Plots for the RICH paper

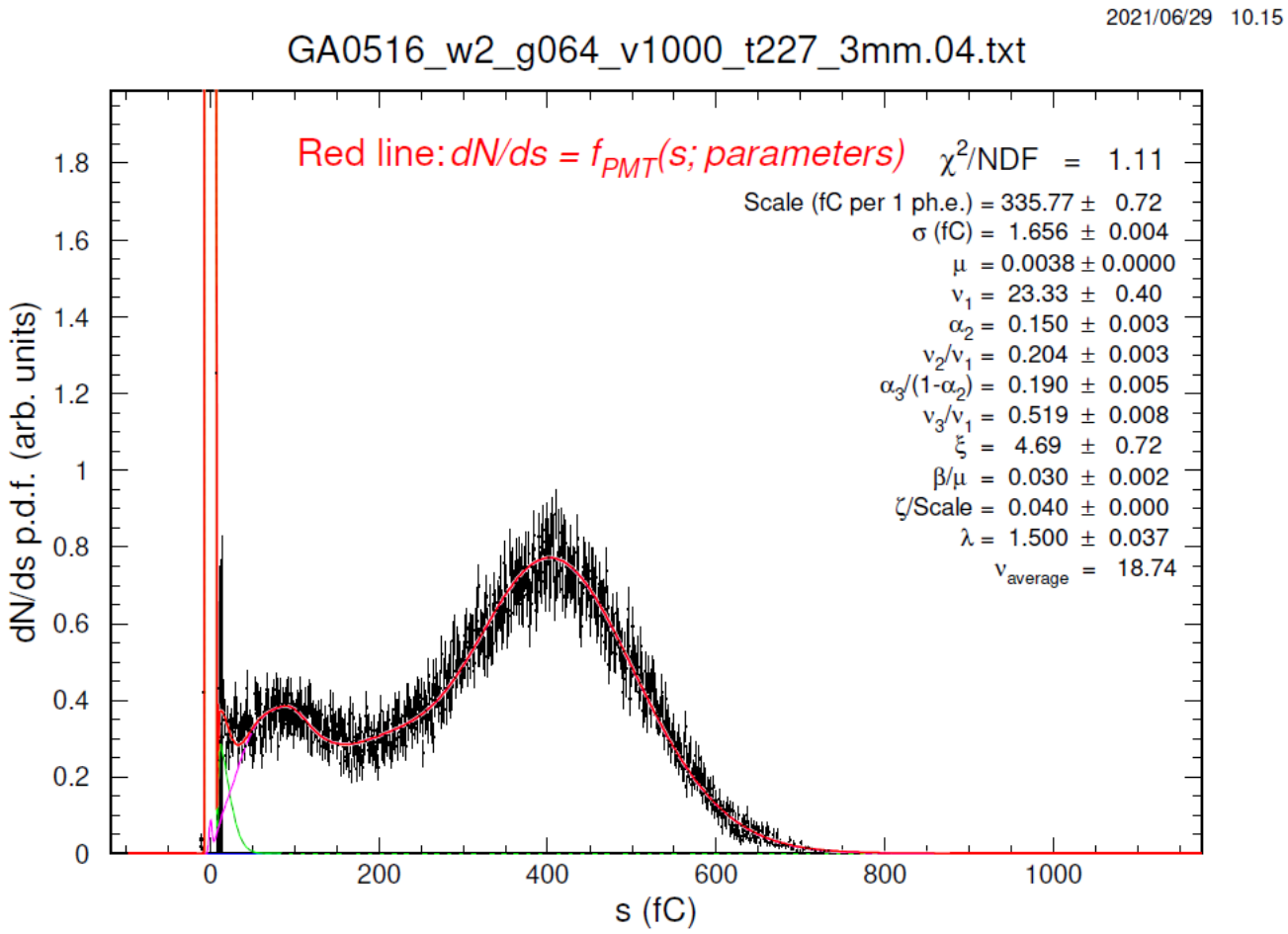

Fig. xxx. SPE probability distribution. PMT GA0516, pixel 4, at HV = 1000 V. Run with only central 3x3 mm part of the pixel was illuminated, and all other pixels were masked.

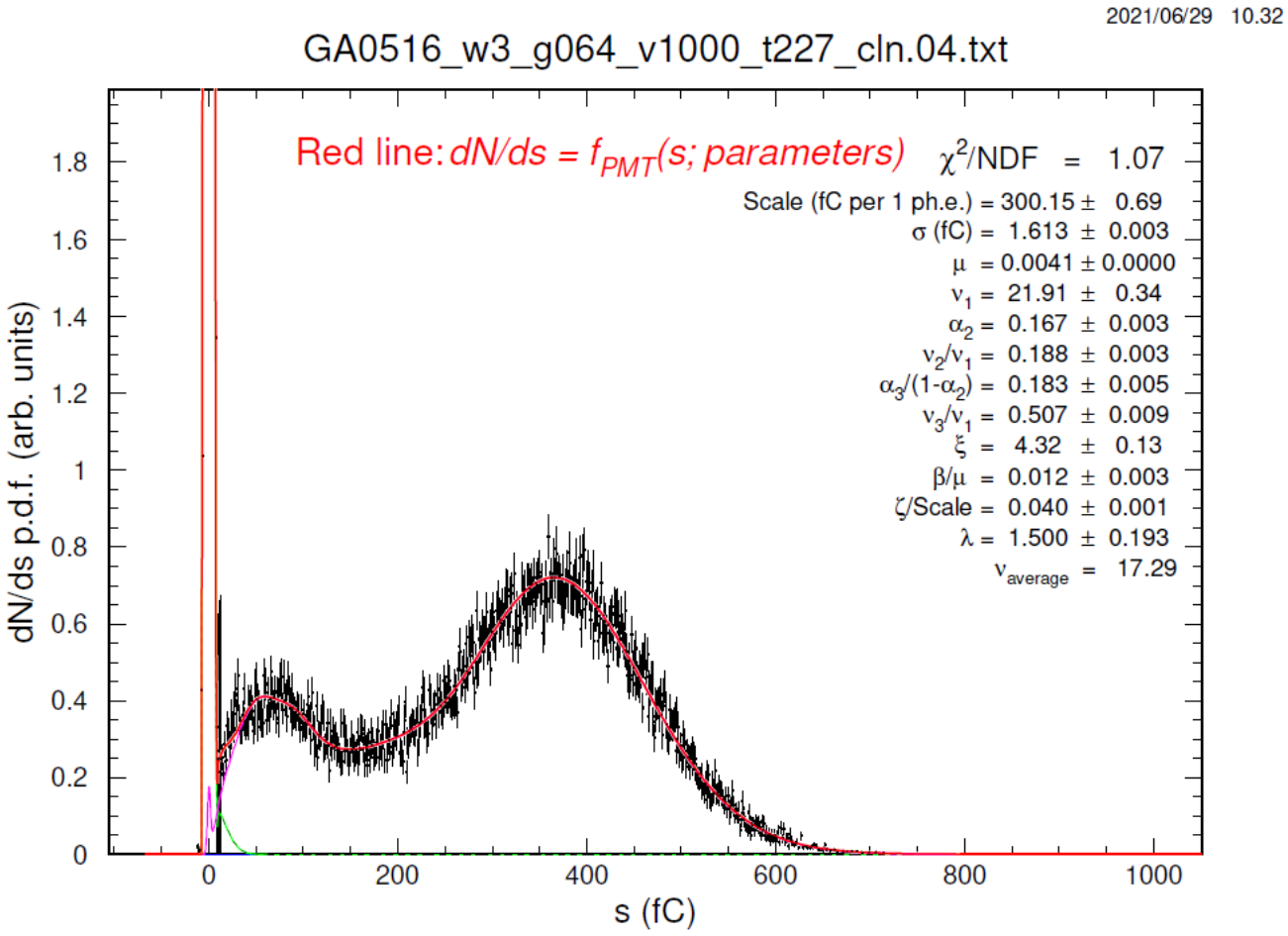

Fig. xxx. SPE probability distribution. PMT GA0516, pixel 4, at HV = 1000 V. Run with full PMT face open, the contribution to the spectrum from the cross-talk events is cleaned by the analysis algorithm before parameterization.

