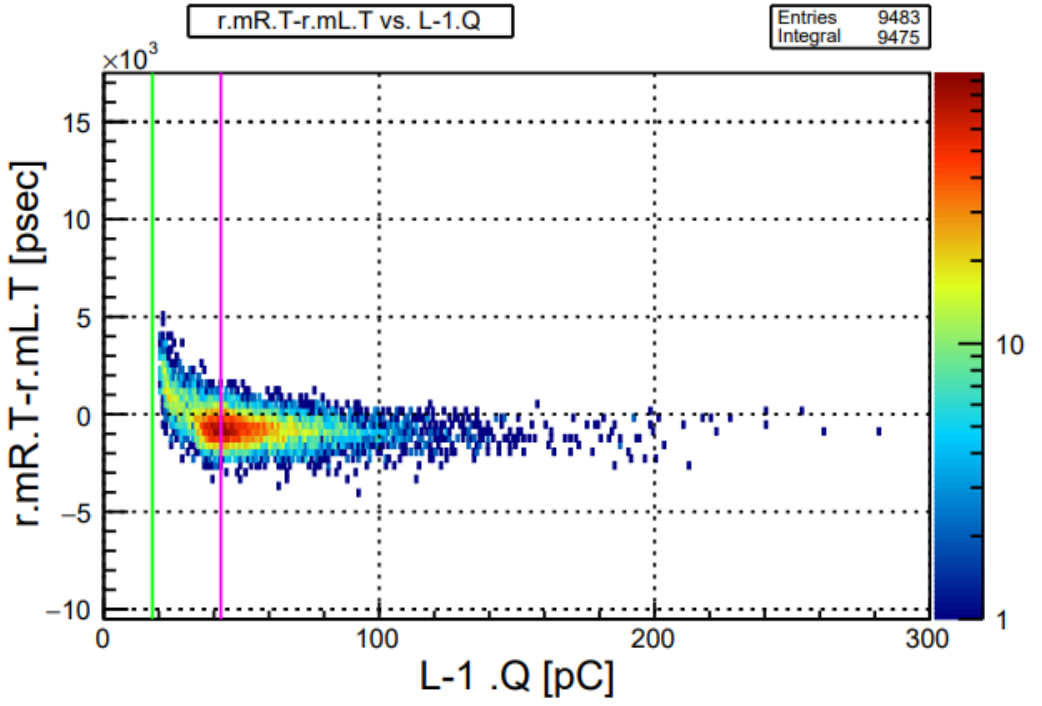
- B4 thesis presentation
- ToF cosmic: t = 5 mm, w = 11 mm study
  - Bias dependence: V_b = 41.7 V, 44.7 V, 47.7 V

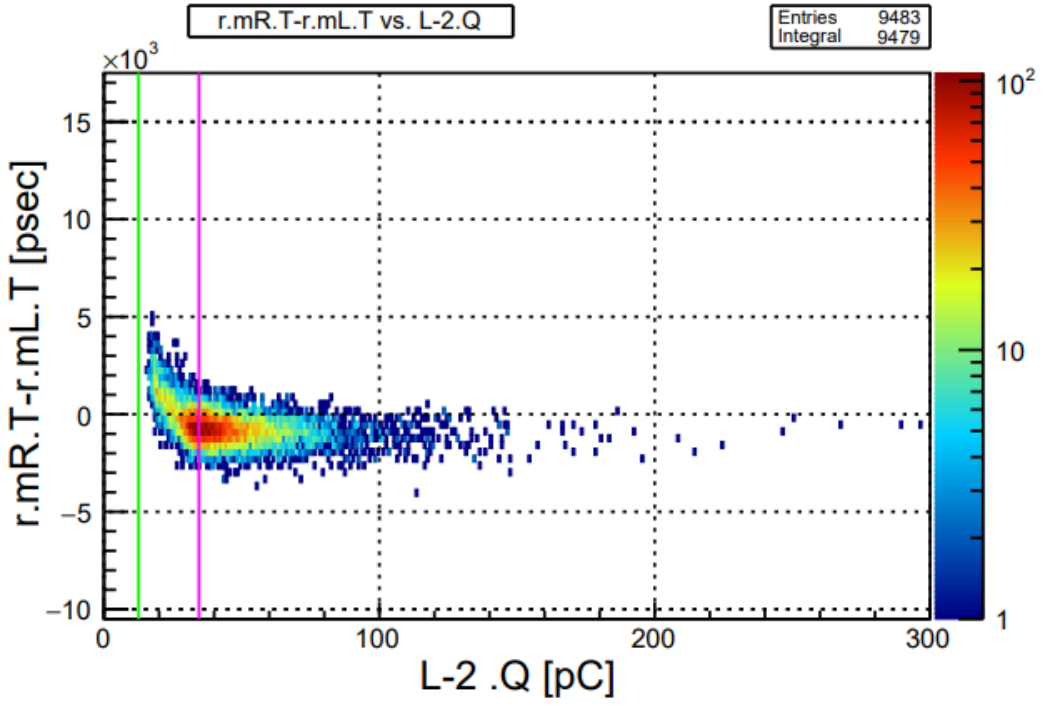
run061

Vb = 41.7 V
(Vop + 0.0 V)



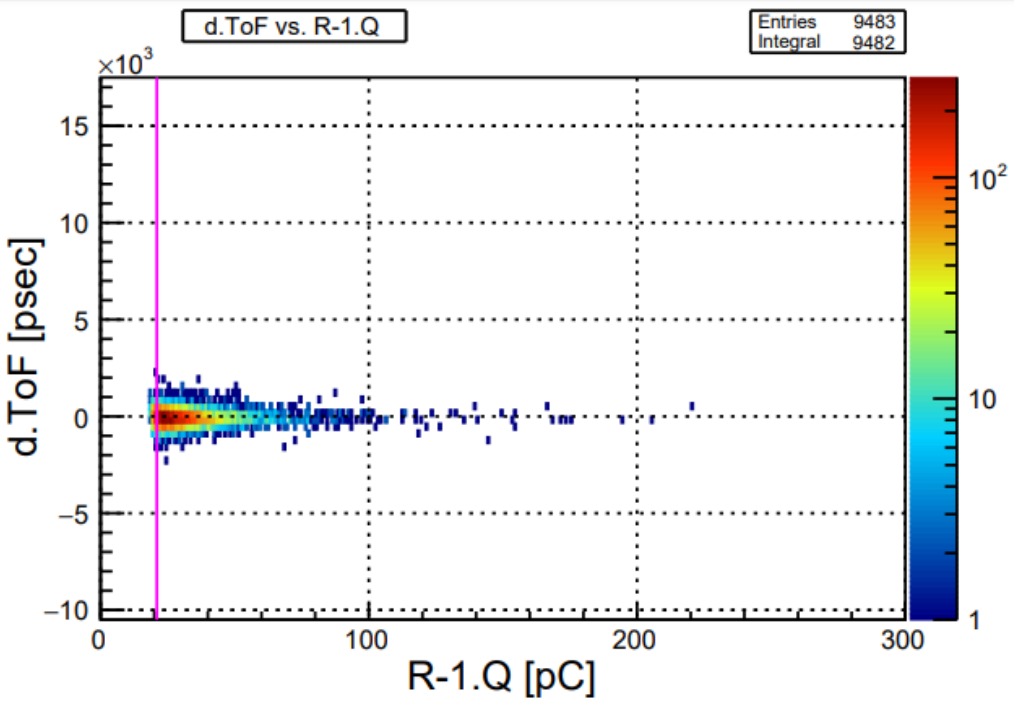


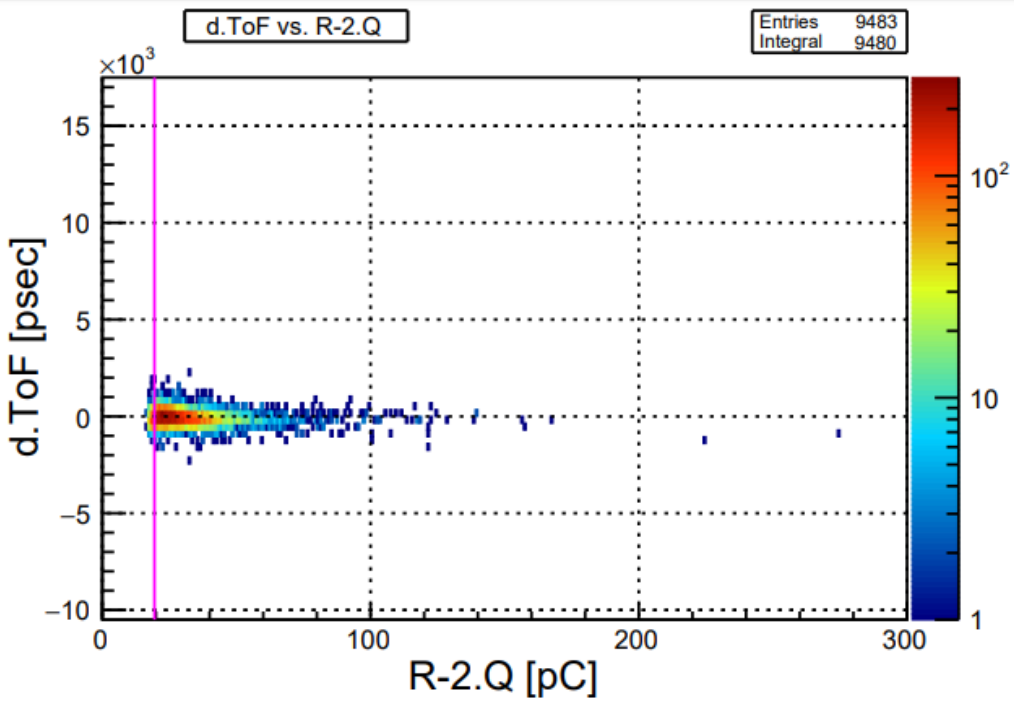


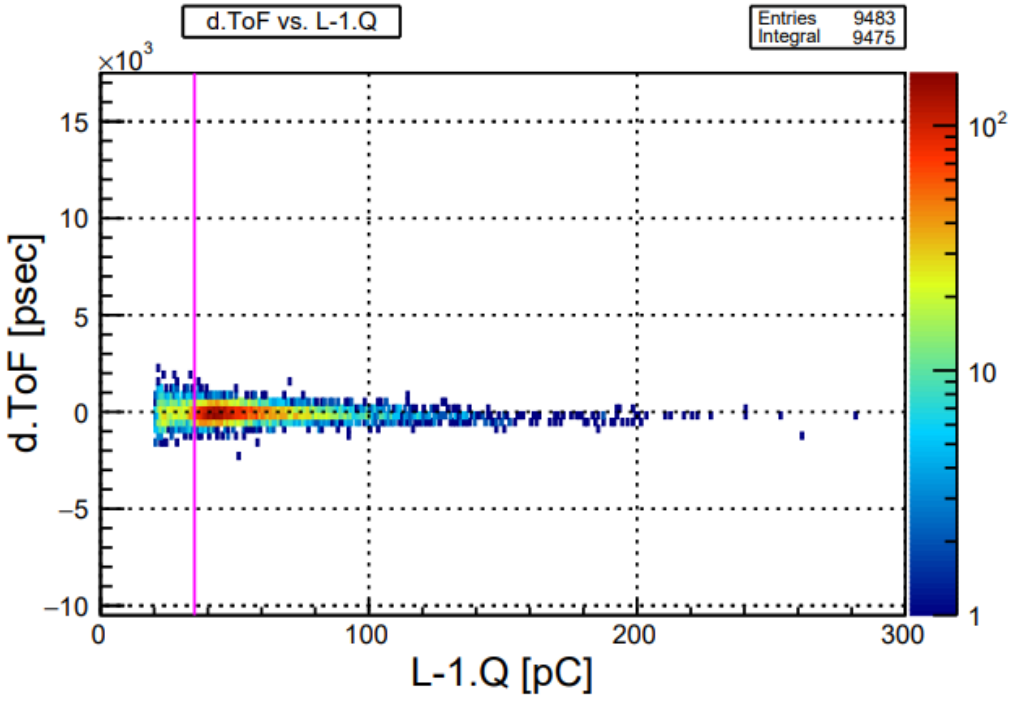


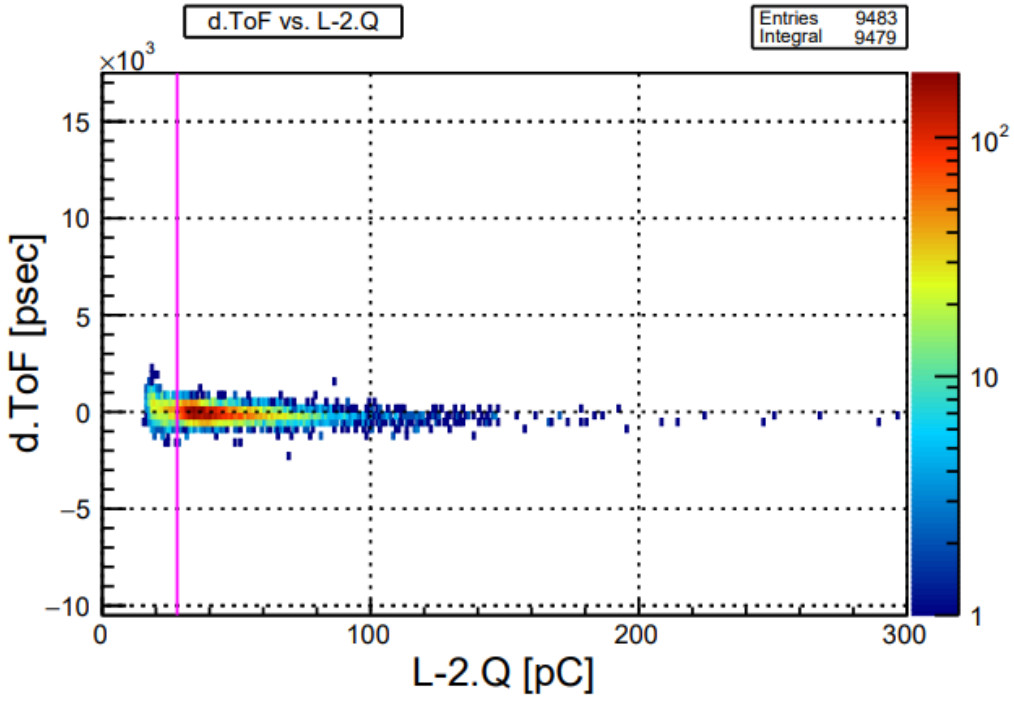
run061

Vb = 41.7 V
(Vop + 0.0 V)

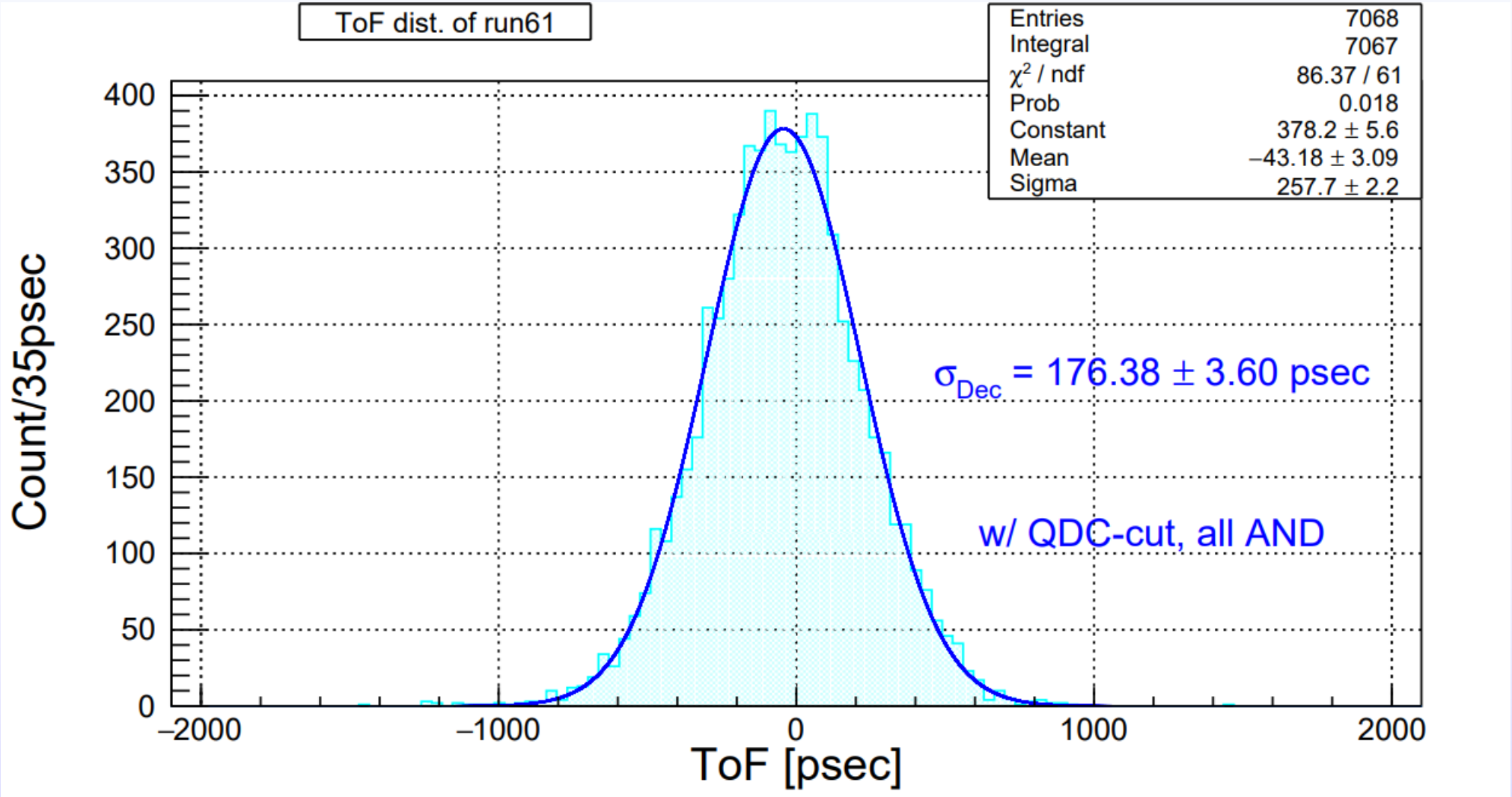






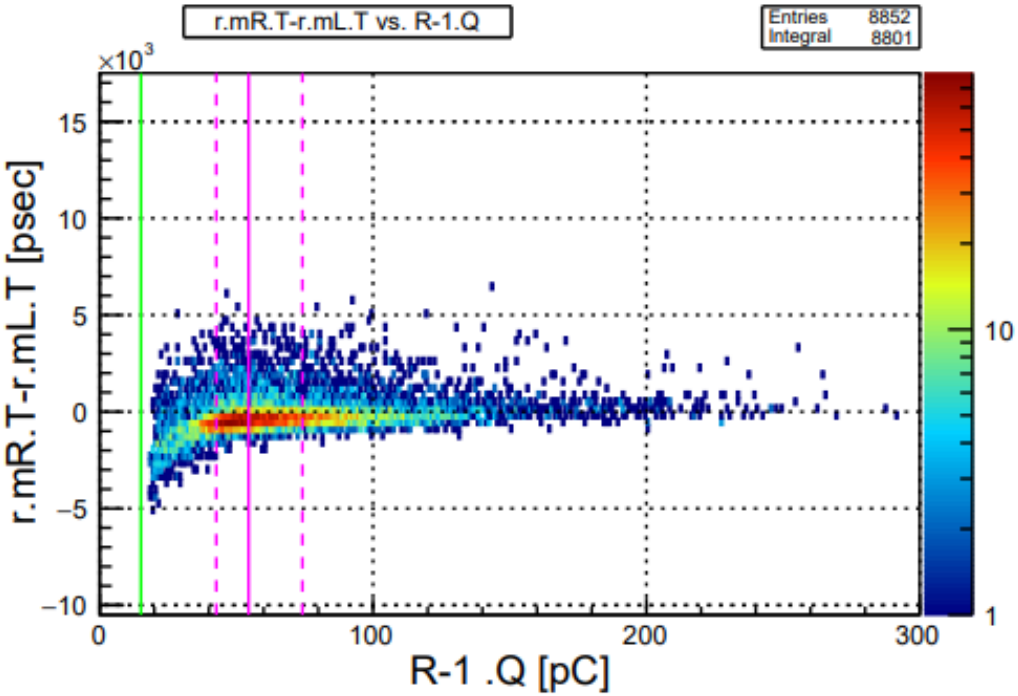


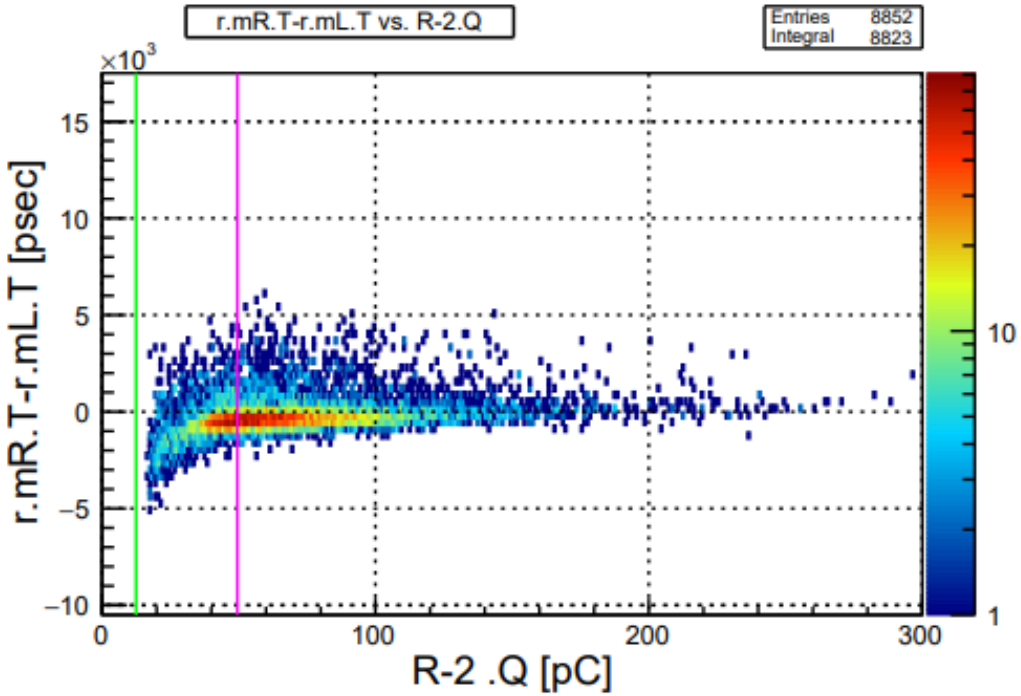
Vb = 41.7 V
(Vop + 0.0 V)

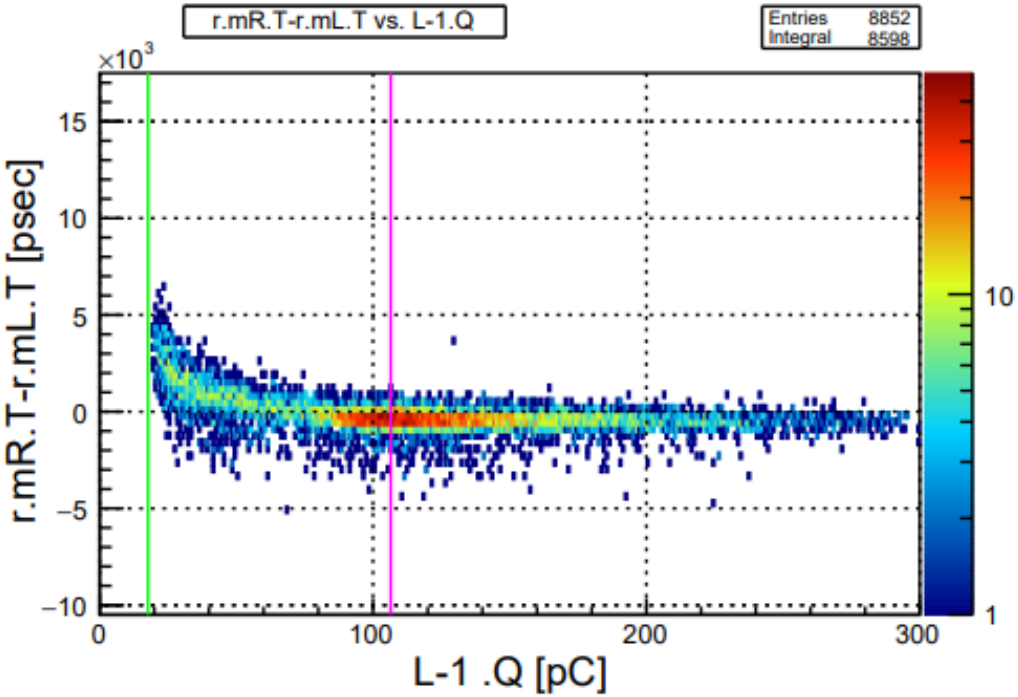


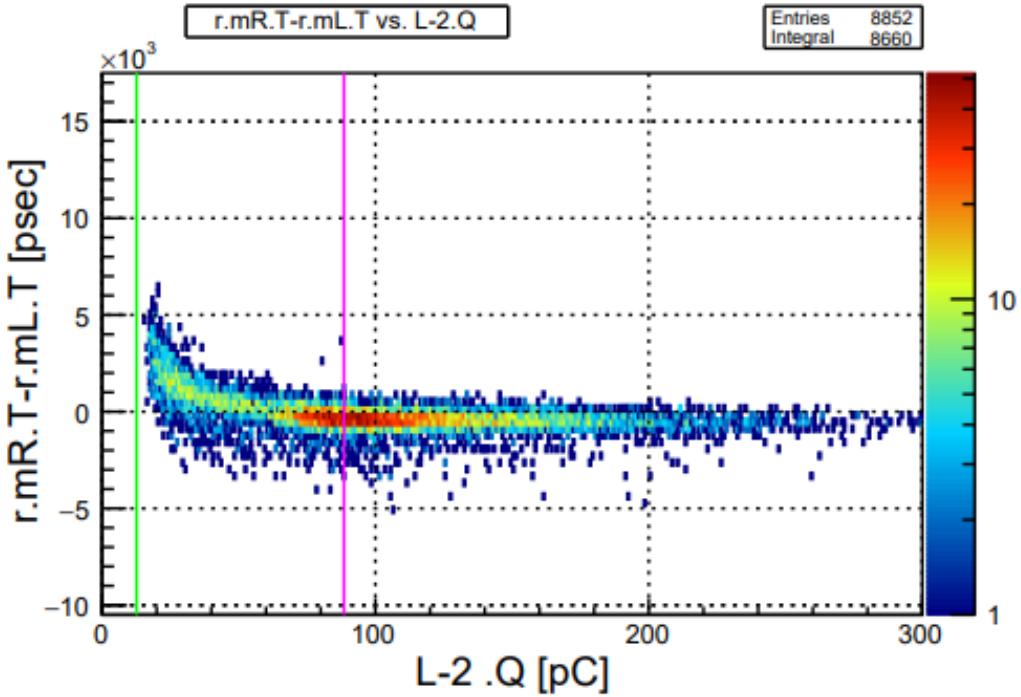
run063

Vb = 47.7 V
(Vop + 6.0 V)



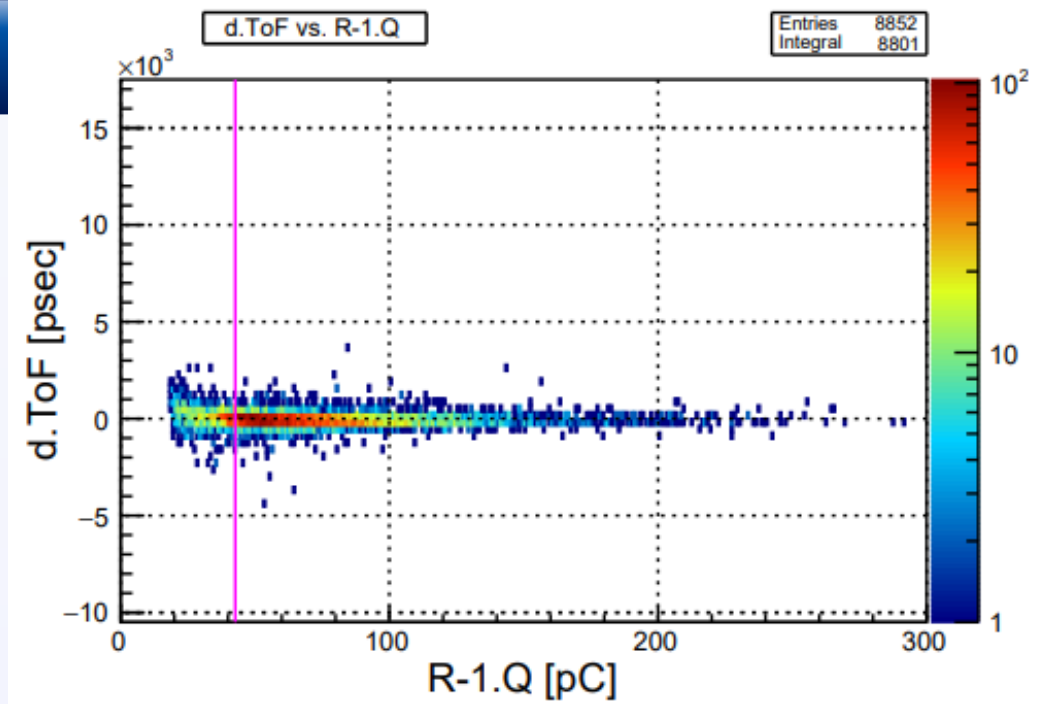


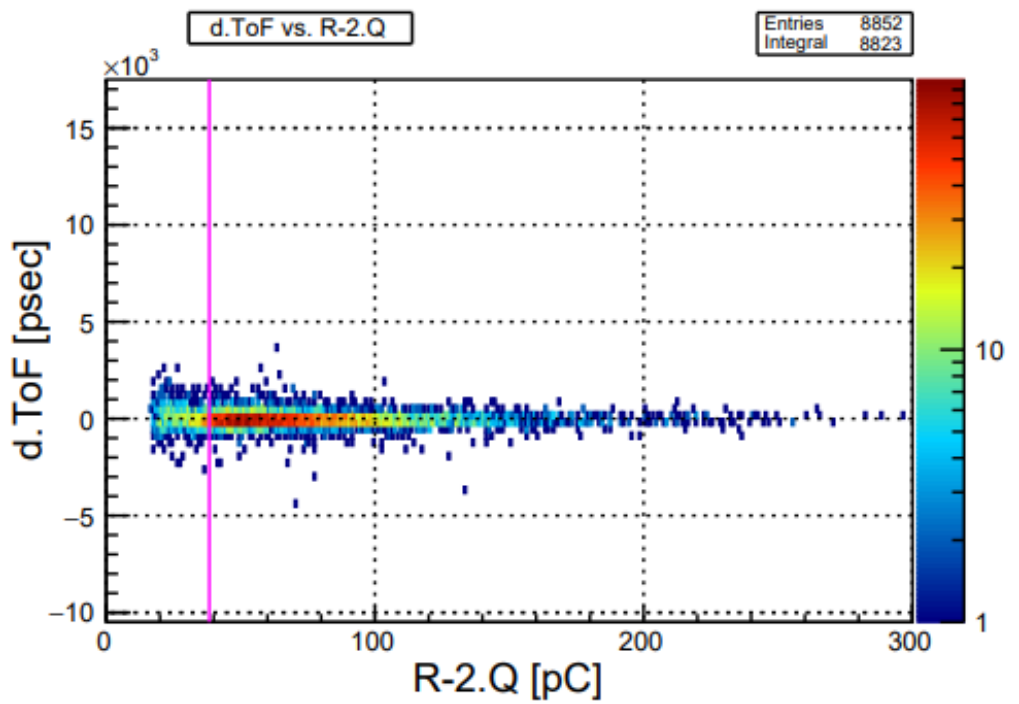


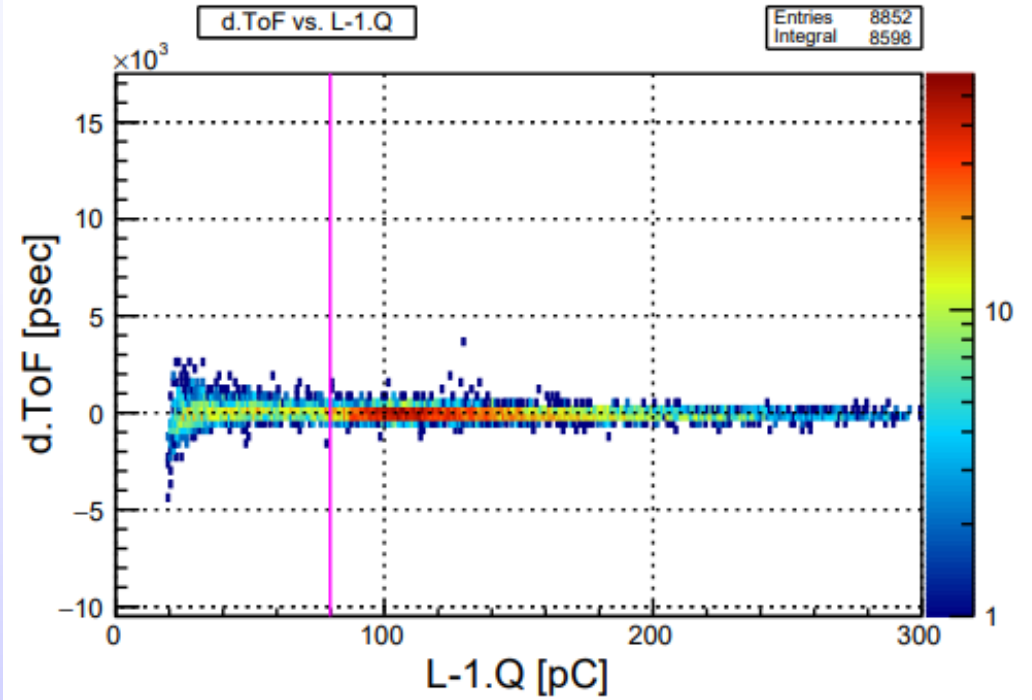


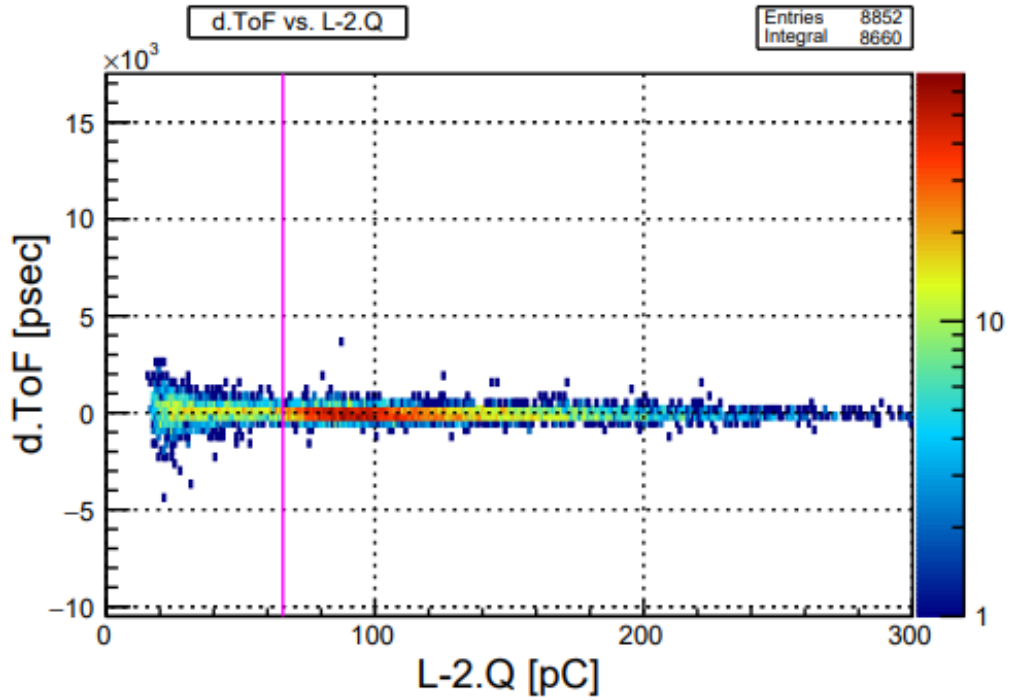
run063

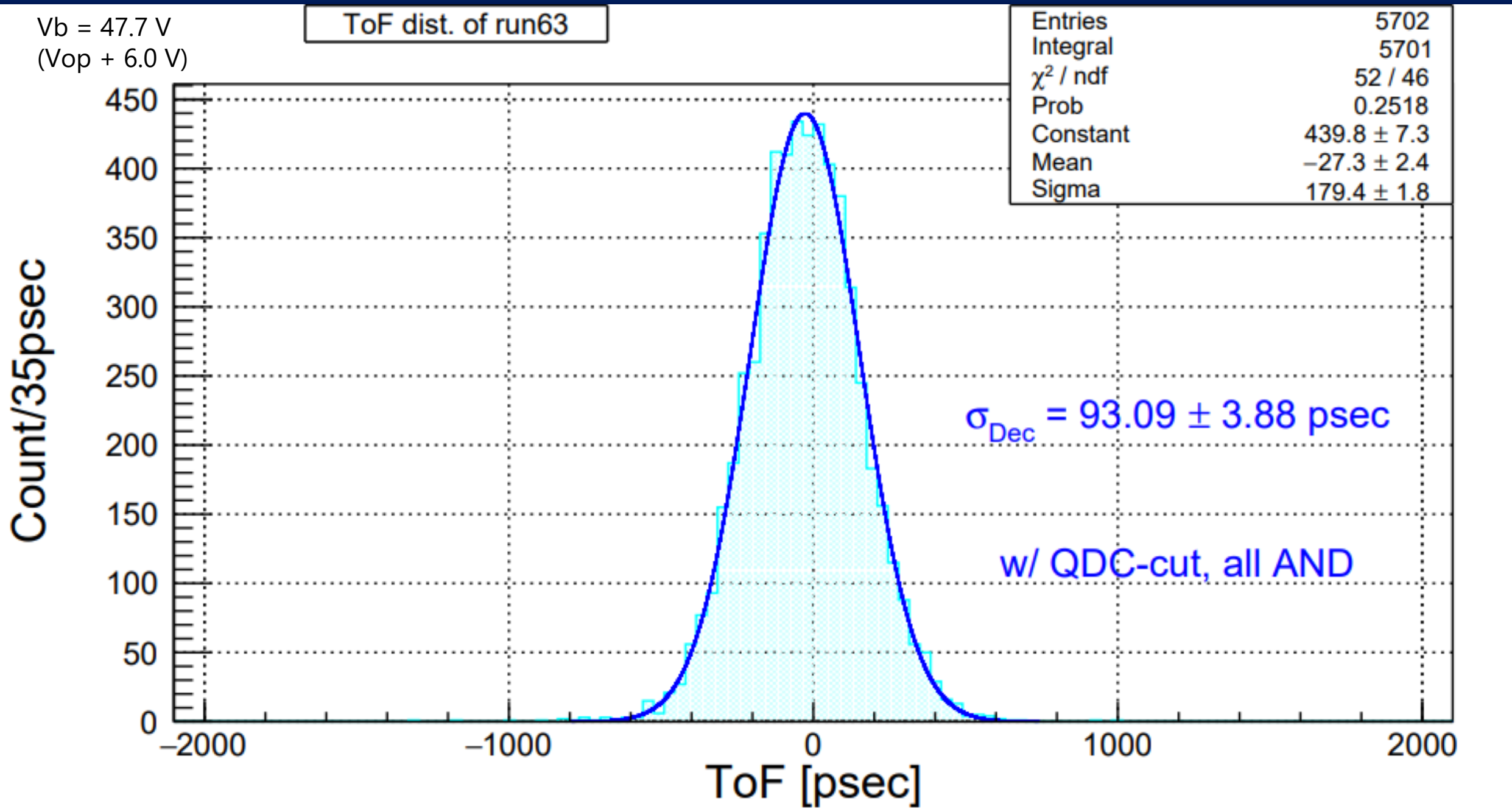
Vb = 47.7 V
(Vop + 6.0 V)