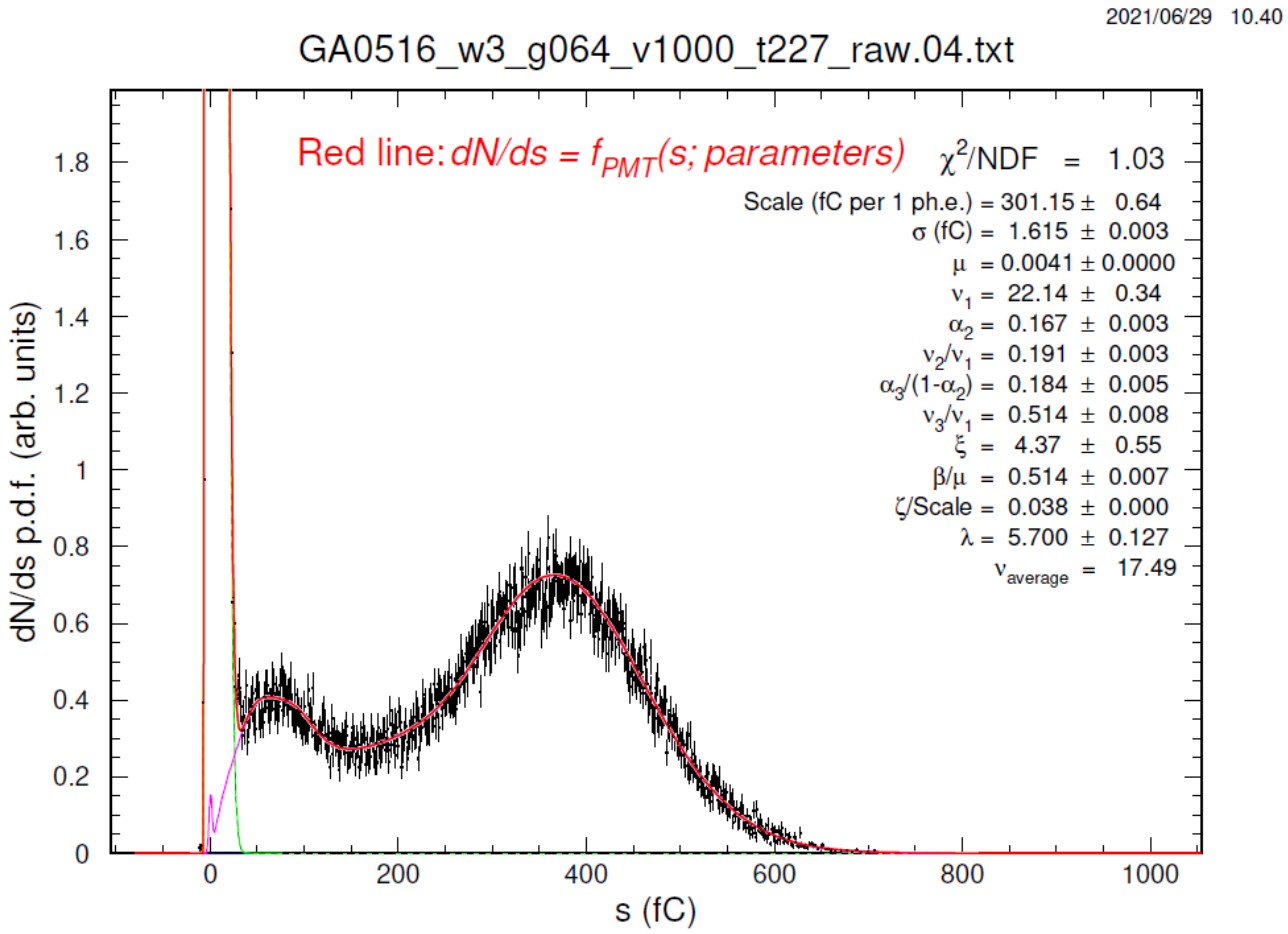

Fig. xxx. SPE probability distribution. PMT GA0516, pixel 4, at HV = 1000 V. Run with full PMT face open, the contribution to the spectrum from the cross-talk events is approximated and parametrized by the analysis algorithm.

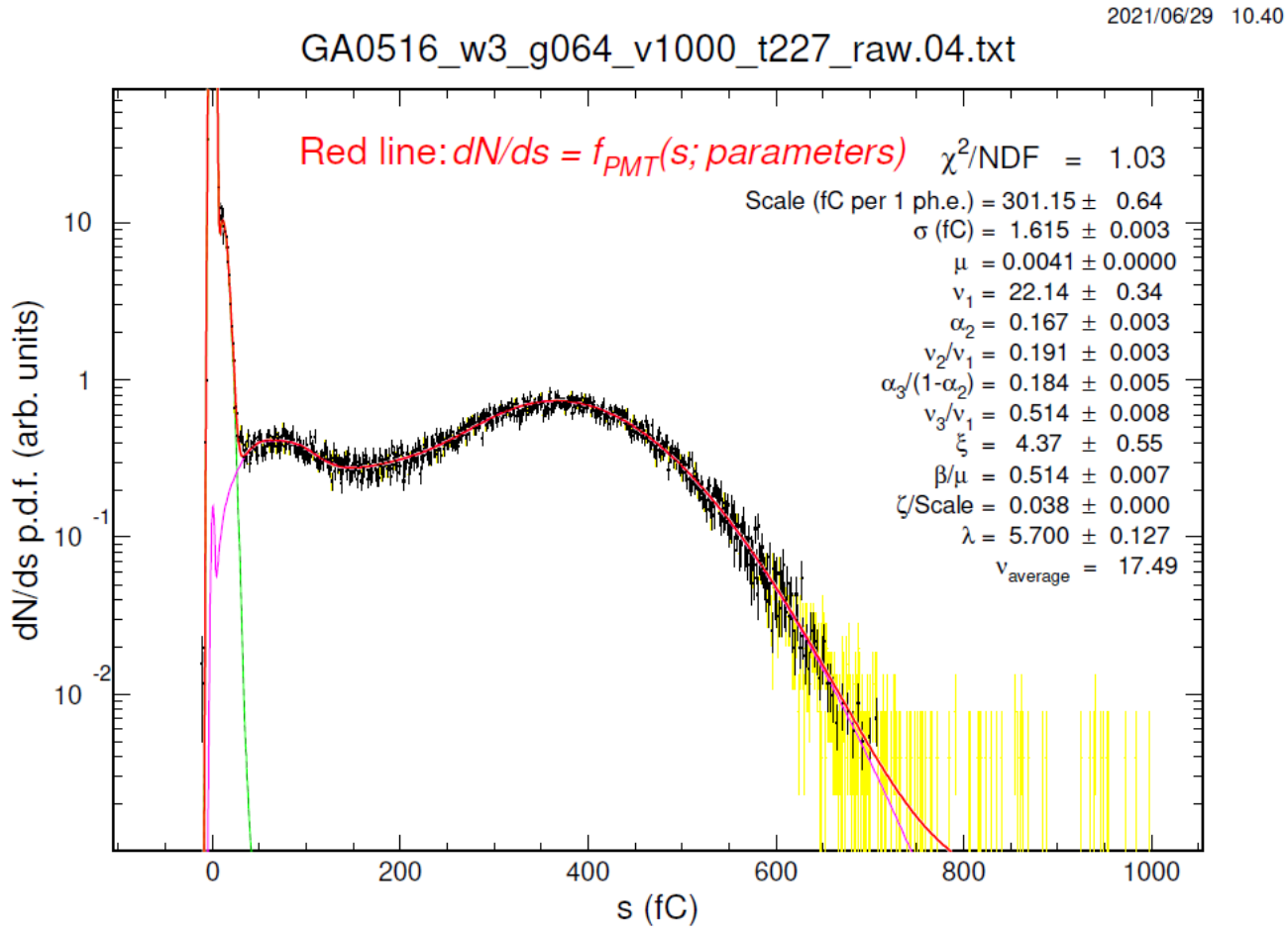

Fig. xxx. SPE probability distribution. PMT GA0516, pixel 4, at HV = 1000 V. Run with full PMT face open, the contribution to the spectrum from the cross-talk events is approximated and parametrized by the analysis algorithm. Same as in previous figure, but using logarithmic scale in Y to illustrate the contribution from the cross-talk.

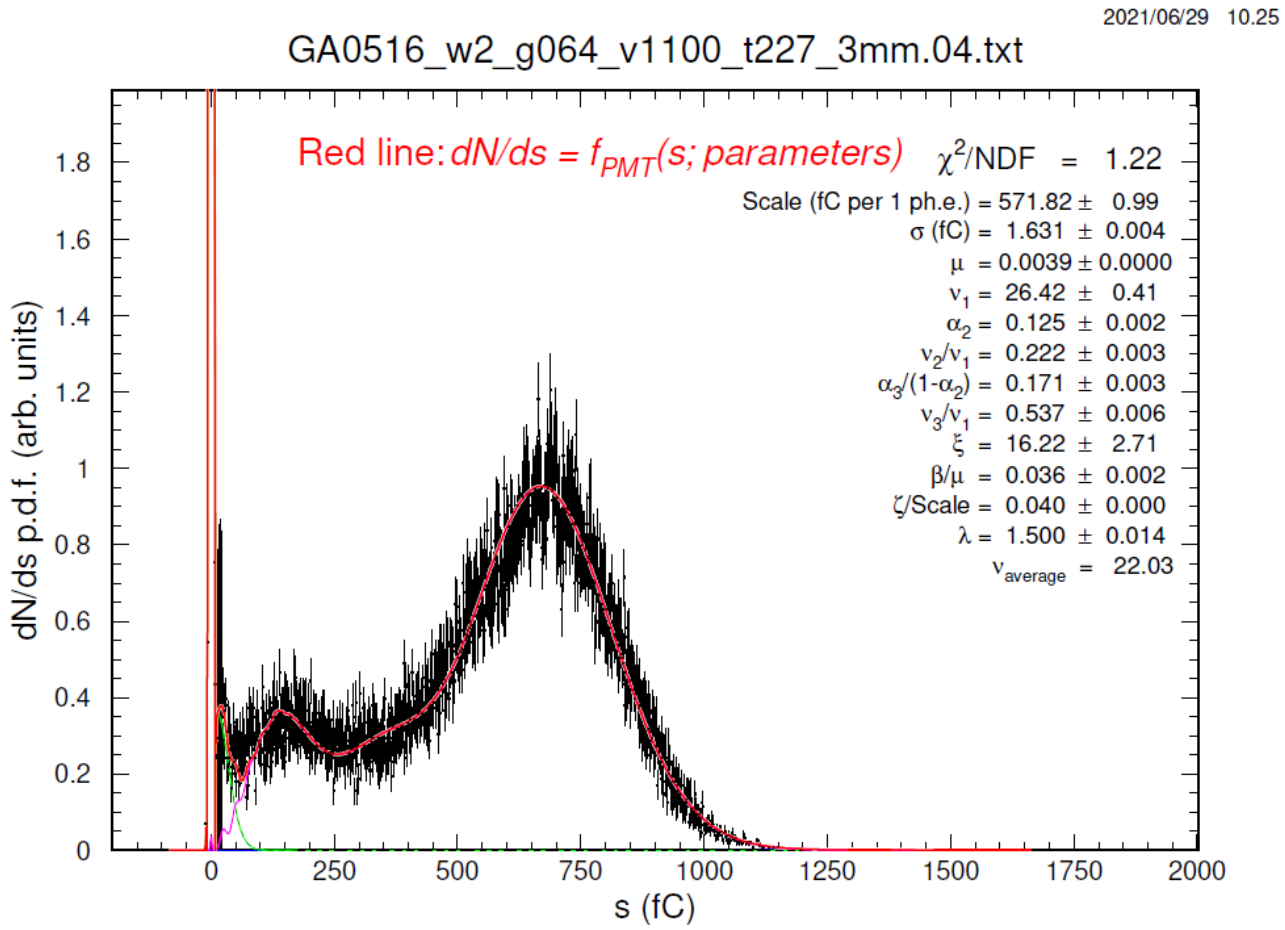

Fig. xxx. SPE probability distribution. PMT GA0516, pixel 4, at HV = 1100 V. Run with only central 3x3 mm part of the pixel was illuminated, and all other pixels were masked.

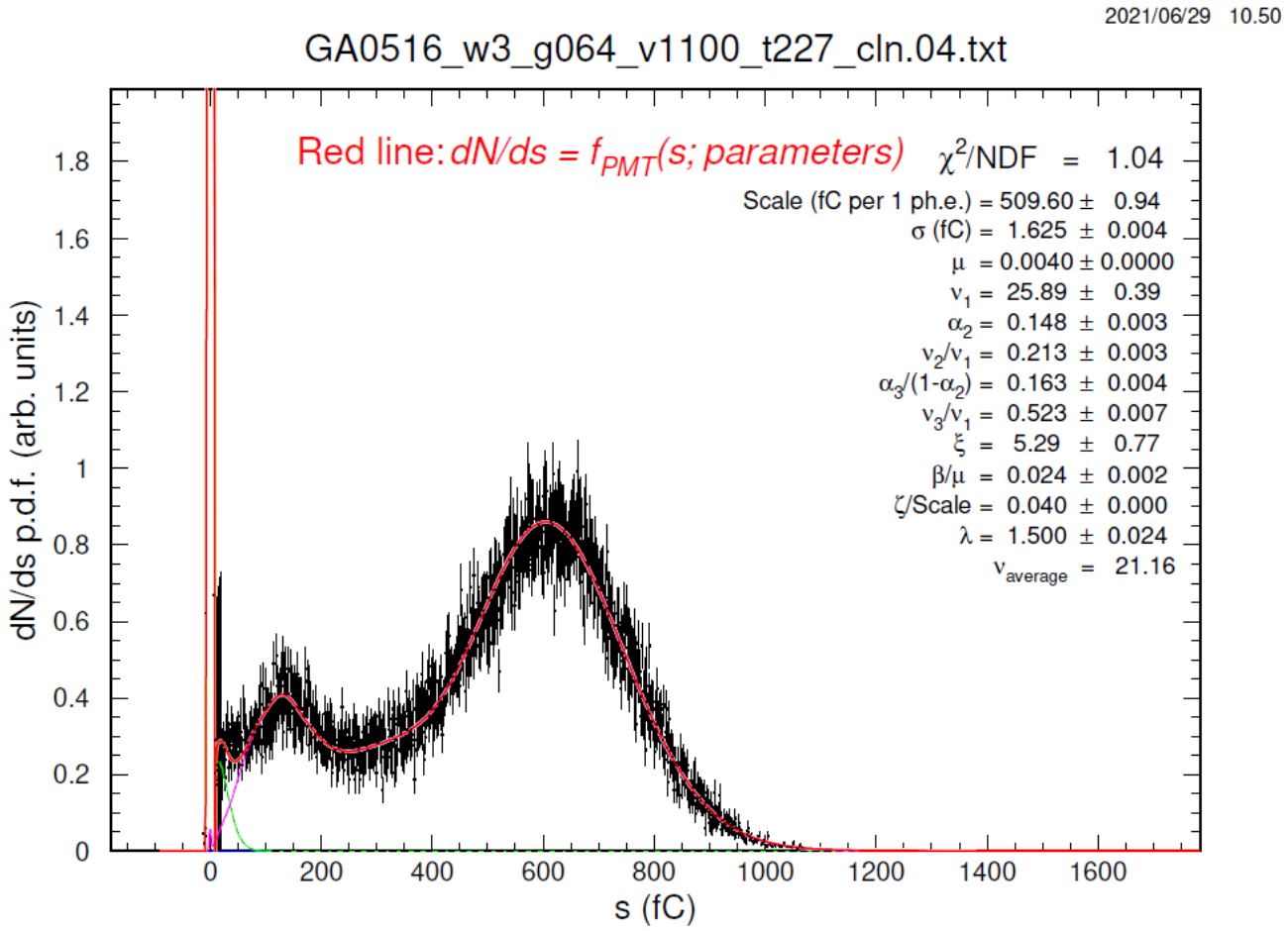

Fig. xxx. SPE probability distribution. PMT GA0516, pixel 4, at HV = 1100 V. Run with full PMT face open, the contribution to the spectrum from the cross-talk events is cleaned by the analysis algorithm before parameterization.