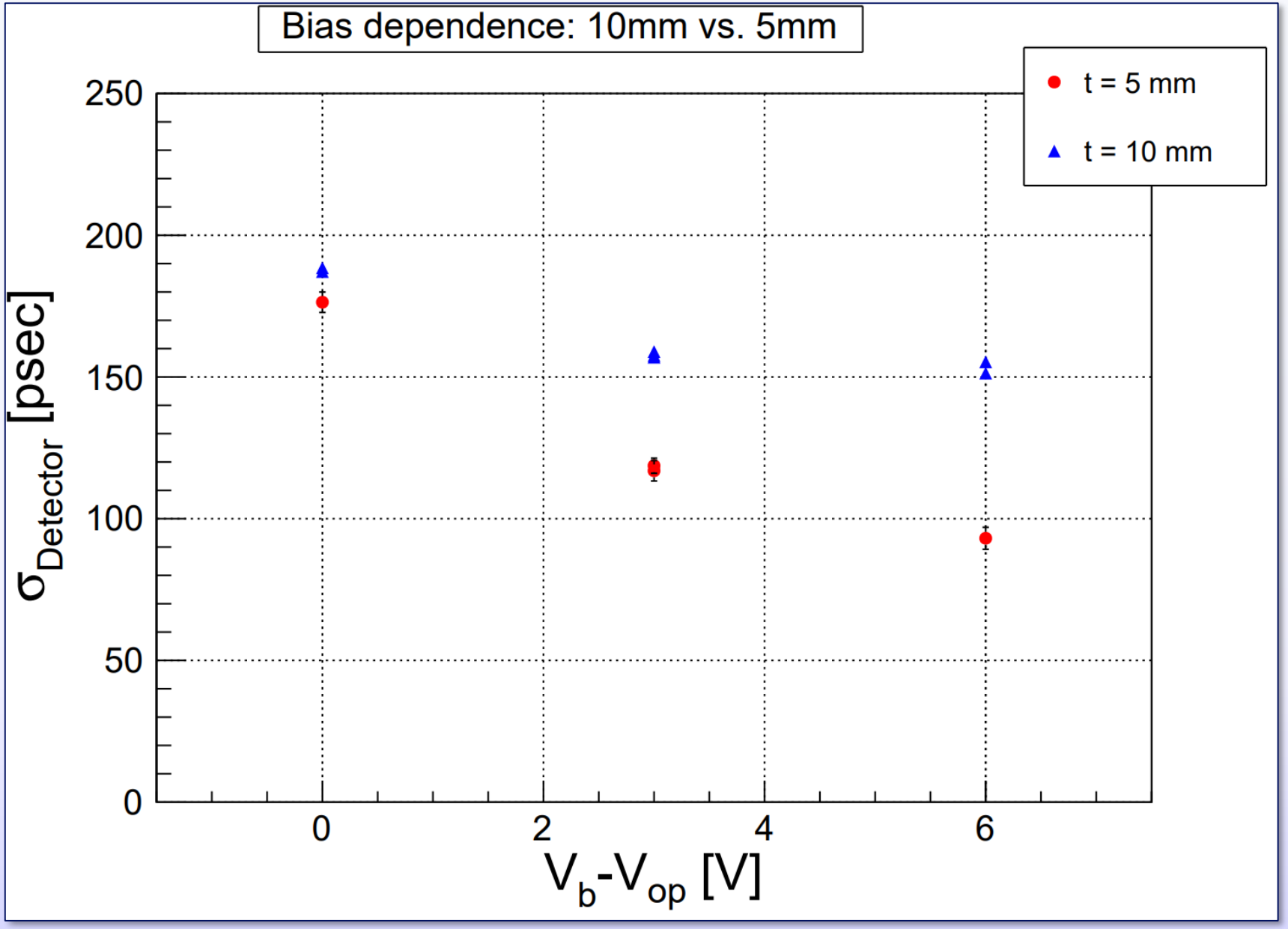



Vb = 47.7 V
(Vop + 6.0 V)
ToF dist. of run63
Entries 5702
Integral 5701
χ² / ndf 52 / 46
Prob 0.2518
Constant 439.8 ± 7.3
Mean −27.3 ± 2.4
Sigma 179.4 ± 1.8
σDec = 93.09 ± 3.88 psec
w/ QDC-cut, all AND
Count/35psec
ToF [psec]
450
400
350
300
250
200
150
100
50
0
−2000
−1000
0
1000
2000

ToF cosmic: Bias dependence

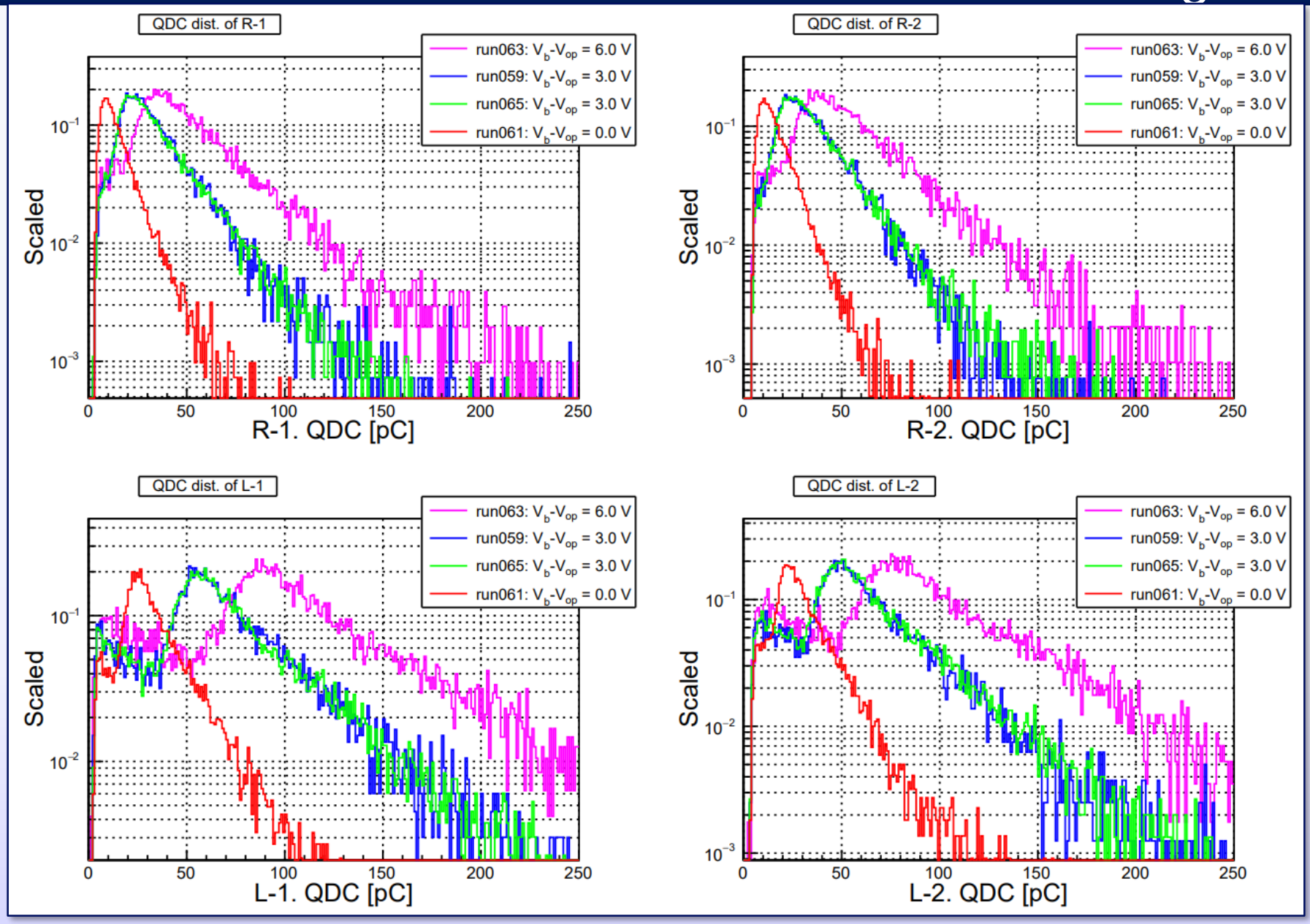
- ToF R: t = 5 mm, w = 11 mm
- ToF L: t = 10 mm, w = 10 mm

- V_b-V_{op} [V] = 0.0, +3.0, +6.0



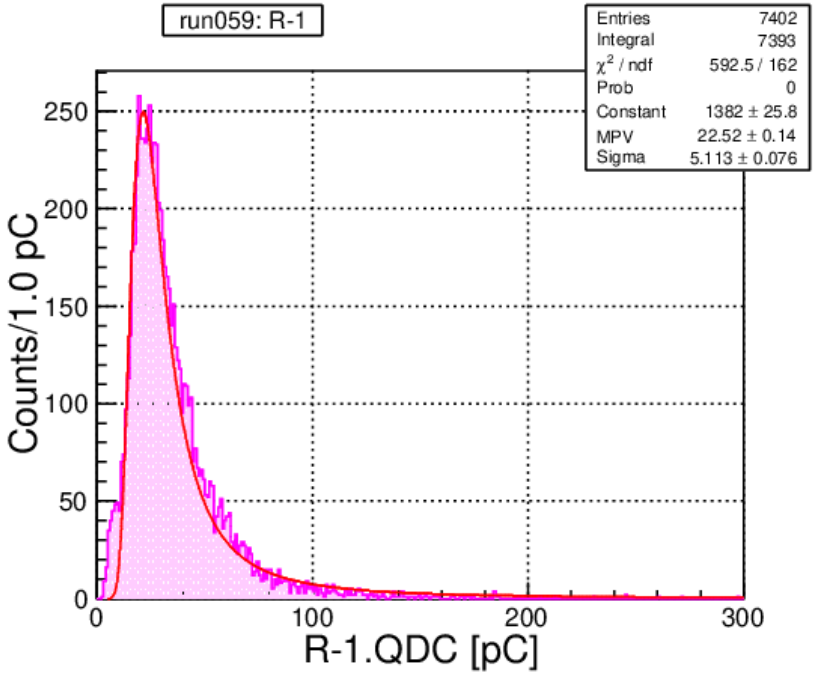
QDC distribution

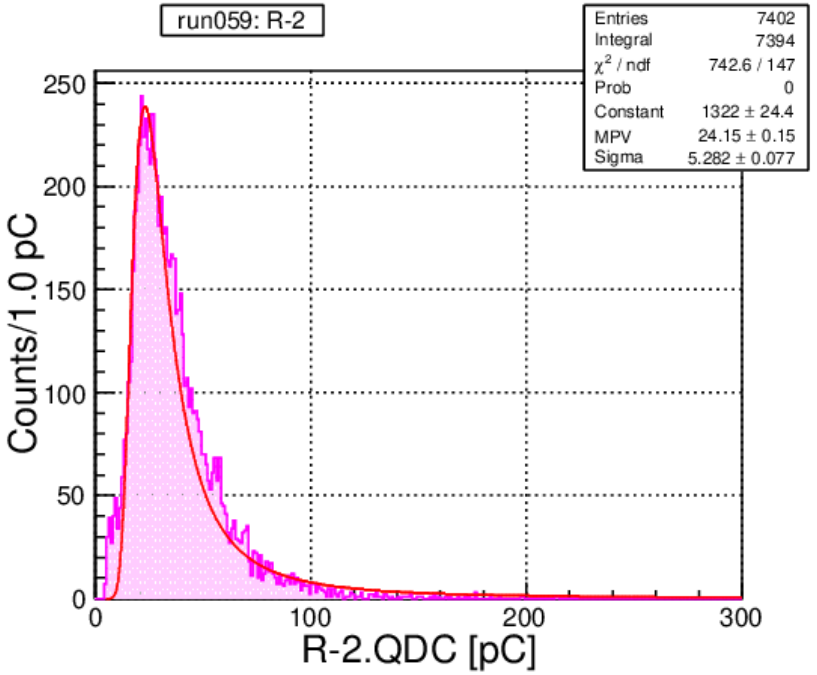
- Calibrated by pedestal = 0 pC

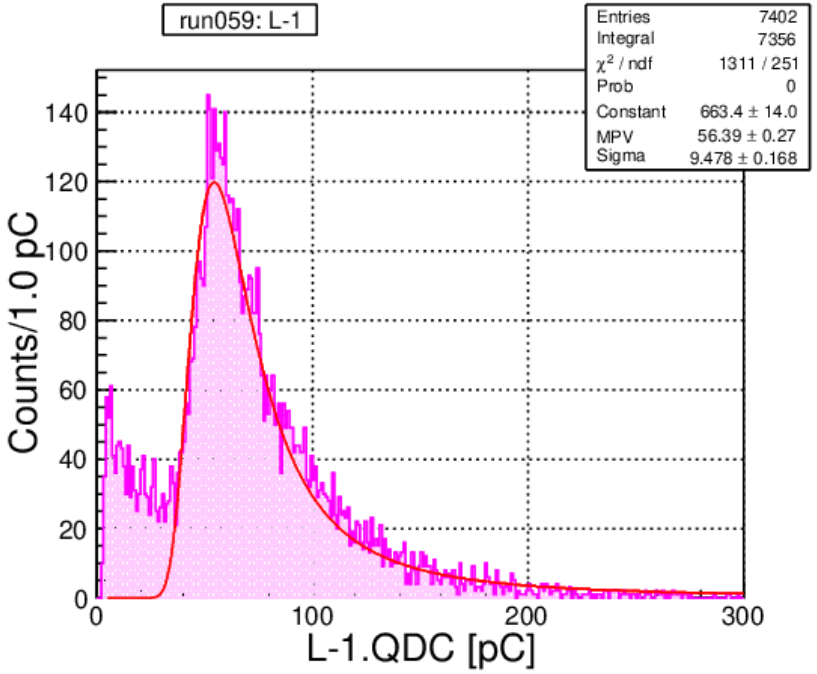


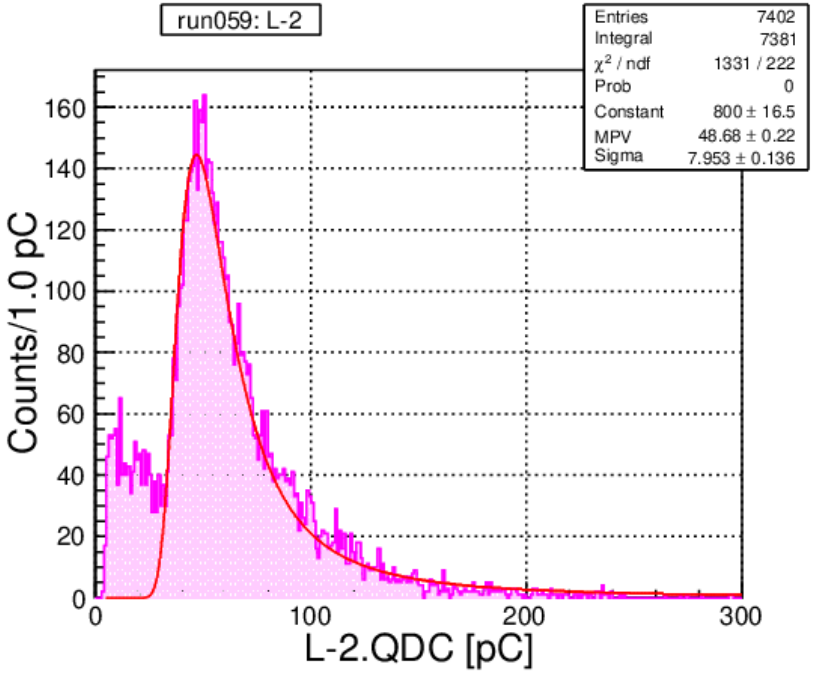
QDC distribution

Vb = 44.7 V
(Vop + 3.0 V)





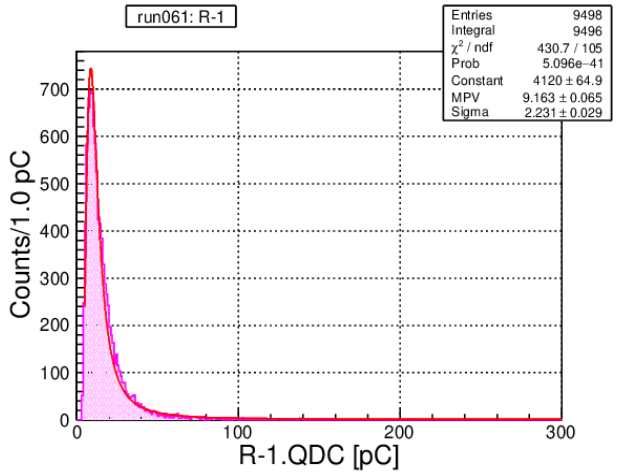


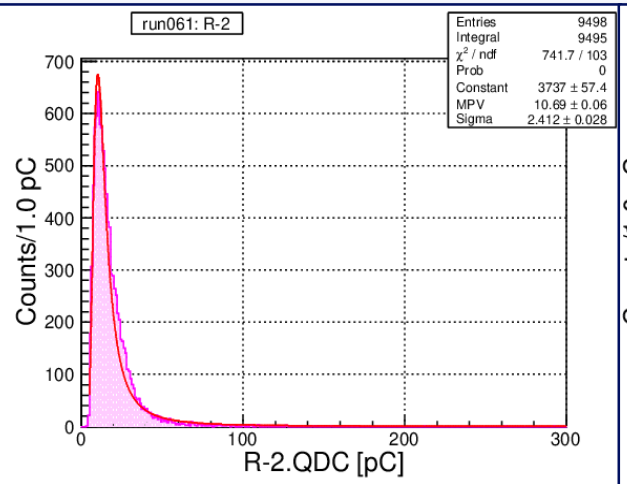


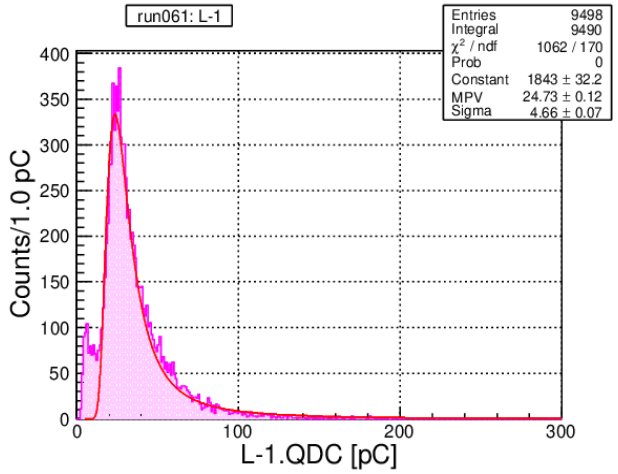
QDC distribution

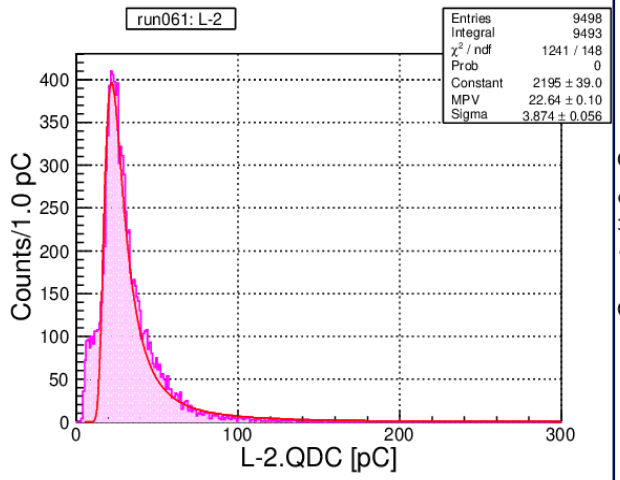
Vb = 41.7 V (Vop + 0.0 V)

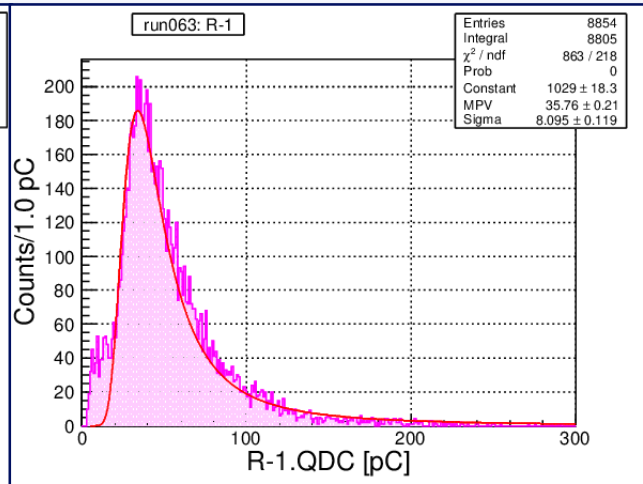
Vb = 47.7 V (Vop + 6.0 V)

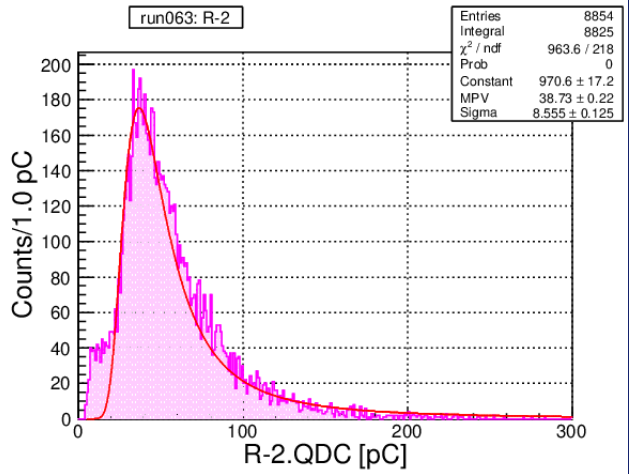


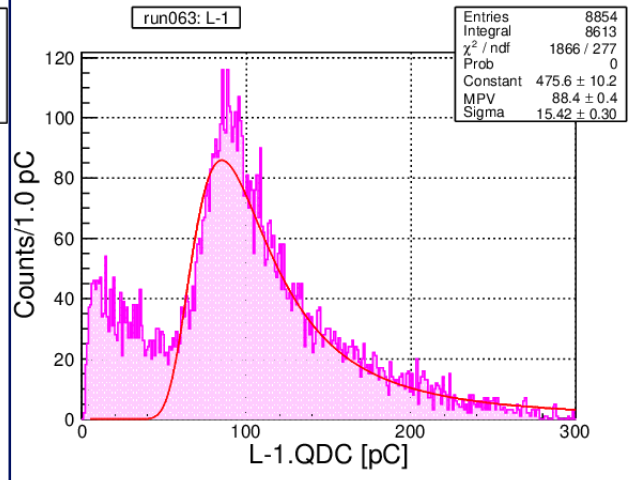


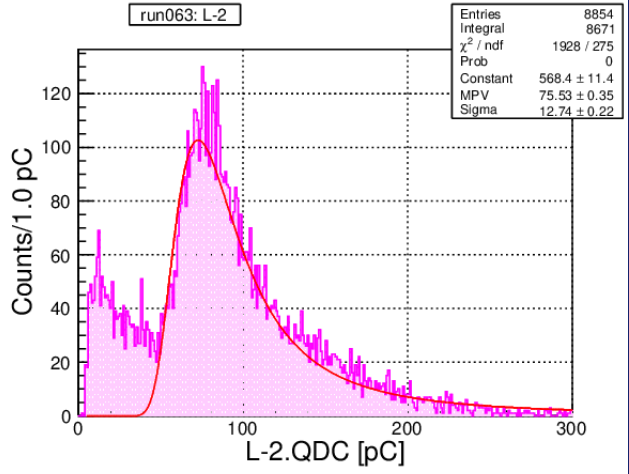








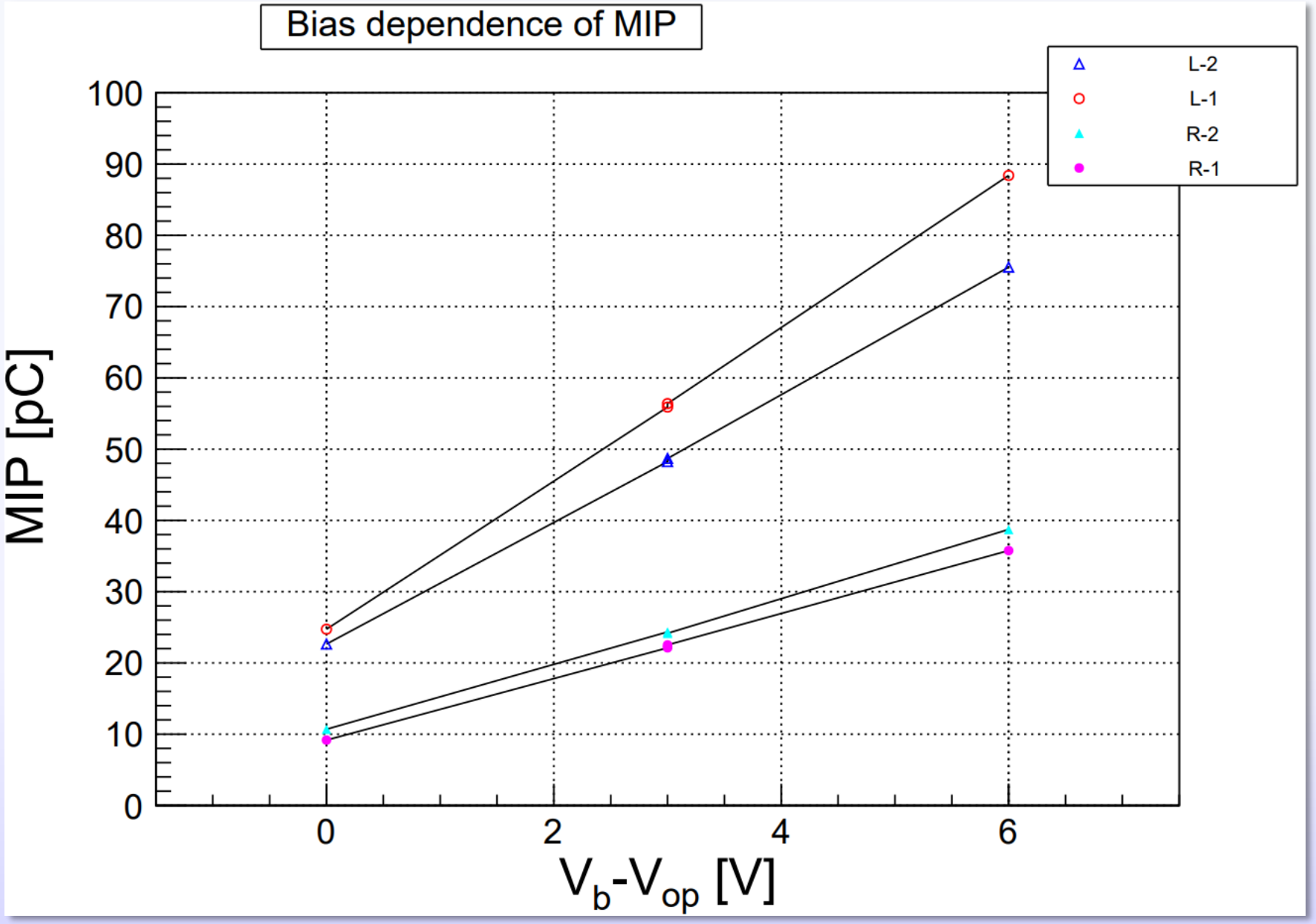




QDC distribution

- MIP ⇒ MPV of Landau function
- Bias dependence of MIP
- Linear ?

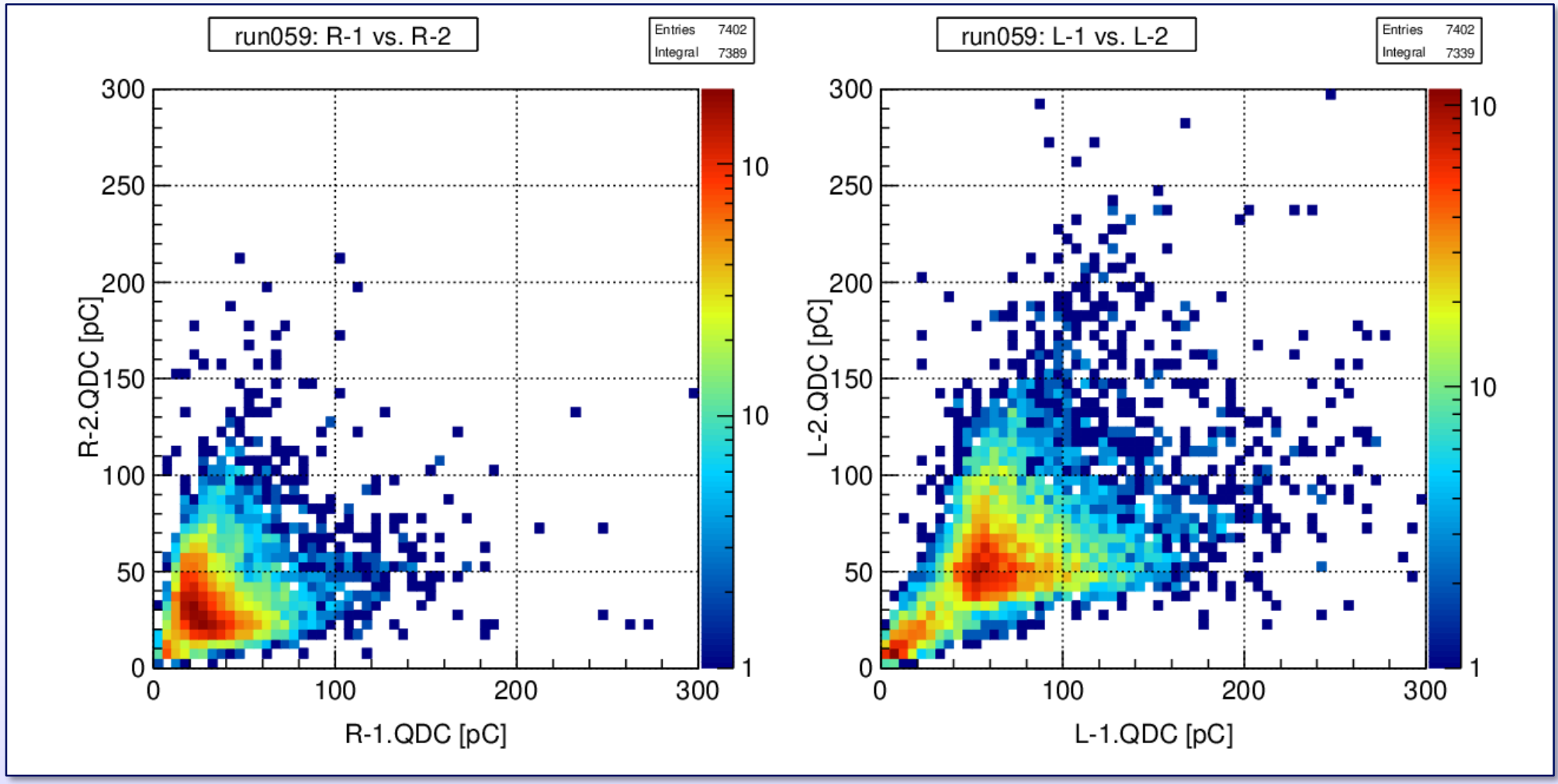
- 同じシンチレータでも微妙な差
- 取付時の取り扱いの差 ?



QDC distribution

- Correlation of the same scintillator

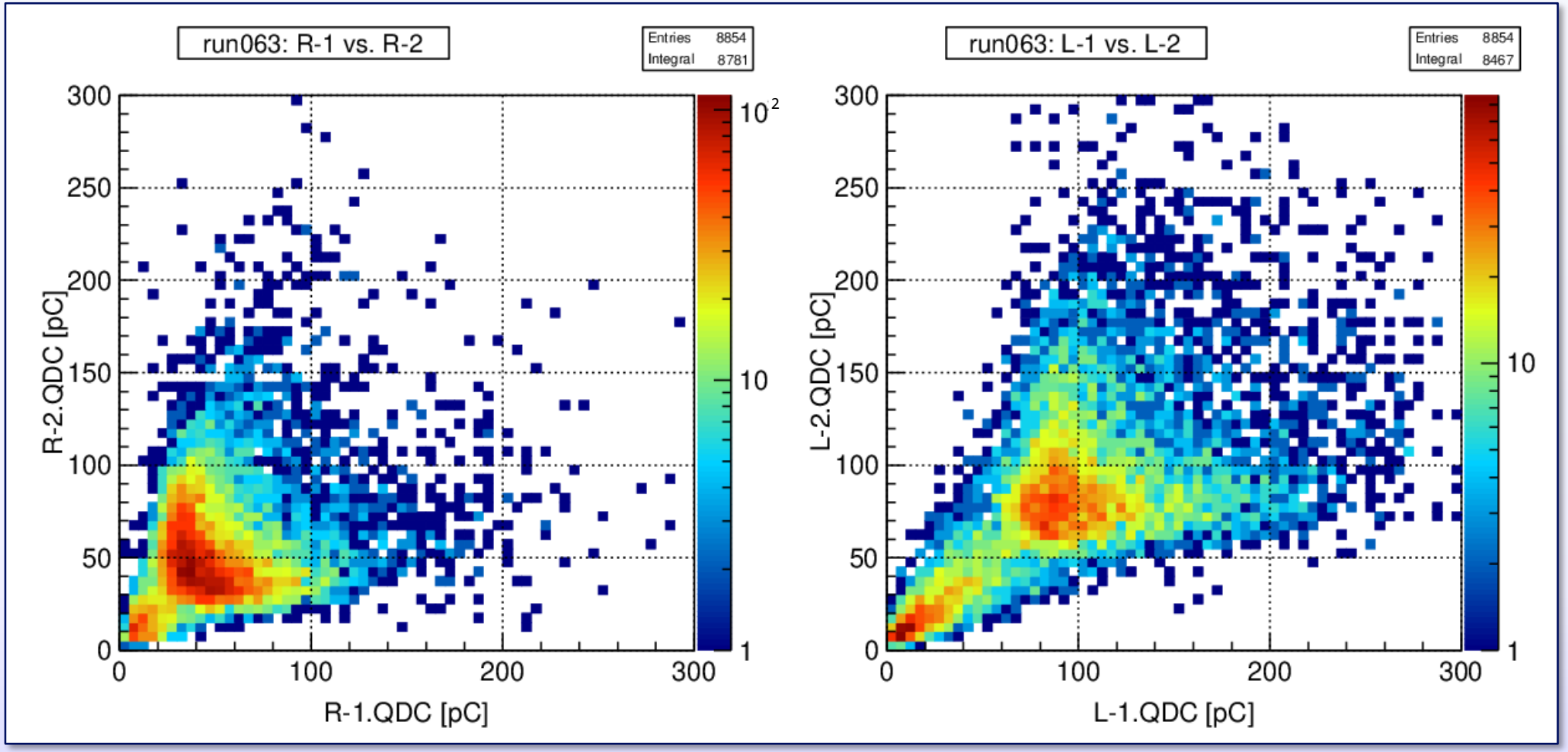
- Run059: V_b = 44.7 V



QDC distribution

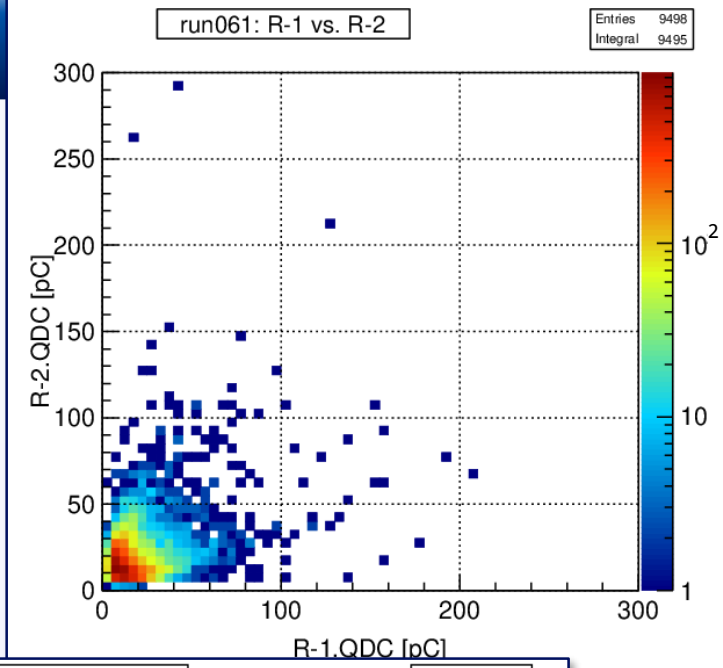
- Correlation of the same scintillator

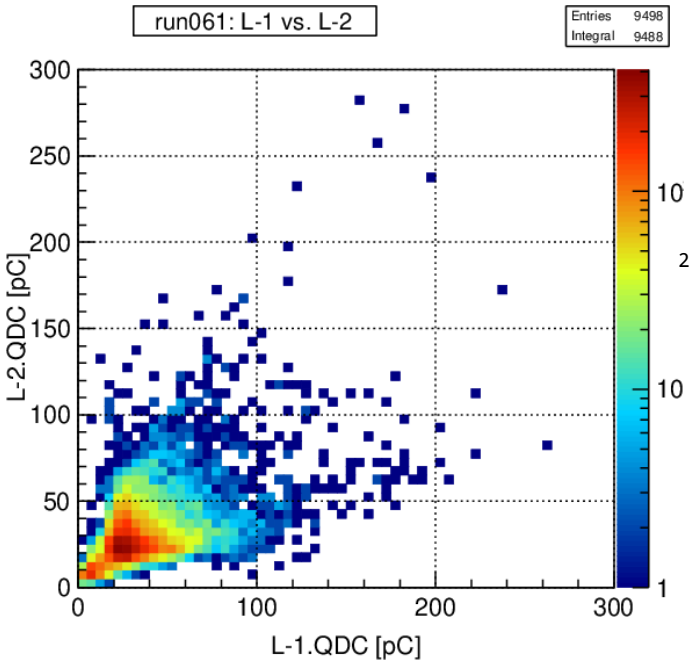
- Run063: V_b = 47.7 V

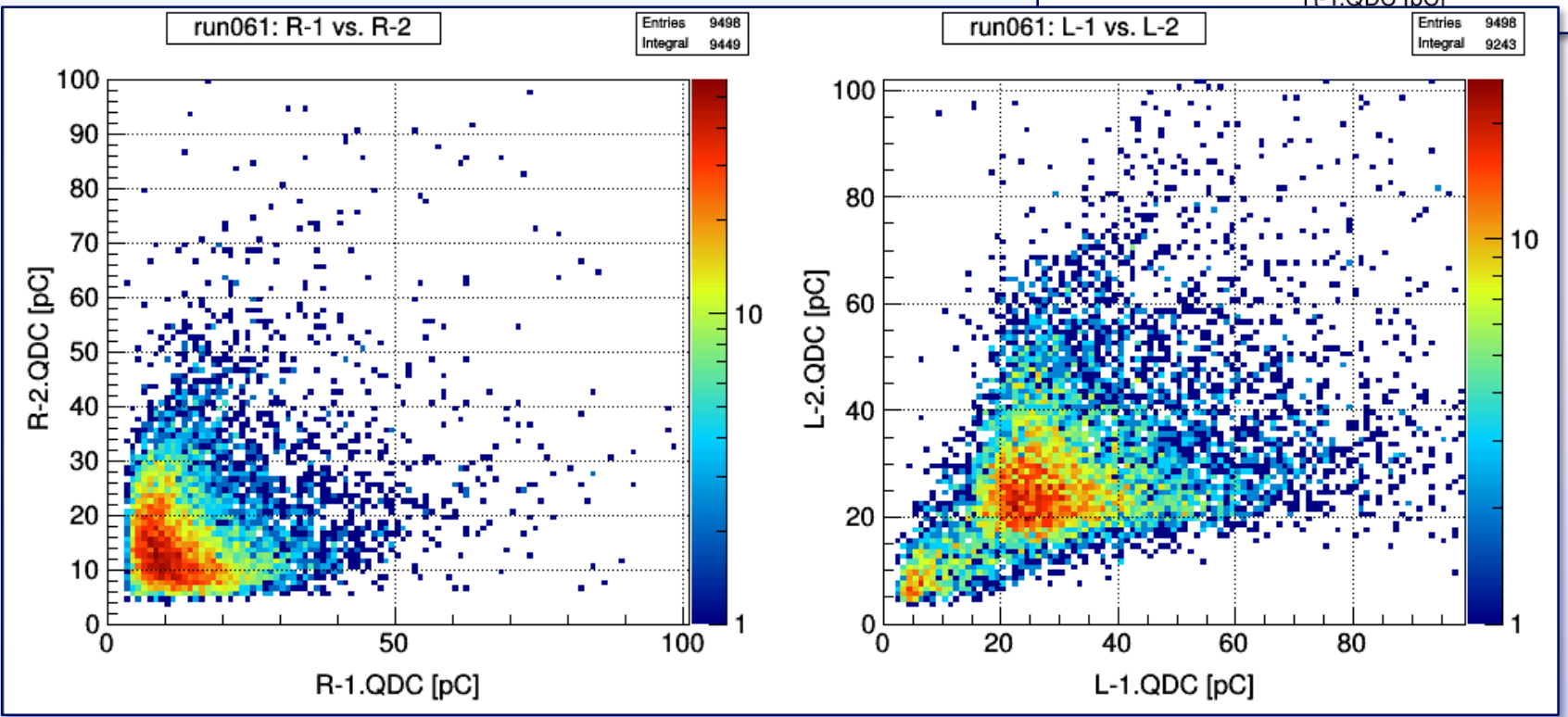


QDC dist.