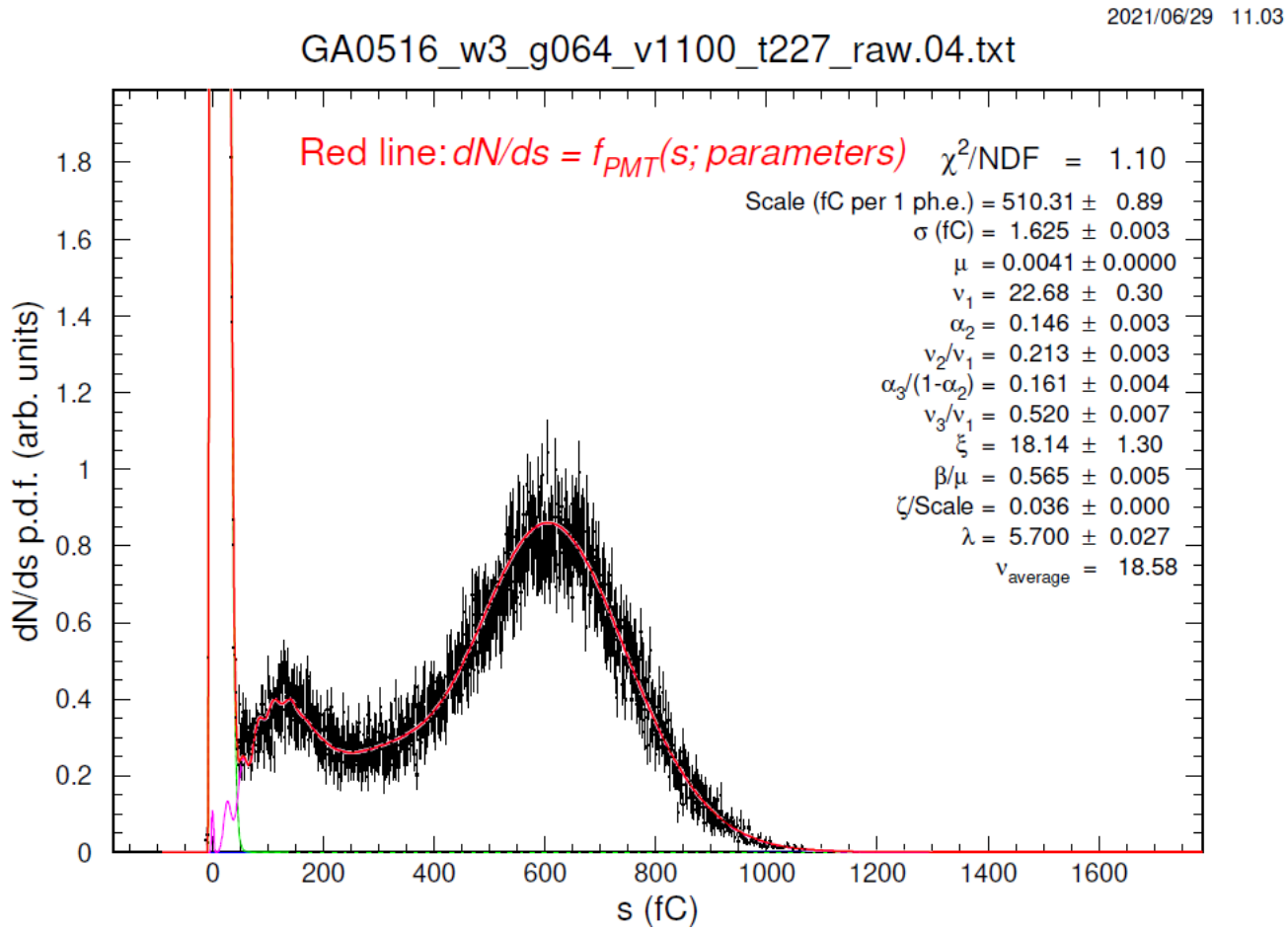

Fig. xxx. SPE probability distribution. PMT GA0516, pixel 4, at HV = 1100 V. Run with full PMT face open, the contribution to the spectrum from the cross-talk events is approximated and parametrized by the analysis algorithm.

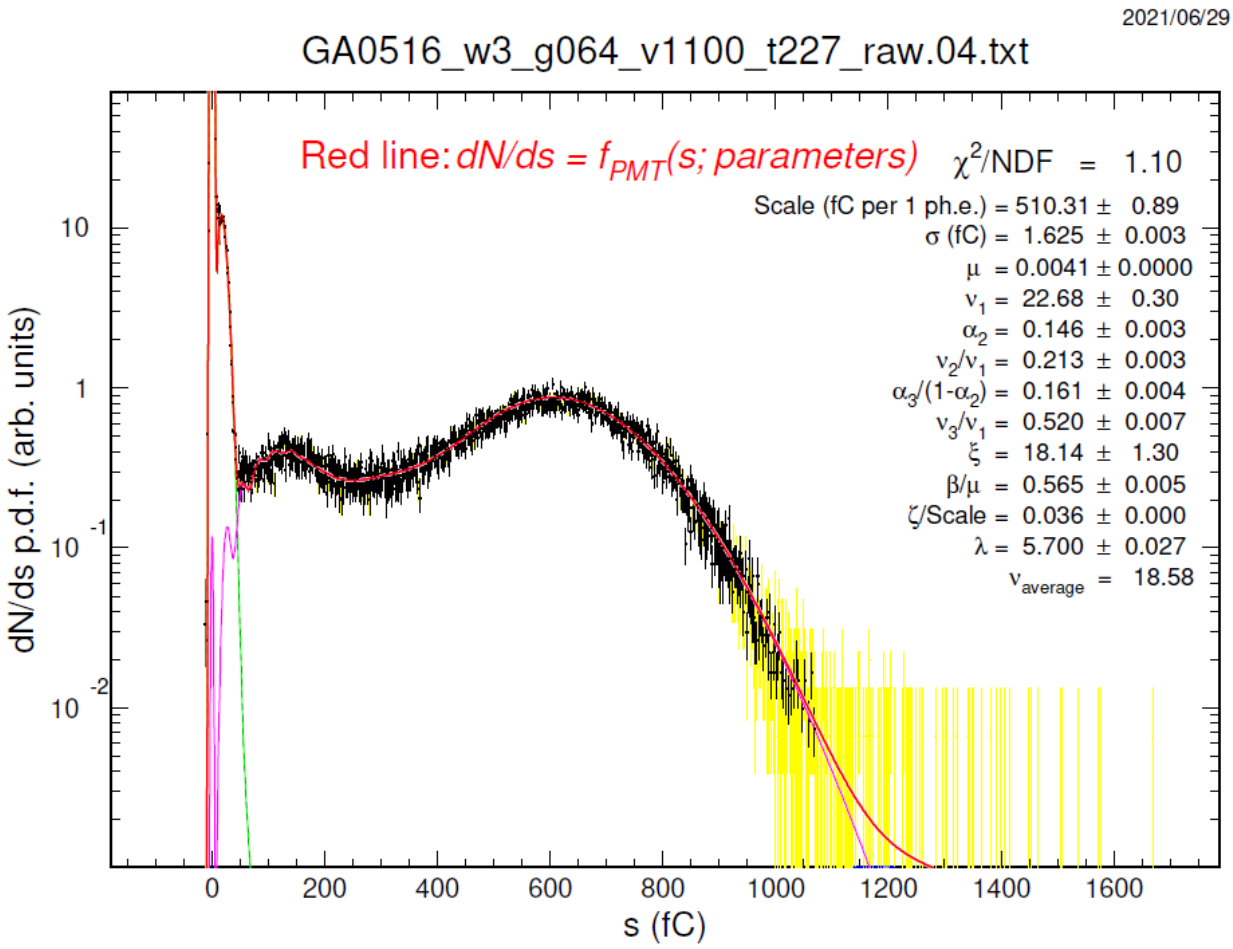

Fig. xxx. SPE probability distribution. PMT GA0516, pixel 4, at HV = 1100 V. Run with full PMT face open, the contribution to the spectrum from the cross-talk events is approximated and parametrized by the analysis algorithm. Same as in previous figure, but using logarithmic scale in Y to illustrate the contribution from the cross-talk.