- Run061: V_b = 41.7 V



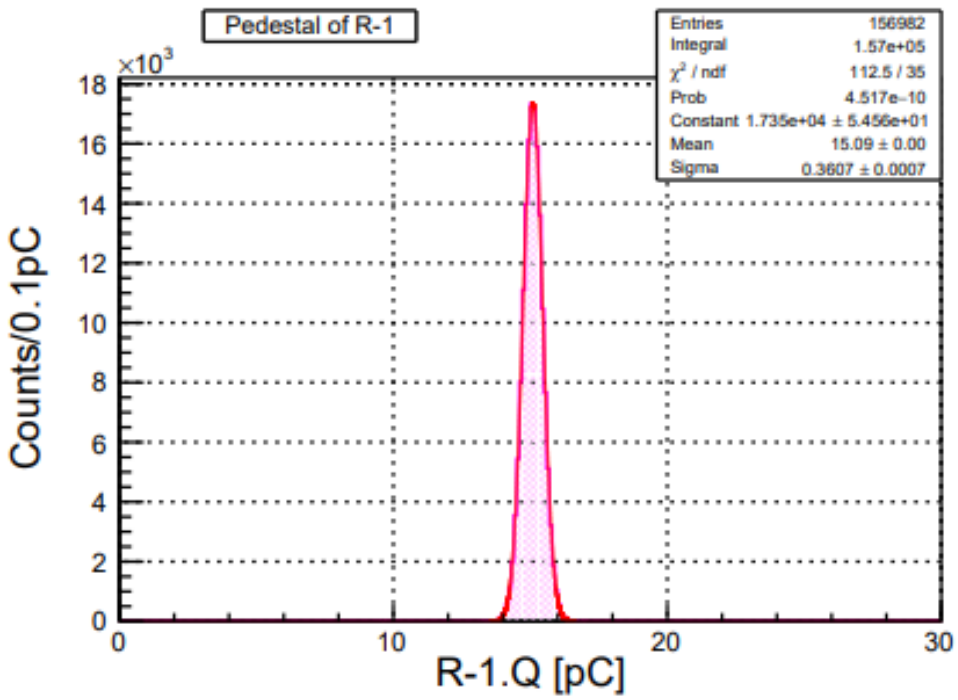


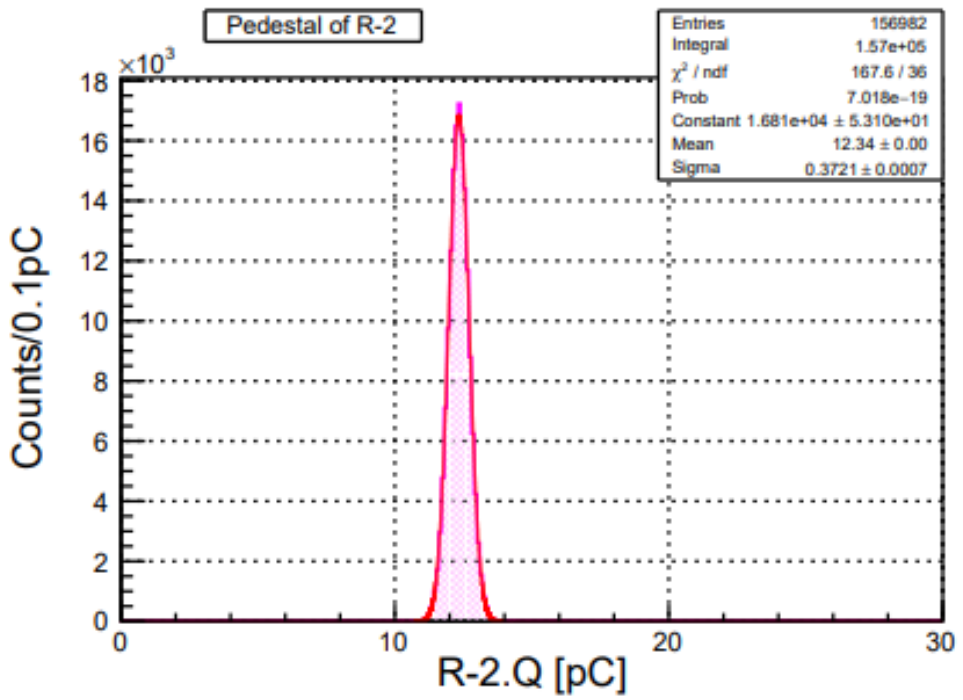


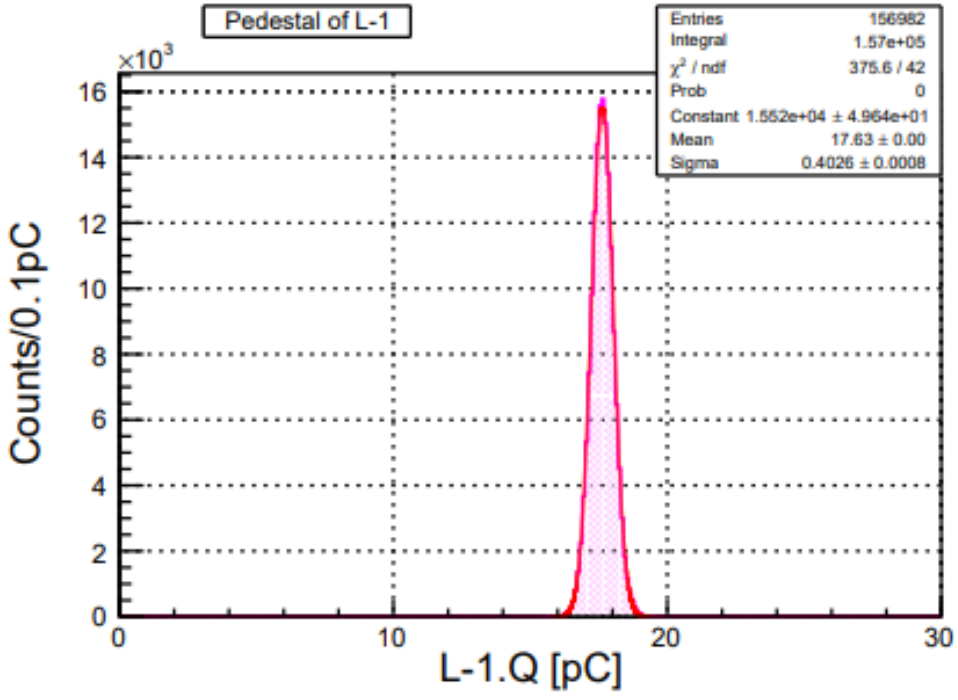
To do next

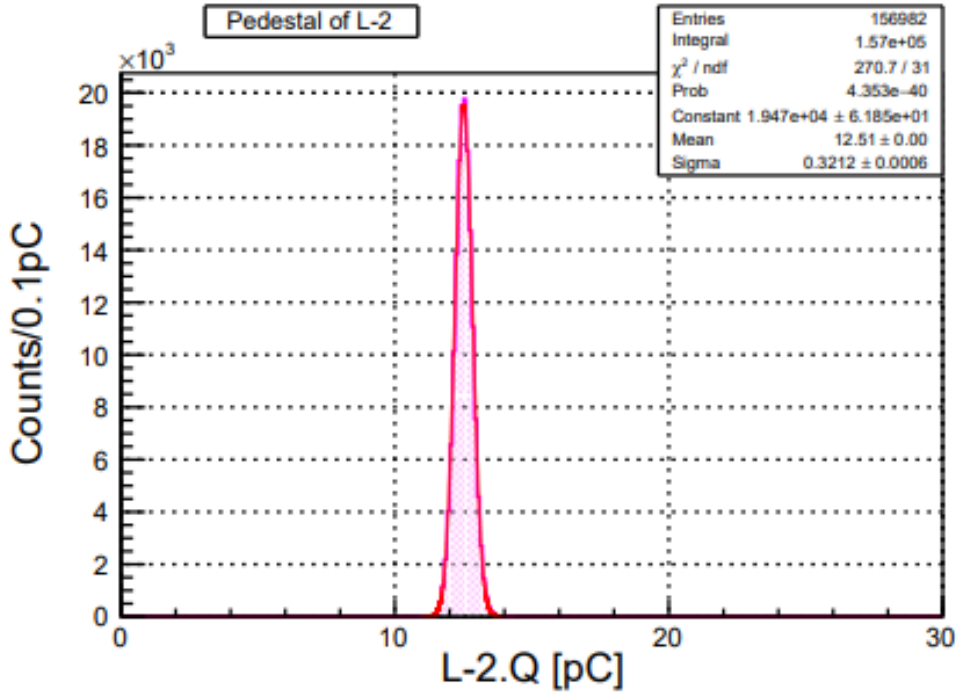
- Test t=5 mm, w=22 mm scintillator & t=5 mm, w=44 mm scintillator
- Making poster for JPS

run059

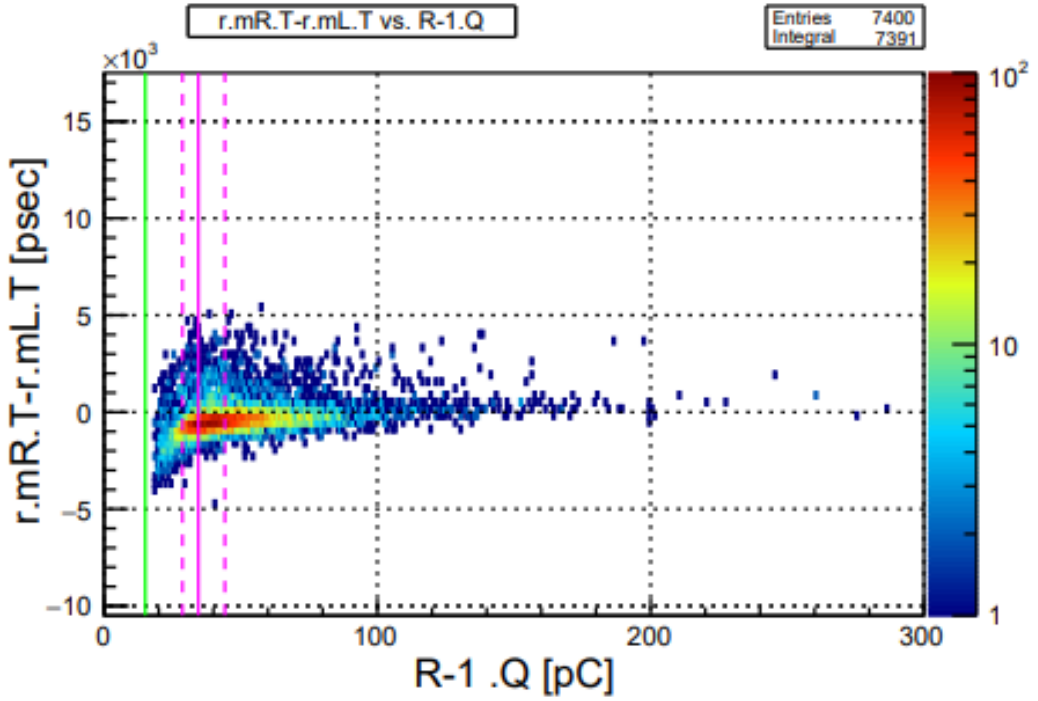

Pedestal of R-1
Entries 156982
Integral 1.57e+05
χ² / ndf 112.5 / 35
Prob 4.517e-10
Constant 1.735e+04 ± 5.456e+01
Mean 15.09 ± 0.00
Sigma 0.3607 ± 0.0007
×10³
Counts/0.1pC
R-1.Q [pC]

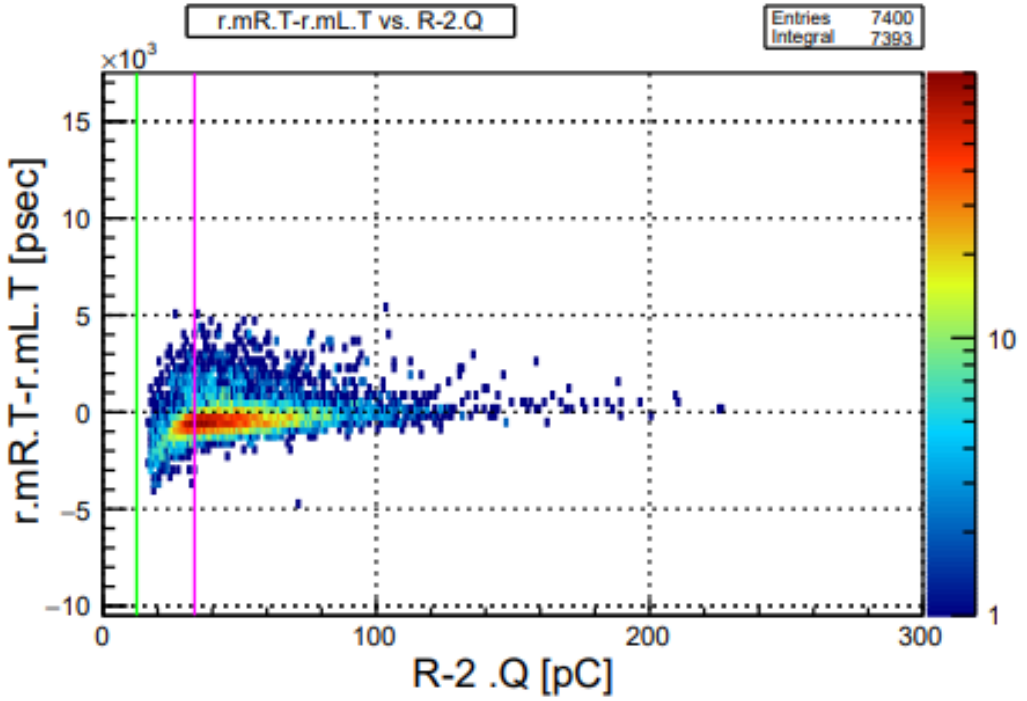

Pedestal of R-2
Entries 156982
Integral 1.57e+05
χ² / ndf 167.6 / 36
Prob 7.018e-19
Constant 1.681e+04 ± 5.310e+01
Mean 12.34 ± 0.00
Sigma 0.3721 ± 0.0007
×10³
Counts/0.1pC
R-2.Q [pC]

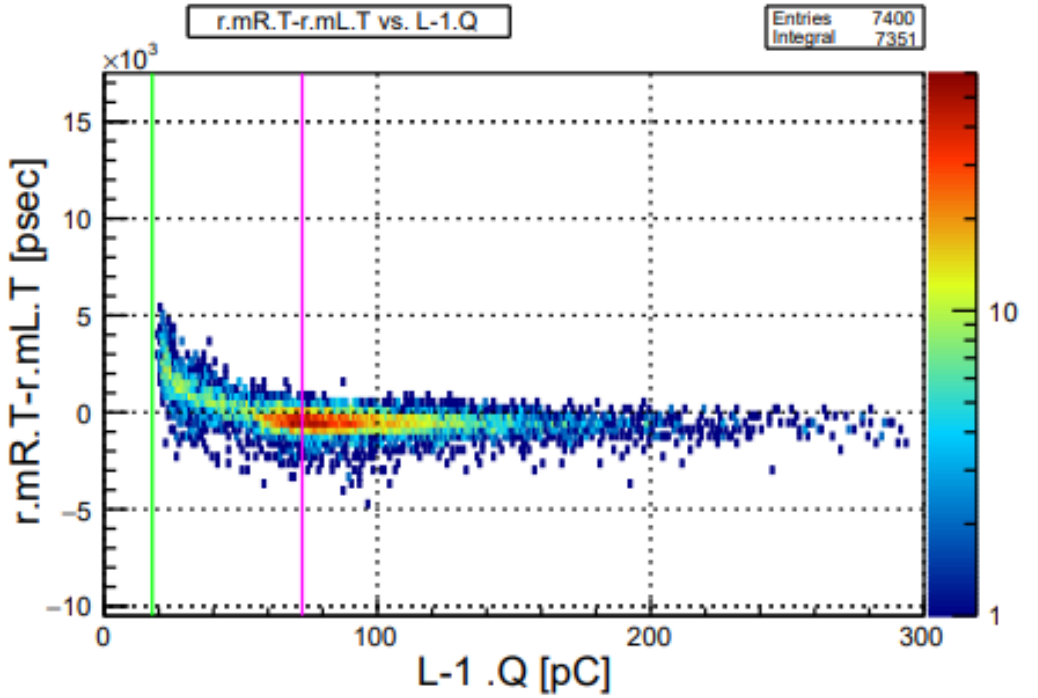

Pedestal of L-1
Entries 156982
Integral 1.57e+05
χ² / ndf 375.6 / 42
Prob 0
Constant 1.552e+04 ± 4.964e+01
Mean 17.63 ± 0.00
Sigma 0.4026 ± 0.0008
×10³
Counts/0.1pC
L-1.Q [pC]

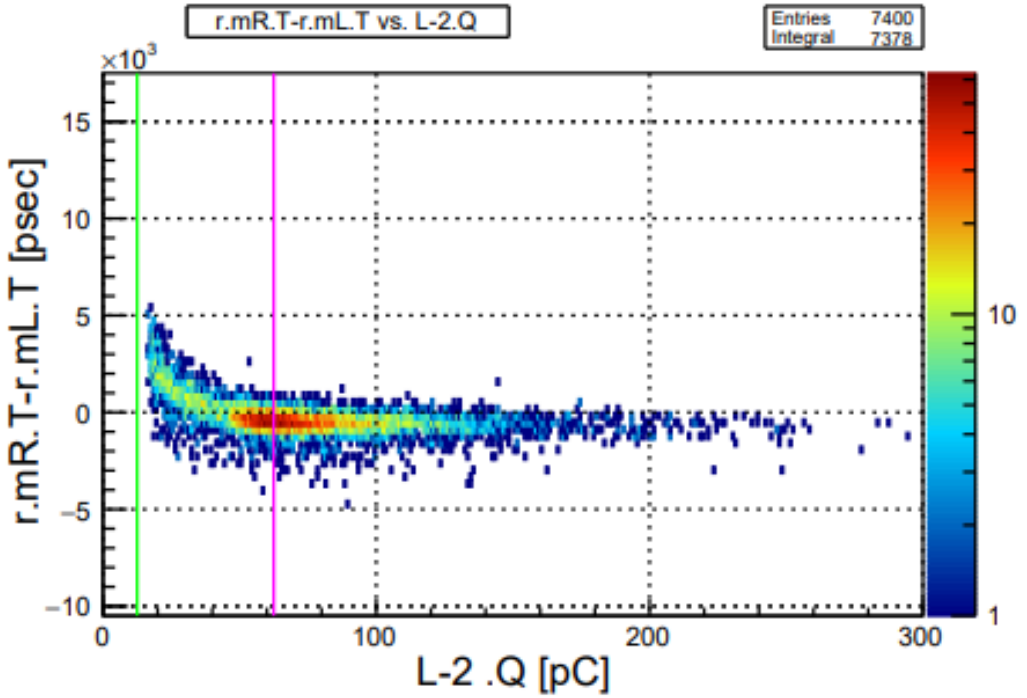

Pedestal of L-2
Entries 156982
Integral 1.57e+05
χ² / ndf 270.7 / 31
Prob 4.353e-40
Constant 1.947e+04 ± 6.185e+01
Mean 12.51 ± 0.00
Sigma 0.3212 ± 0.0006
×10³
Counts/0.1pC
L-2.Q [pC]

run059

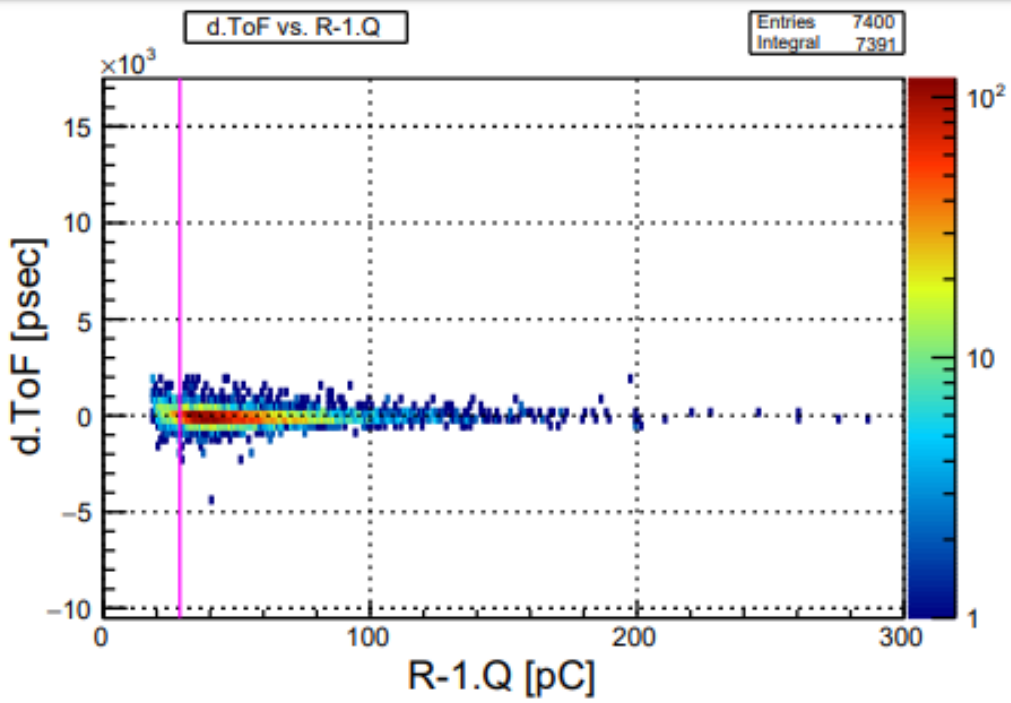

r.mR.T-r.mL.T vs. R-1.Q
Entries 7400
Integral 7391
×10^3
r.mR.T-r.mL.T [psec]
R-1 .Q [pC]