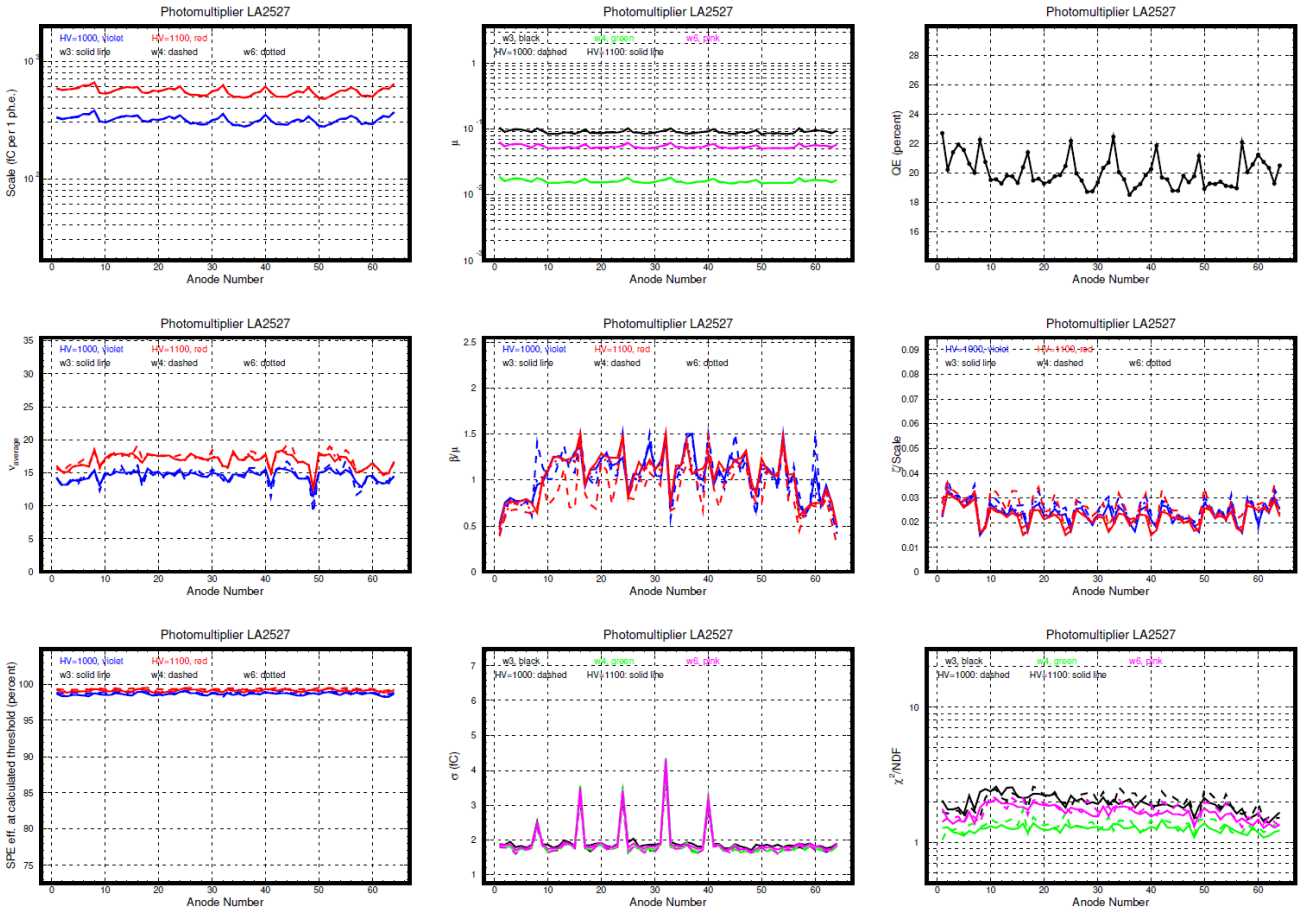

Fig. xxx. Illustration of the "PSPMT Passport" plots for one of the tubes, LA2527. The standard six measurements included runs at three illumination settings (wheel positions 3, 4, and 6), each at two operating high voltage values (1000 V, and 1100 V).

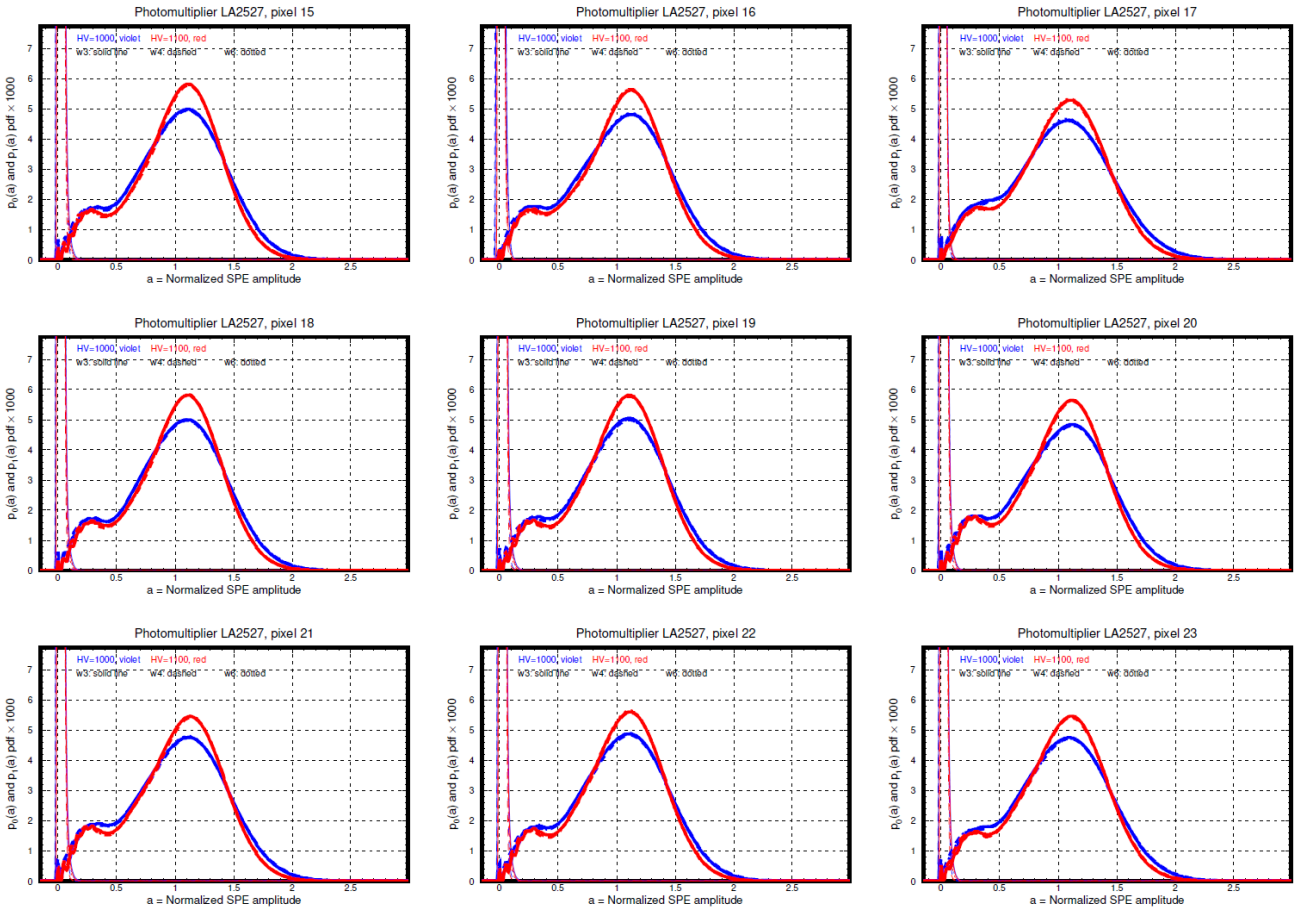

Fig. xxx. Illustration of the "PSPMT Passport" plots for one of the tubes, LA2527, continued. The standard six measurements included runs at three illumination settings (wheel positions 3, 4, and 6), each at two operating high voltage values (1000 V, and 1100 V). Shown are the calculated SPE functions, defined by the fit parameters resulting from the independent fitting procedures for each six settings. Blue color corresponds to the three sets at HV = 1000 V, and red – to the runs at HV = 1100 V. The fit parameters of the independent fits at three different illuminations result in a very stable SPE shapes, essentially overlapping each other in the plots.