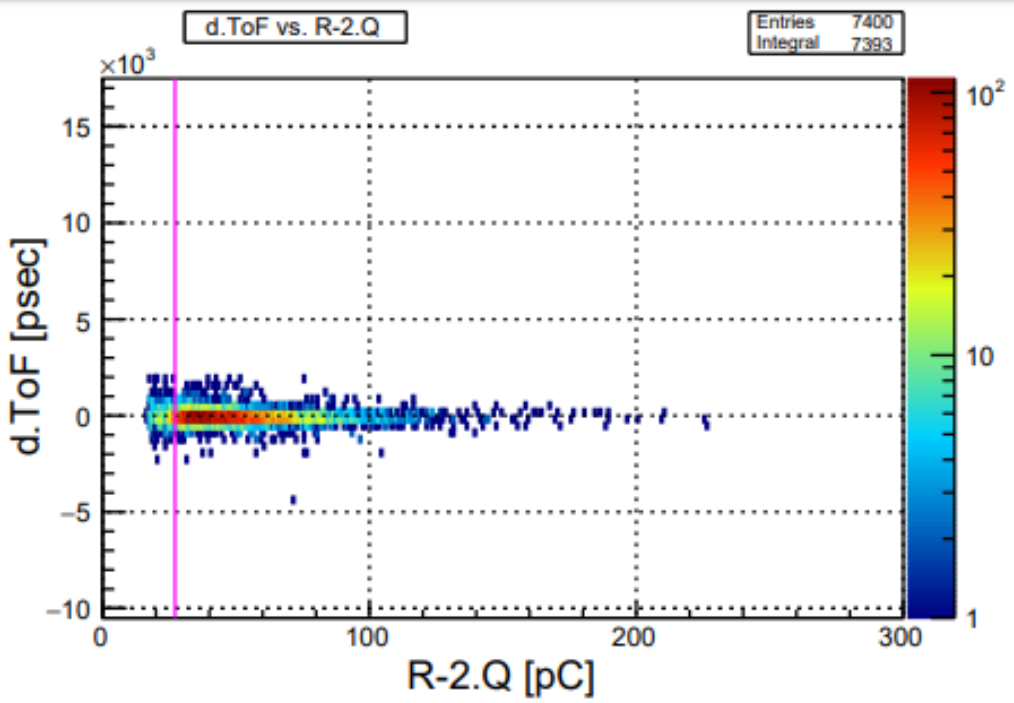

r.mR.T-r.mL.T vs. R-2.Q
Entries 7400
Integral 7393
×10^3
r.mR.T-r.mL.T [psec]
R-2 .Q [pC]

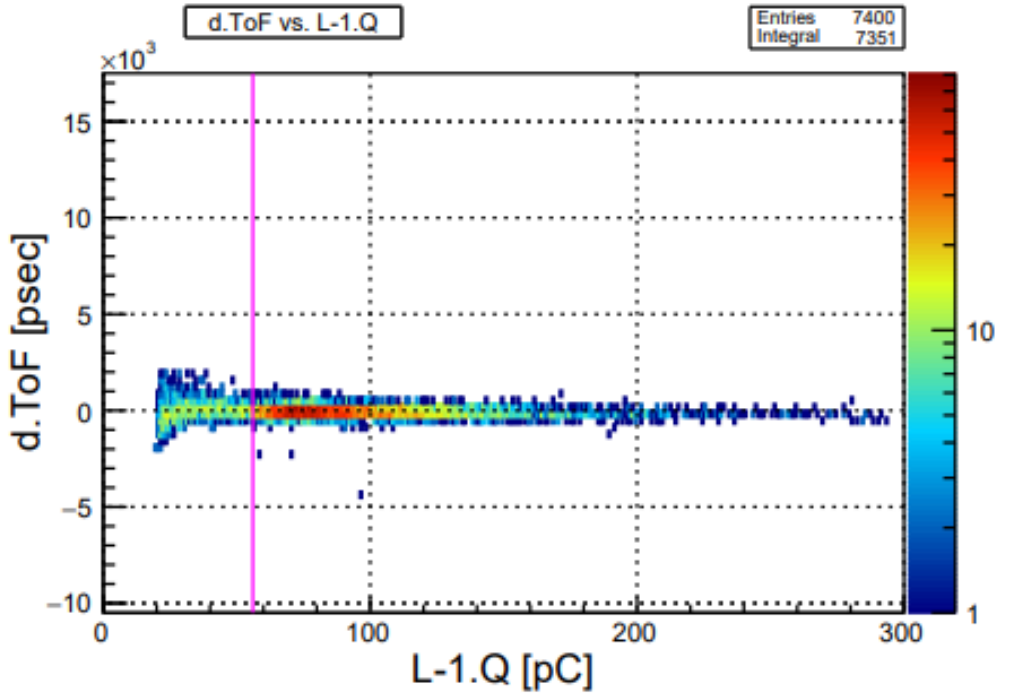

r.mR.T-r.mL.T vs. L-1.Q
Entries 7400
Integral 7351
×10^3
r.mR.T-r.mL.T [psec]
L-1 .Q [pC]

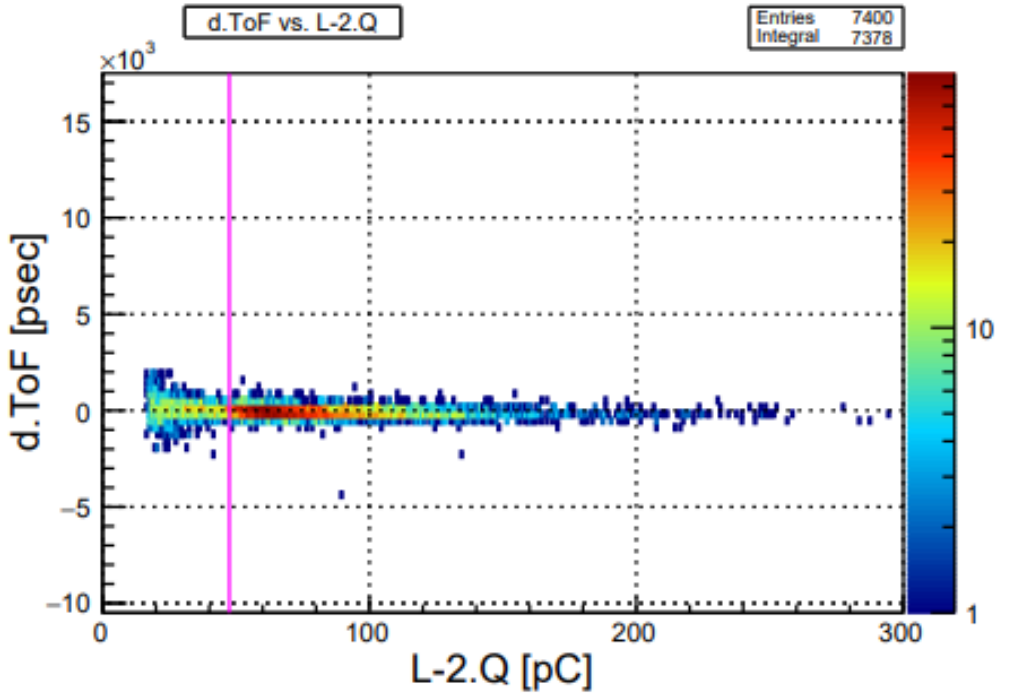

r.mR.T-r.mL.T vs. L-2.Q
Entries 7400
Integral 7378
×10^3
r.mR.T-r.mL.T [psec]
L-2 .Q [pC]

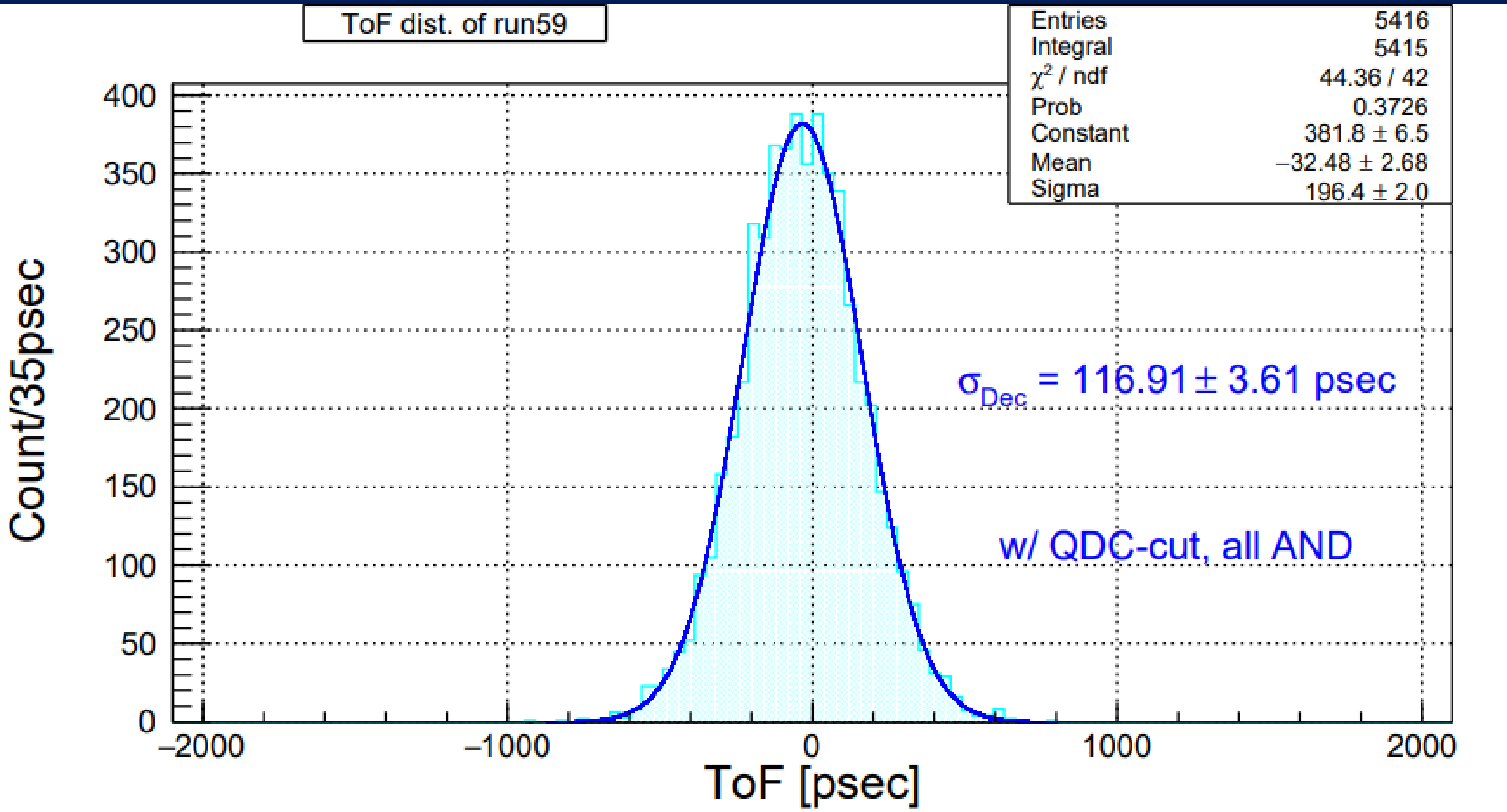
run059


d.ToF vs. R-1.Q
Entries 7400
Integral 7391
×10^3
d.ToF [psec]
R-1.Q [pC]

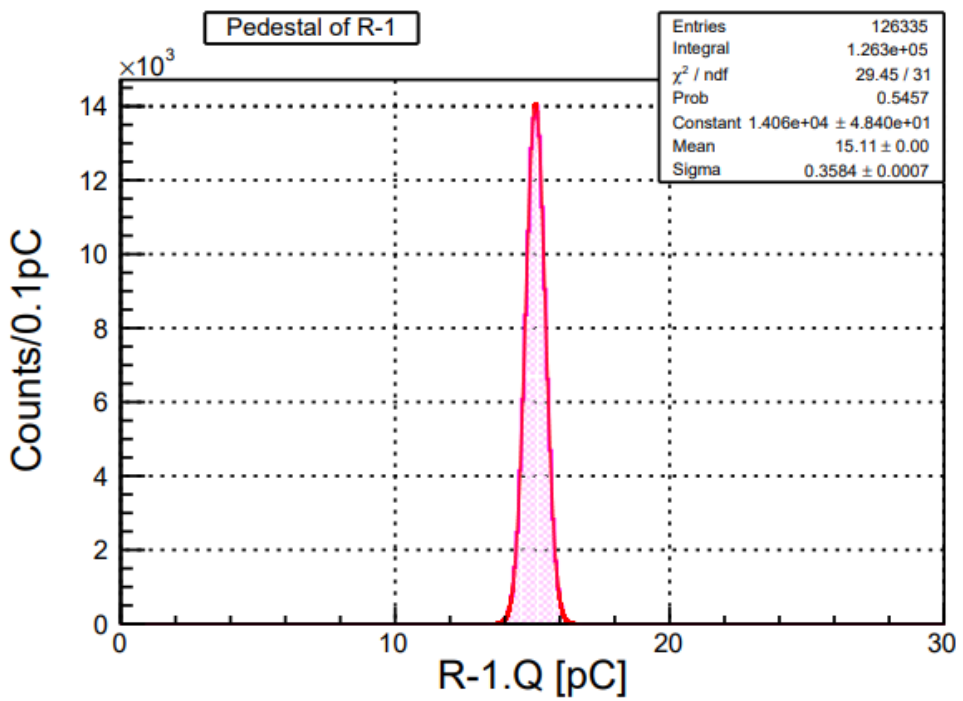

d.ToF vs. R-2.Q
Entries 7400
Integral 7393
×10^3
d.ToF [psec]
R-2.Q [pC]

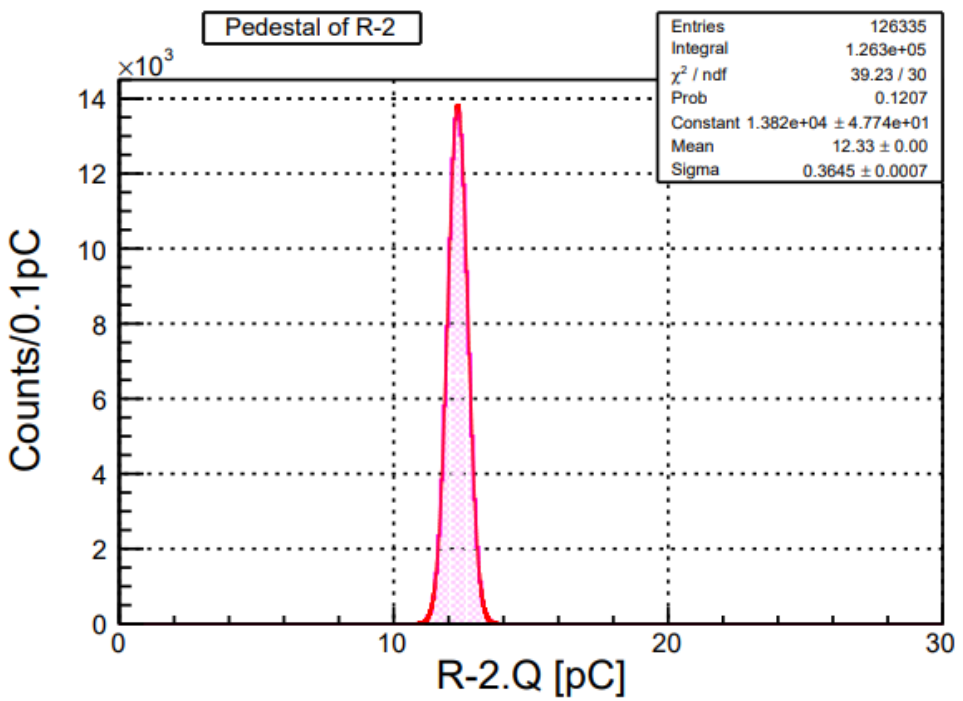

d.ToF vs. L-1.Q
Entries 7400
Integral 7351
×10^3
d.ToF [psec]
L-1.Q [pC]

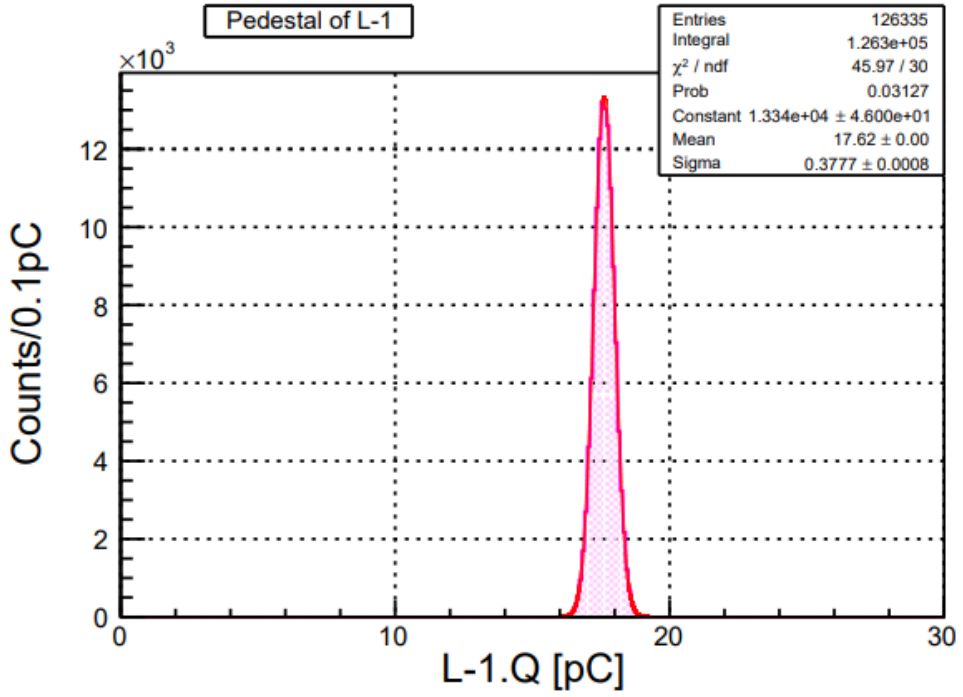

d.ToF vs. L-2.Q
Entries 7400
Integral 7378
×10^3
d.ToF [psec]
L-2.Q [pC]

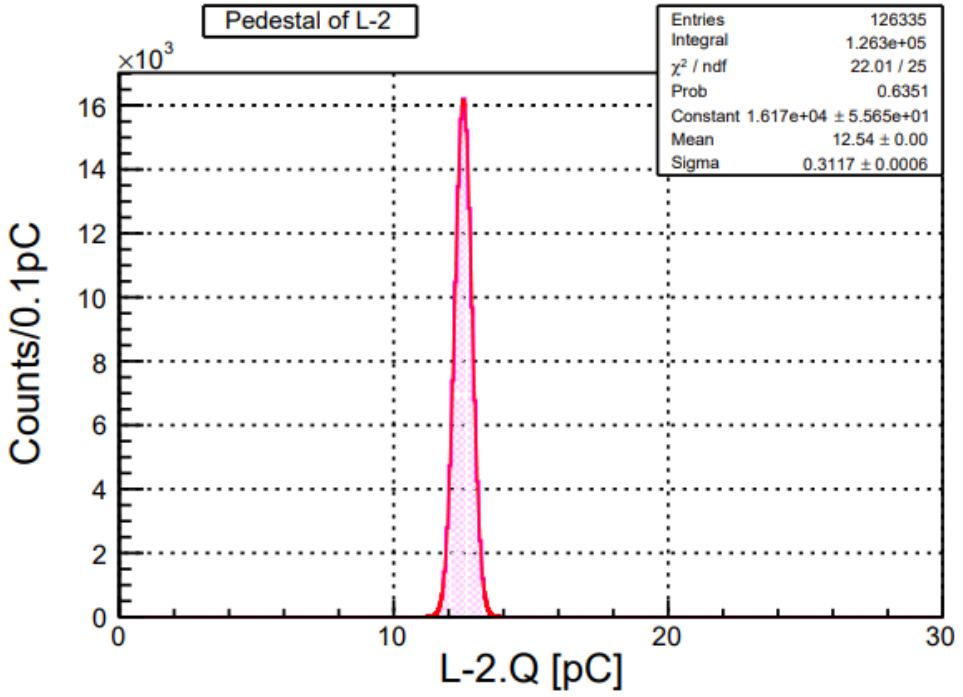

ToF dist. of run59
Entries 5416
Integral 5415
χ² / ndf 44.36 / 42
Prob 0.3726
Constant 381.8 ± 6.5
Mean −32.48 ± 2.68
Sigma 196.4 ± 2.0
σDec = 116.91 ± 3.61 psec
w/ QDC-cut, all AND
Count/35psec
ToF [psec]
400
350
300
250
200
150
100
50
0
−2000
−1000
0
1000
2000

run061

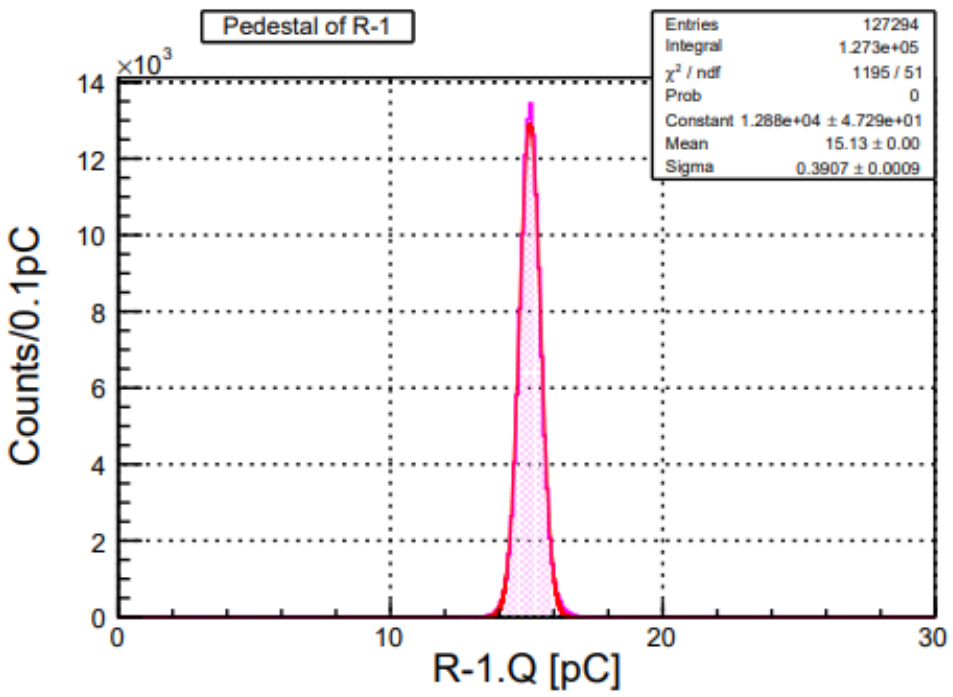

Pedestal of R-1
Entries 126335
Integral 1.263e+05
χ² / ndf 29.45 / 31
Prob 0.5457
Constant 1.406e+04 ± 4.840e+01
Mean 15.11 ± 0.00
Sigma 0.3584 ± 0.0007
×10³
Counts/0.1pC
R-1.Q [pC]

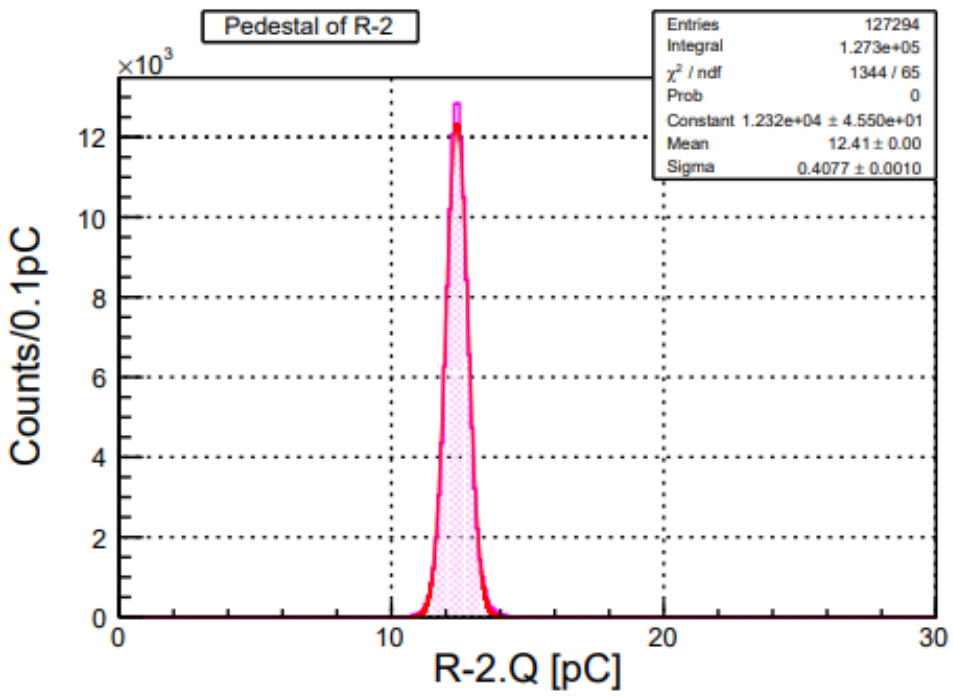

Pedestal of R-2
Entries 126335
Integral 1.263e+05
χ² / ndf 39.23 / 30
Prob 0.1207
Constant 1.382e+04 ± 4.774e+01
Mean 12.33 ± 0.00
Sigma 0.3645 ± 0.0007
×10³
Counts/0.1pC
R-2.Q [pC]

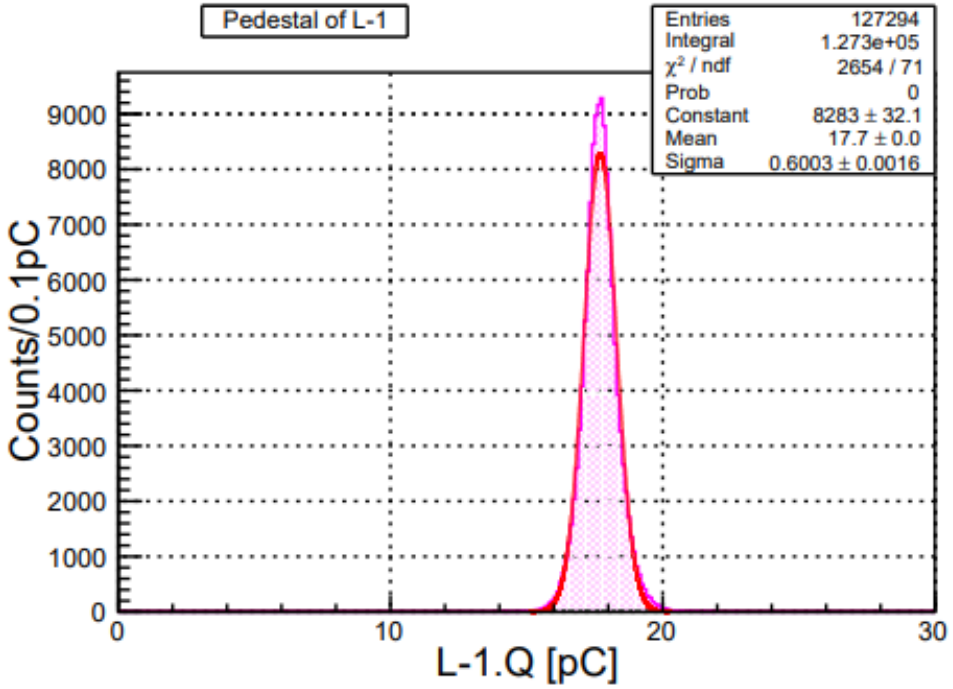

Pedestal of L-1
Entries 126335
Integral 1.263e+05
χ² / ndf 45.97 / 30
Prob 0.03127
Constant 1.334e+04 ± 4.600e+01
Mean 17.62 ± 0.00
Sigma 0.3777 ± 0.0008
×10³
Counts/0.1pC
L-1.Q [pC]

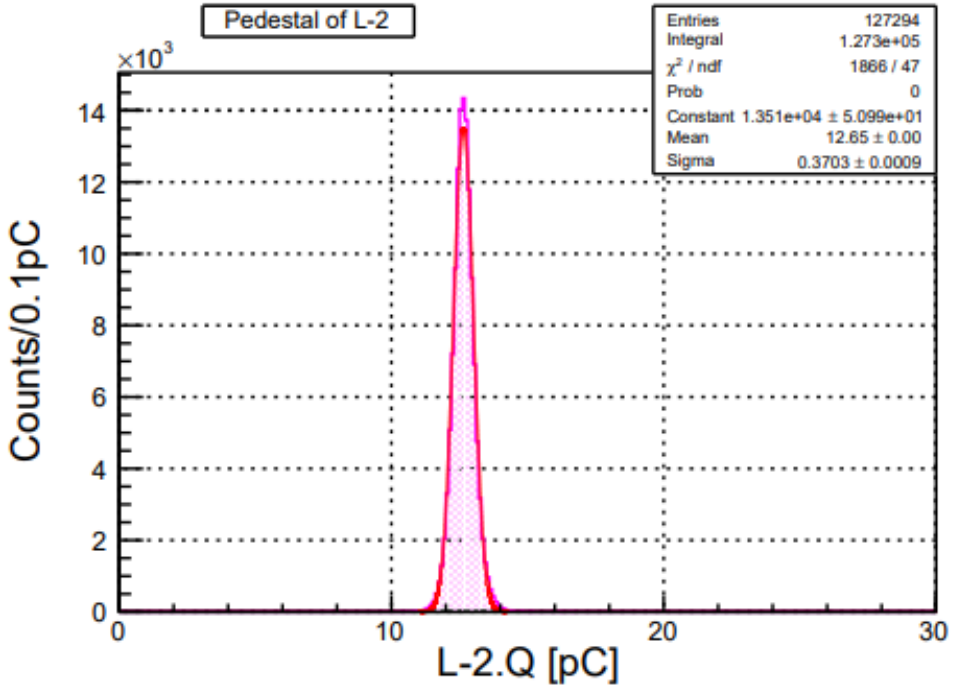

Pedestal of L-2
Entries 126335
Integral 1.263e+05
χ² / ndf 22.01 / 25
Prob 0.6351
Constant 1.617e+04 ± 5.565e+01
Mean 12.54 ± 0.00
Sigma 0.3117 ± 0.0006
×10³
Counts/0.1pC
L-2.Q [pC]

run063


Pedestal of R-1
Entries 127294
Integral 1.273e+05
χ² / ndf 1195 / 51
Prob 0
Constant 1.288e+04 ± 4.729e+01
Mean 15.13 ± 0.00
Sigma 0.3907 ± 0.0009
×10³
Counts/0.1pC
R-1.Q [pC]

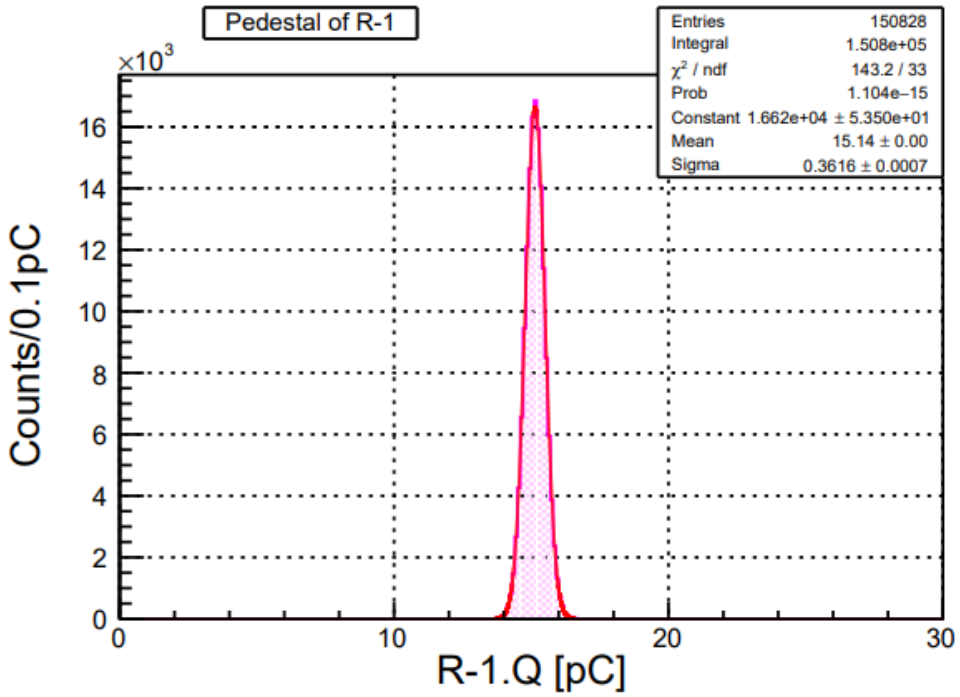

Pedestal of R-2
Entries 127294
Integral 1.273e+05
χ² / ndf 1344 / 65
Prob 0
Constant 1.232e+04 ± 4.550e+01
Mean 12.41 ± 0.00
Sigma 0.4077 ± 0.0010
×10³
Counts/0.1pC
R-2.Q [pC]

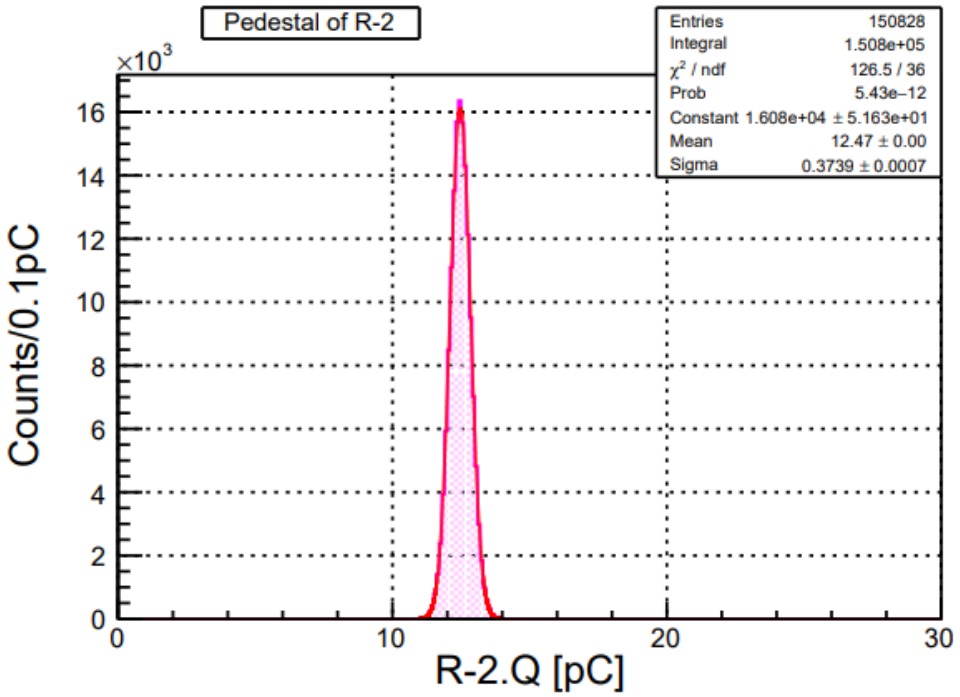

Pedestal of L-1
Entries 127294
Integral 1.273e+05
χ² / ndf 2654 / 71
Prob 0
Constant 8283 ± 32.1
Mean 17.7 ± 0.0
Sigma 0.6003 ± 0.0016
Counts/0.1pC
L-1.Q [pC]

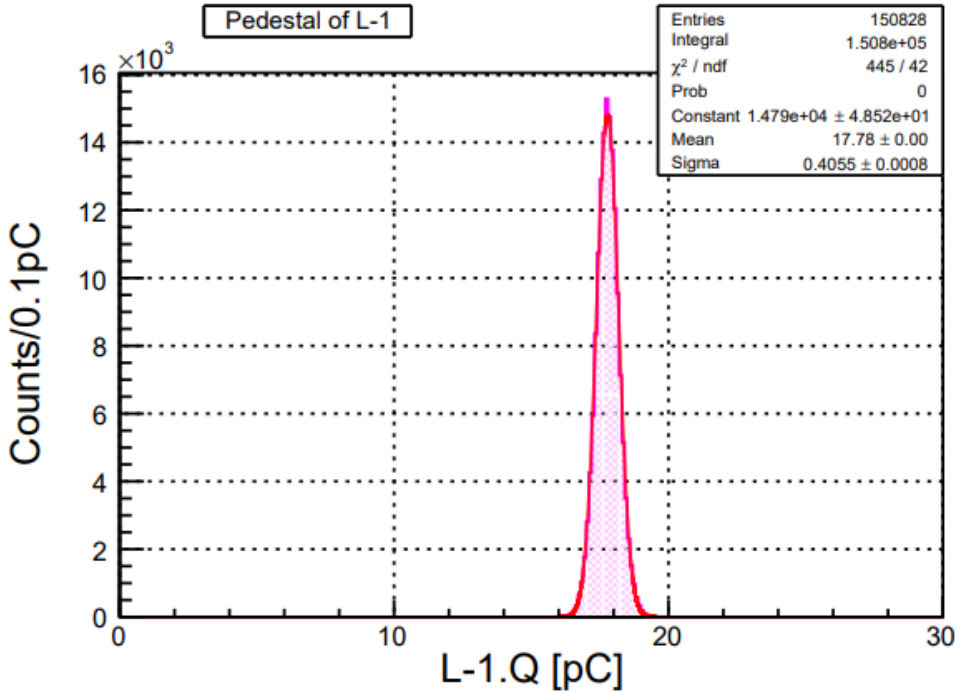

Pedestal of L-2
Entries 127294
Integral 1.273e+05
χ² / ndf 1866 / 47
Prob 0
Constant 1.351e+04 ± 5.099e+01
Mean 12.65 ± 0.00
Sigma 0.3703 ± 0.0009
×10³
Counts/0.1pC
L-2.Q [pC]