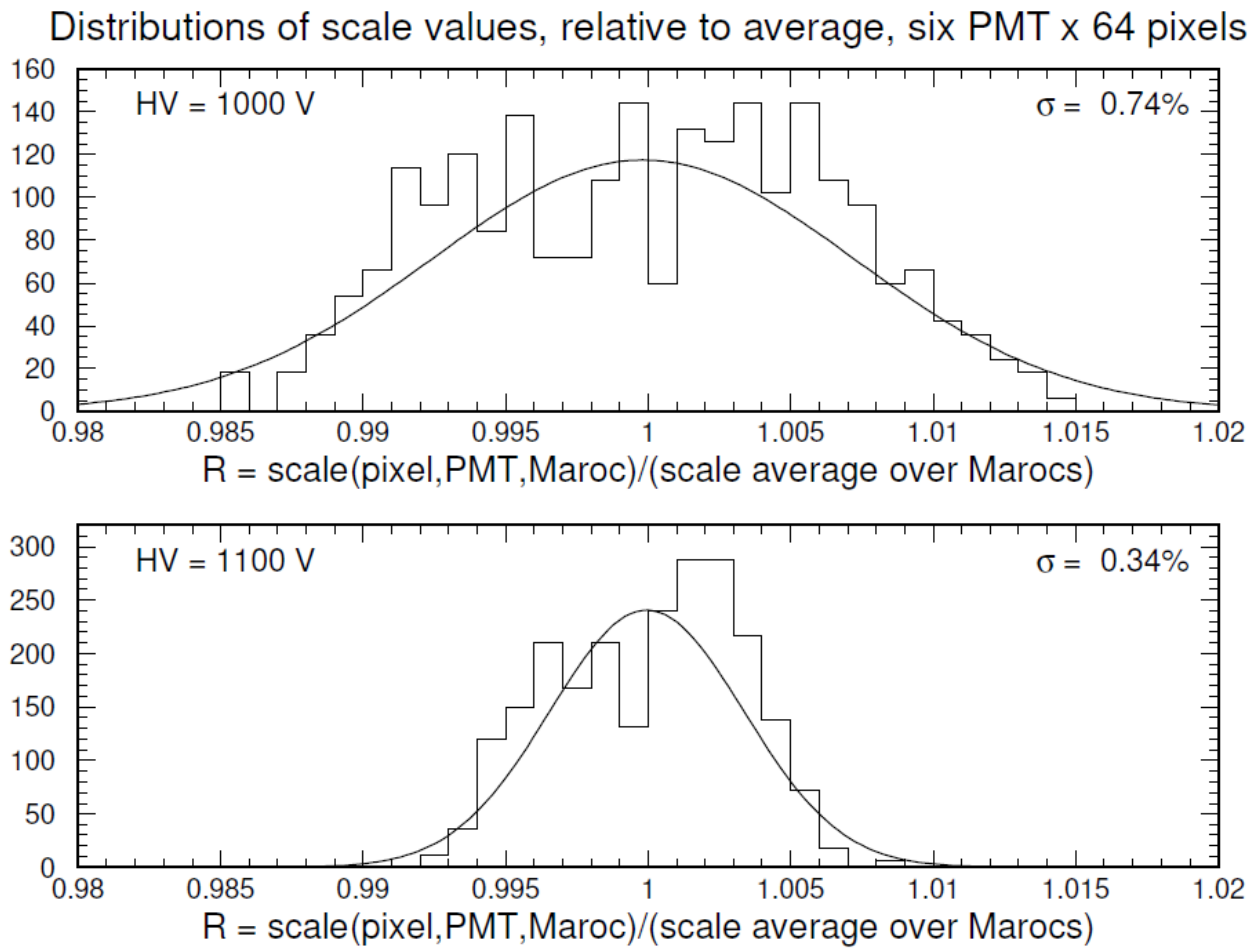

Fig. xxx. Evaluated precision of the scale parameter measurement for the two high voltage settings.

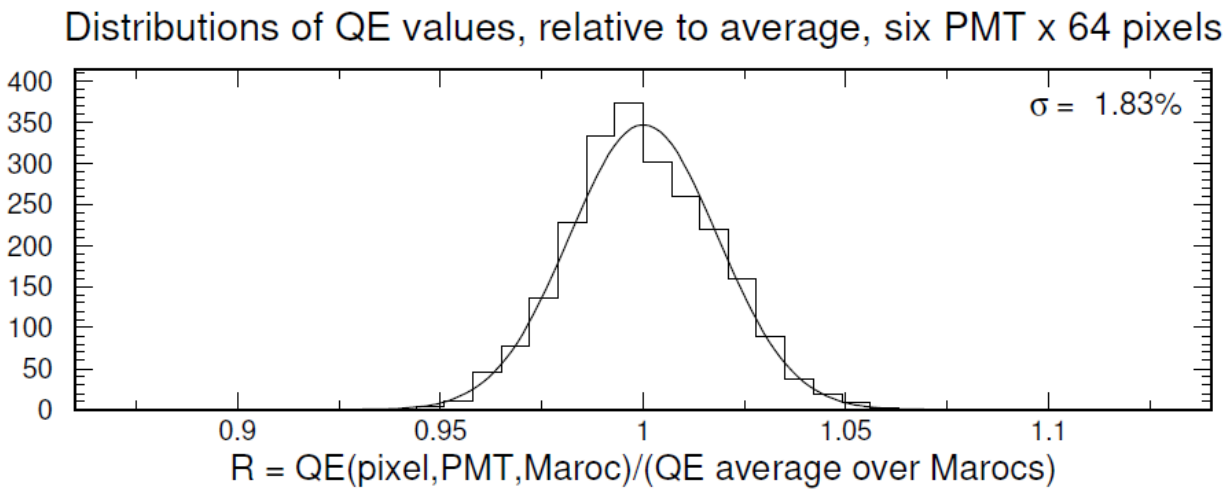

Fig. xxx. Evaluated precision of the scale parameter measurement for the two high voltage settings.

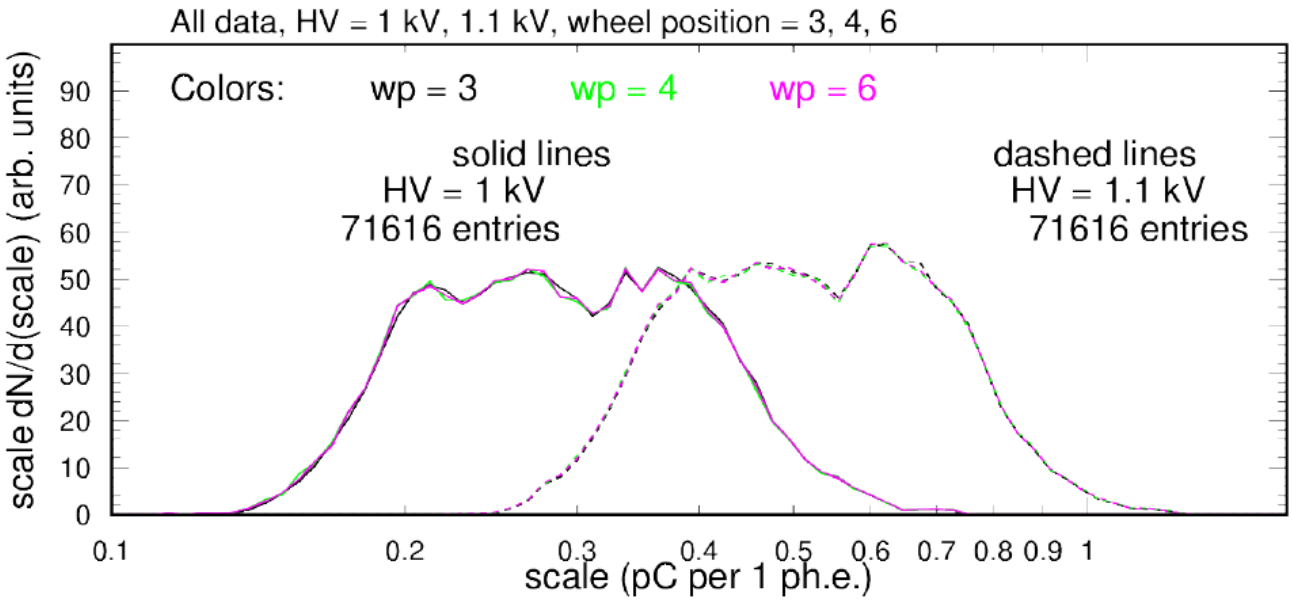
All data, HV = 1 kV, 1.1 kV, wheel position = 3, 4, 6
Colors:
wp = 3
wp = 4
wp = 6
solid lines
HV = 1 kV
71616 entries
dashed lines
HV = 1.1 kV
71616 entries
scale dN/d(scale) (arb. units)
scale (pC per 1 ph.e.)

Fig. xxx. .

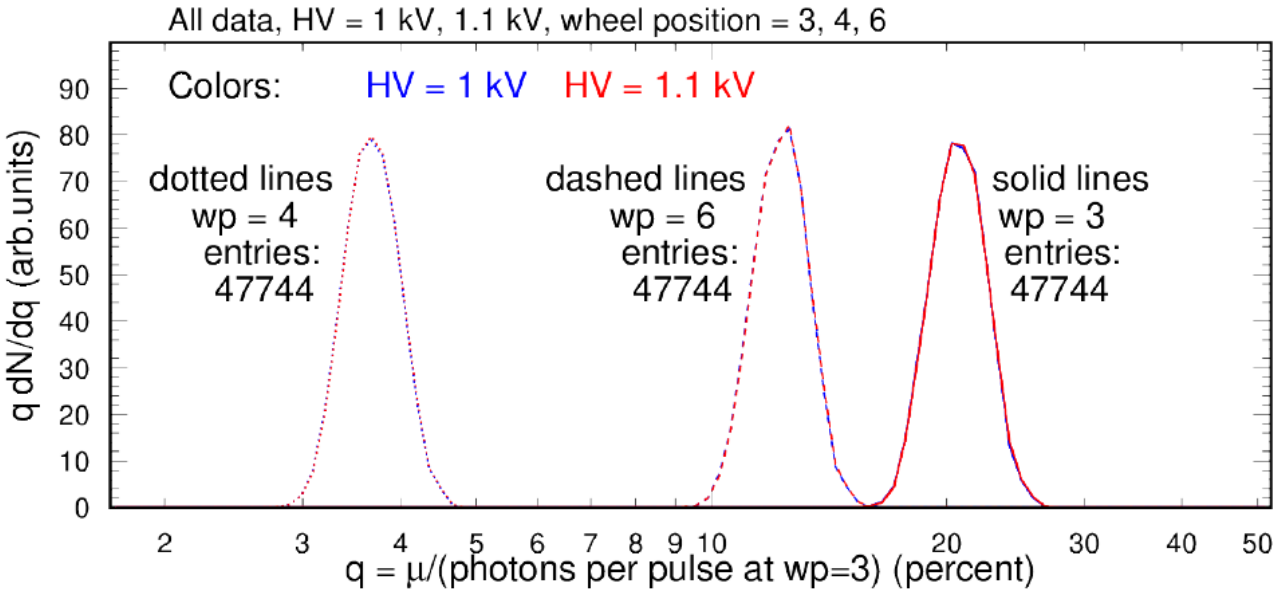
All data, HV = 1 kV, 1.1 kV, wheel position = 3, 4, 6
Colors:
HV = 1 kV
HV = 1.1 kV
dotted lines
wp = 4
entries:
47744
dashed lines
wp = 6
entries:
47744
solid lines
wp = 3
entries:
47744
q dN/dq (arb.units)
0
10
20
30
40
50
60
70
80
90
2
3
4
5
6
7
8
9
10
20
30
40
50
q = μ/(photons per pulse at wp=3) (percent)

Fig. xxx. .

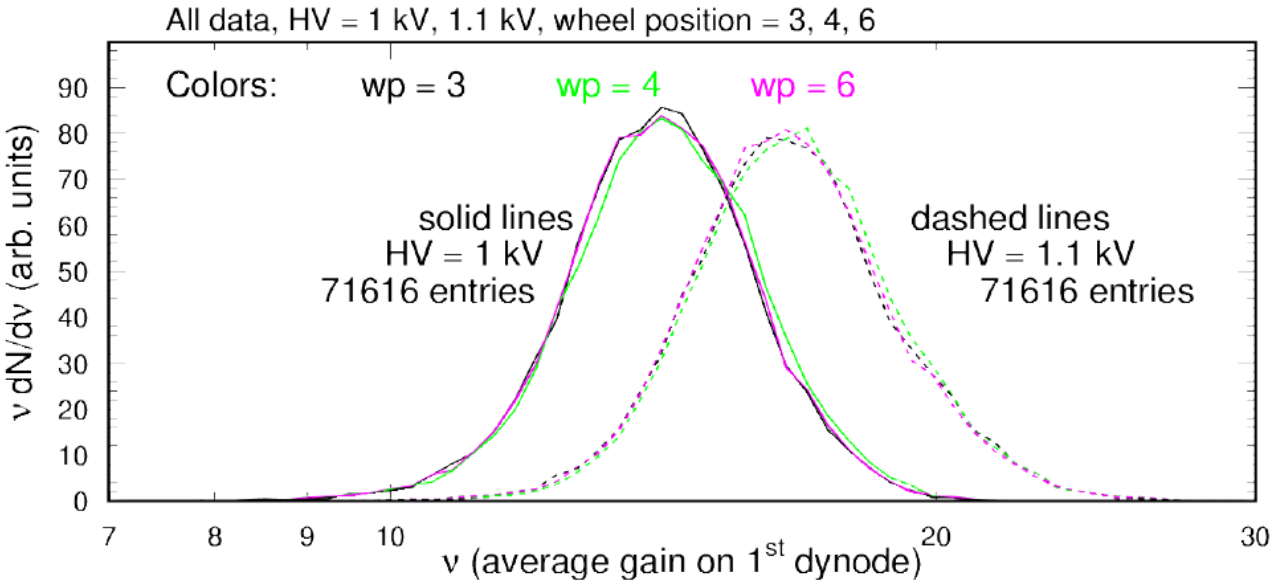
All data, HV = 1 kV, 1.1 kV, wheel position = 3, 4, 6
Colors:
wp = 3
wp = 4
wp = 6
solid lines
HV = 1 kV
71616 entries
dashed lines
HV = 1.1 kV
71616 entries
ν dN/dν (arb. units)
ν (average gain on 1st dynode)
0
10
20
30
40
50
60
70
80
90
7
8
9
10
20
30

Fig. xxx. .