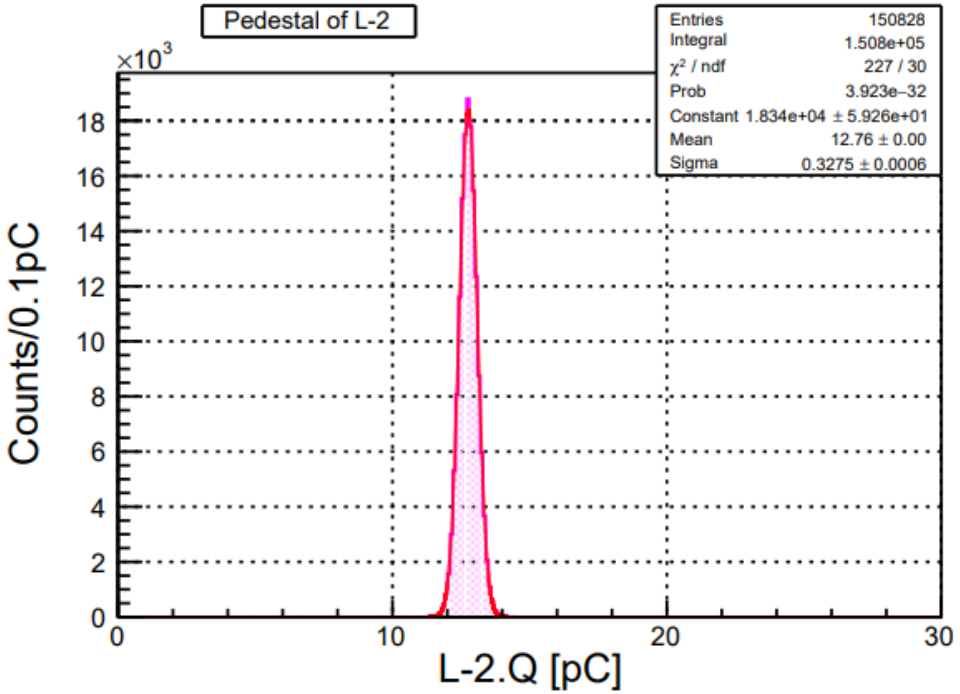
run065

(V_b = 44.7 V)



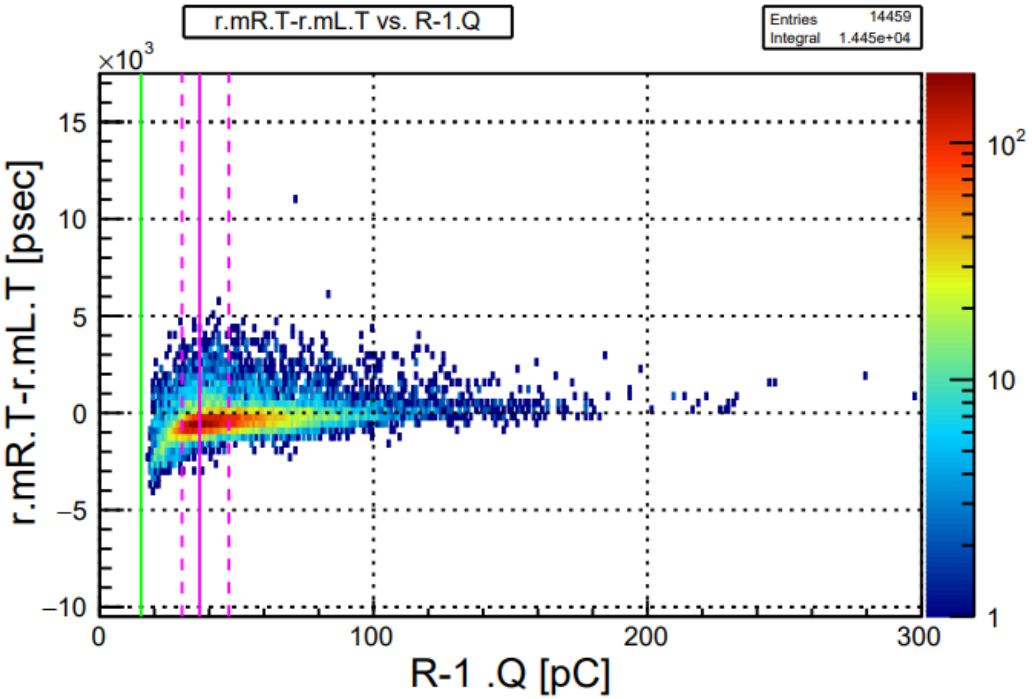


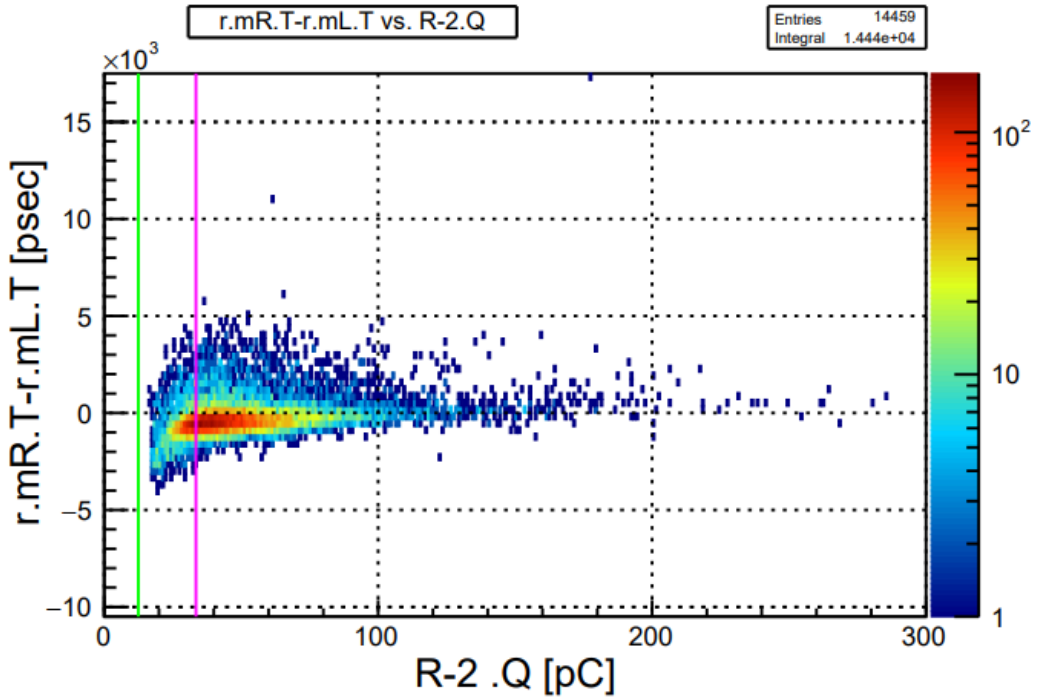


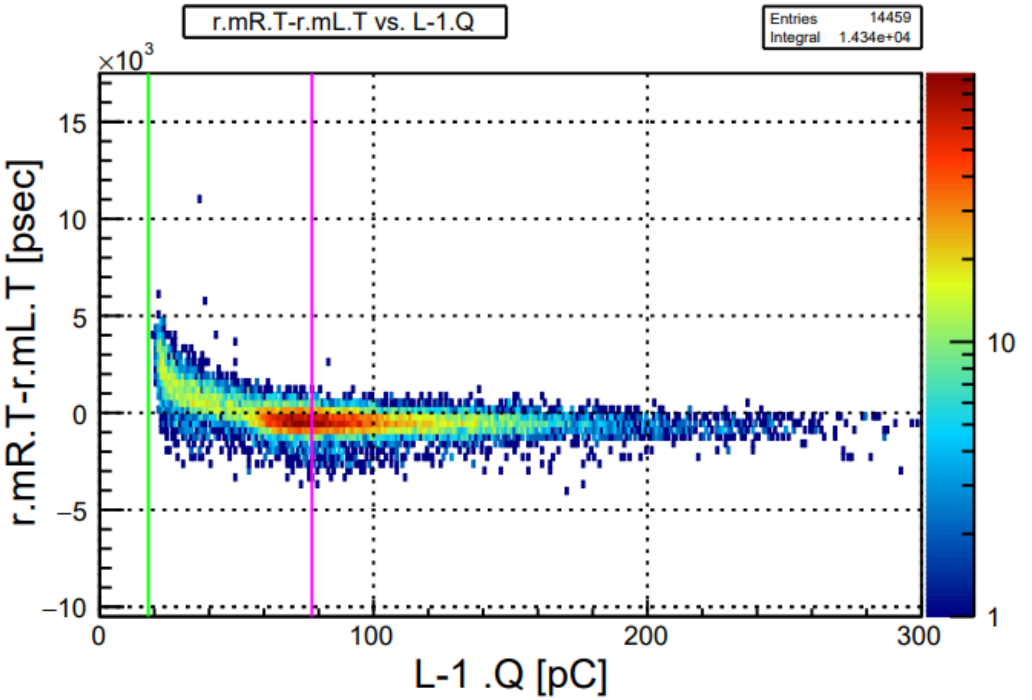


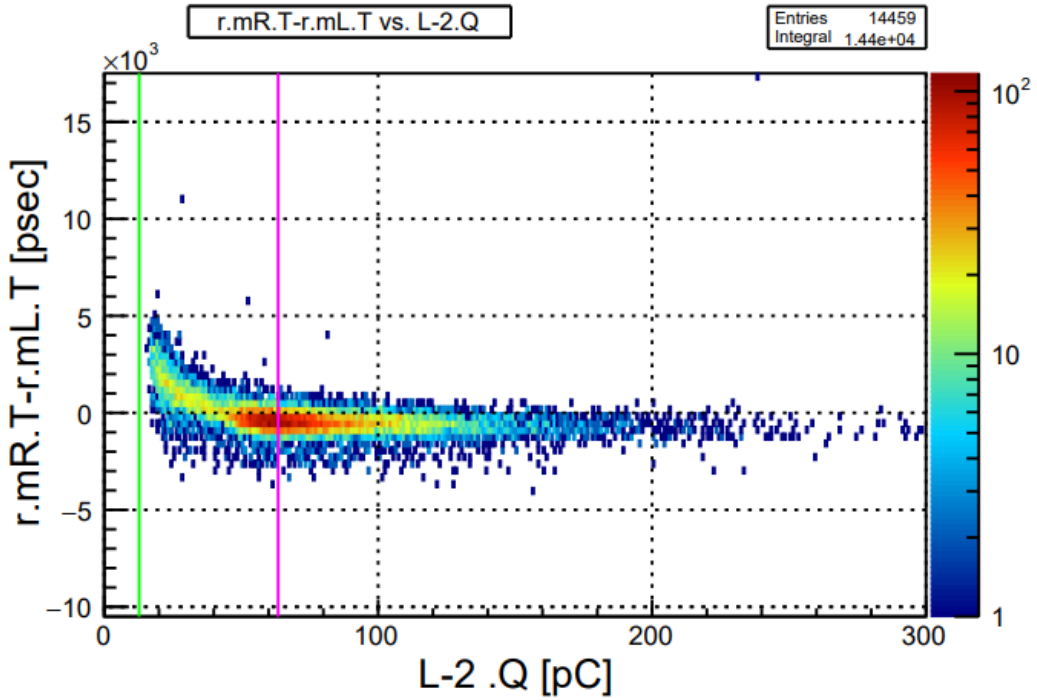
run065

(V_b = 44.7 V)



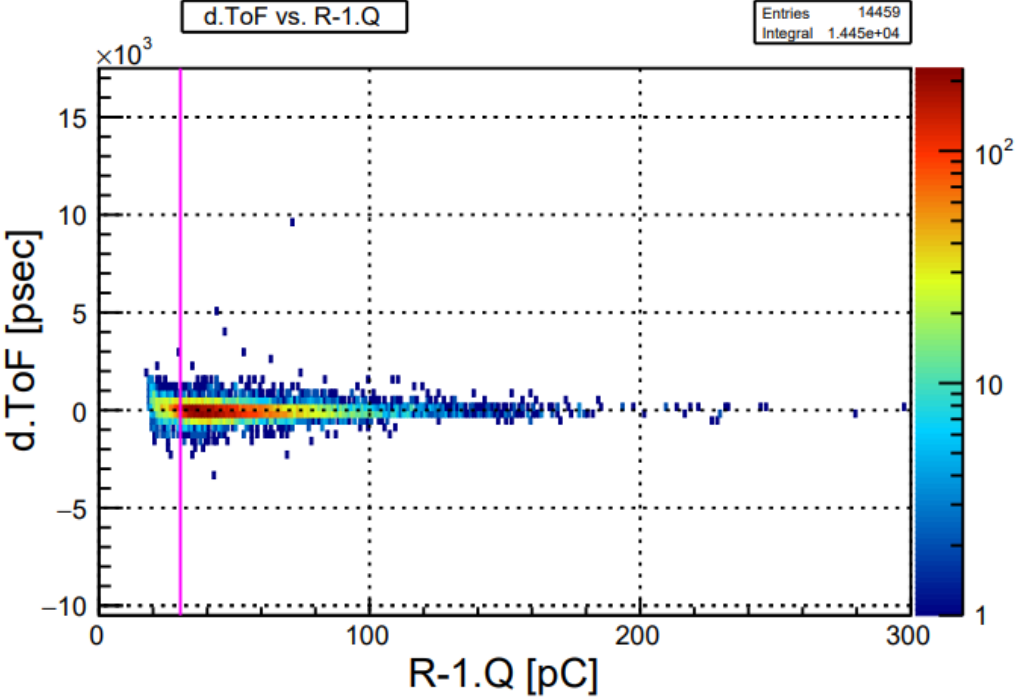


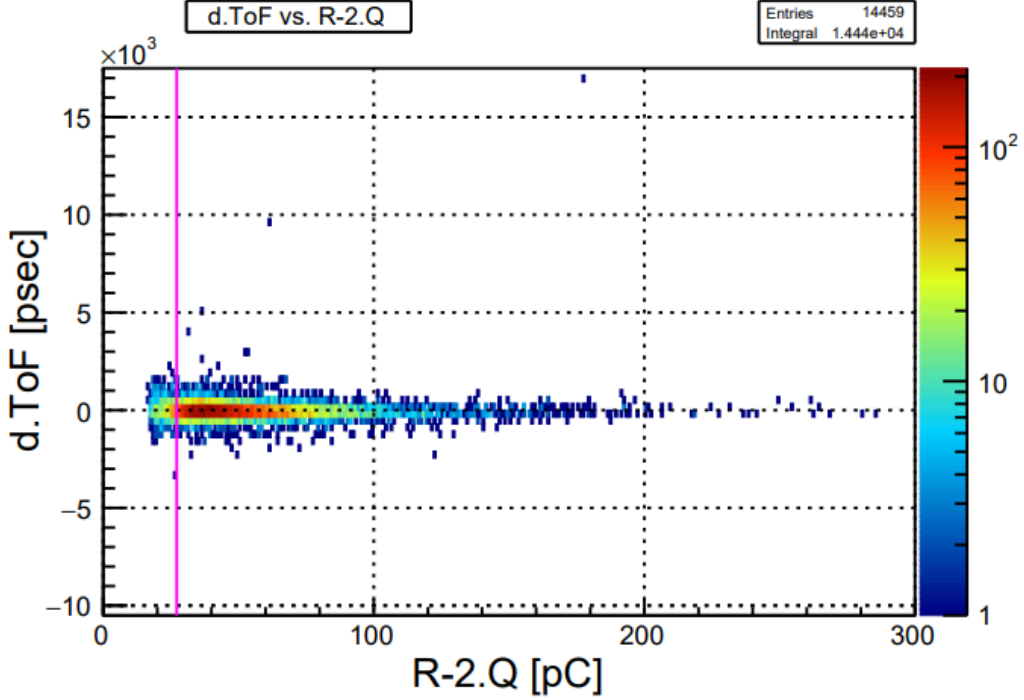


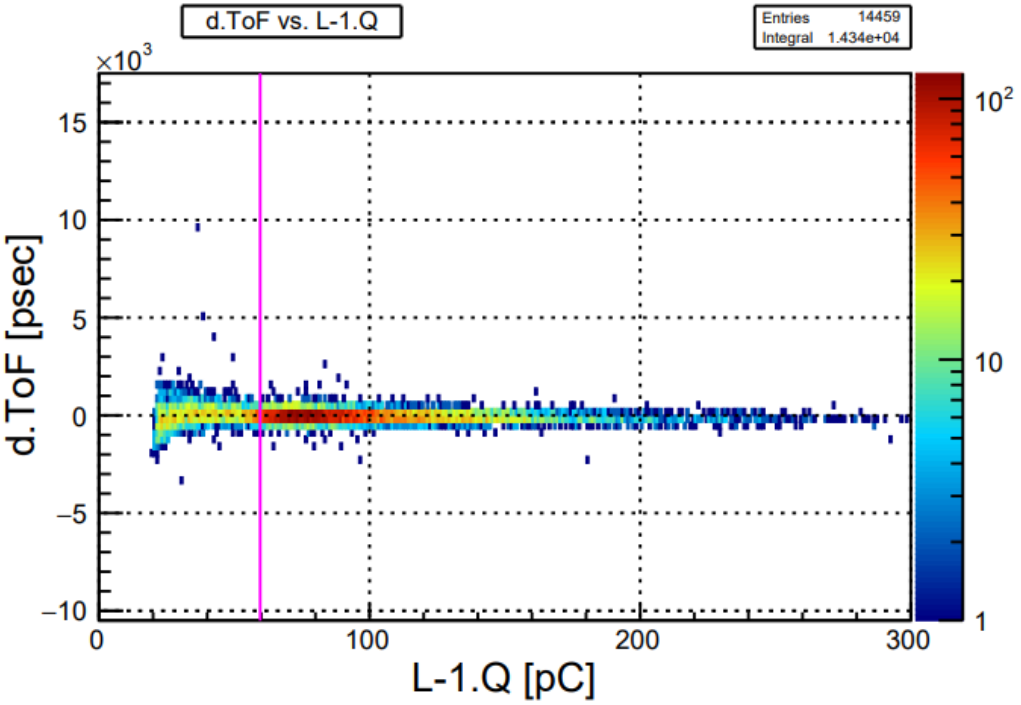


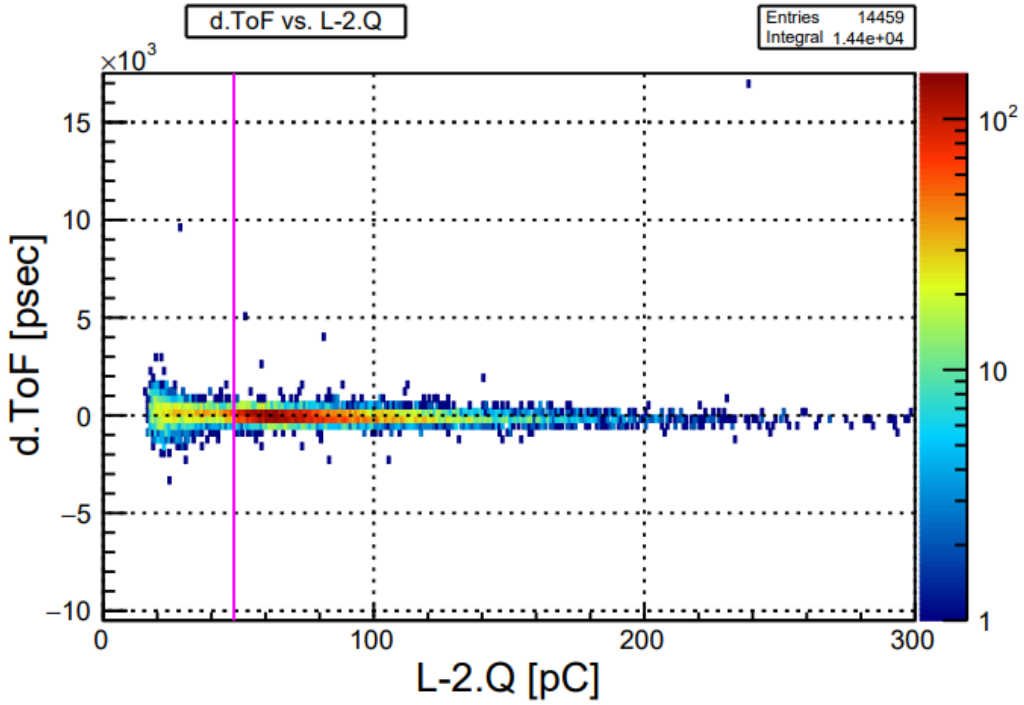
run065

(V_b = 44.7 V)









run065

(V_b = 44.7 V)