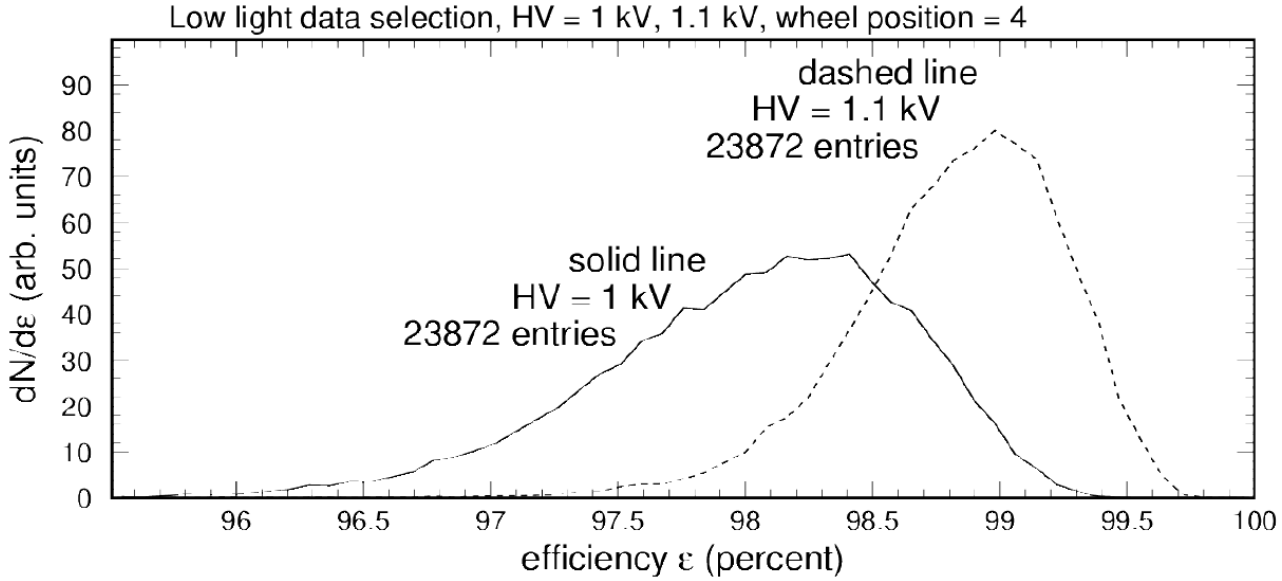
Low light data selection, HV = 1 kV, 1.1 kV, wheel position = 4
dashed line
HV = 1.1 kV
23872 entries
solid line
HV = 1 kV
23872 entries
dN/dε (arb. units)
efficiency ε (percent)
0
10
20
30
40
50
60
70
80
90
96
96.5
97
97.5
98
98.5
99
99.5
100

Fig. xxx. .

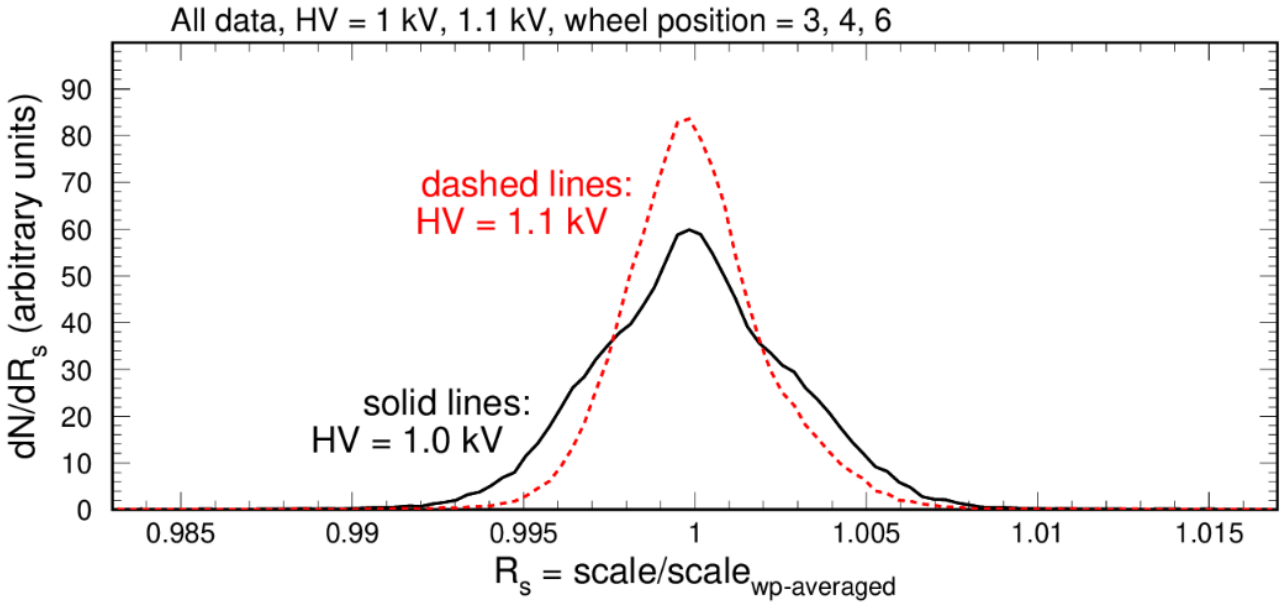
All data, HV = 1 kV, 1.1 kV, wheel position = 3, 4, 6
dN/dR$_s$ (arbitrary units)
90
80
70
60
50
40
30
20
10
0
dashed lines:
HV = 1.1 kV
solid lines:
HV = 1.0 kV
0.985
0.99
0.995
1
1.005
1.01
1.015
R$_s$ = scale/scale$_{wp\text{-}averaged}$

Fig. xxx. .

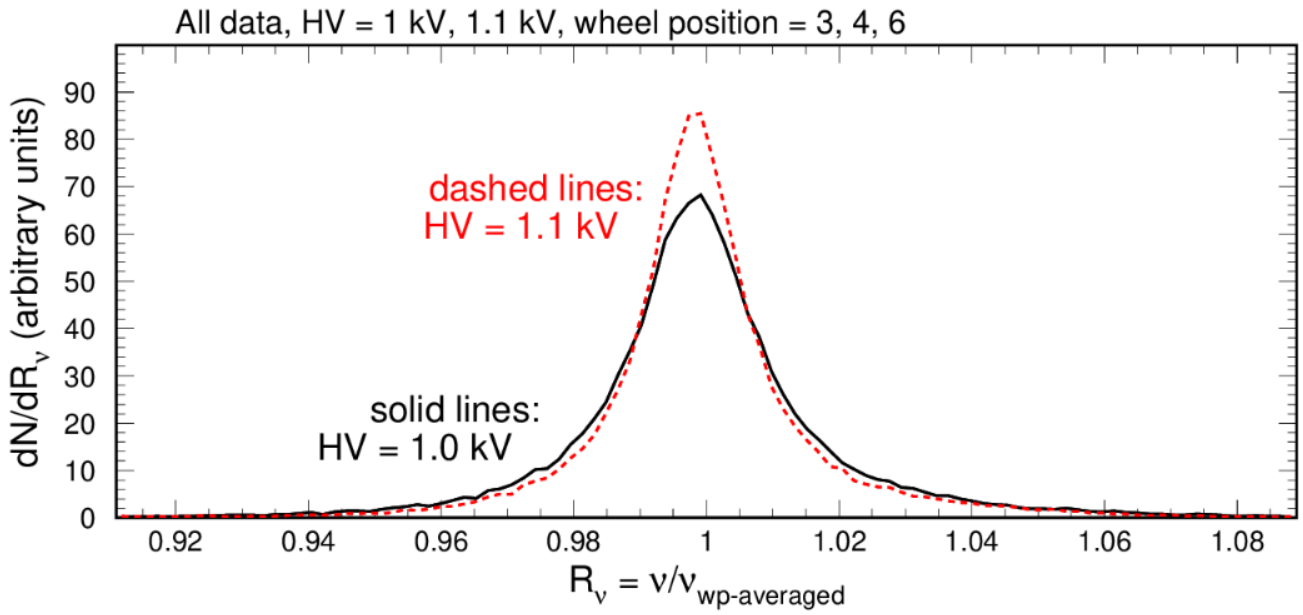
All data, HV = 1 kV, 1.1 kV, wheel position = 3, 4, 6
dN/dR$_\nu$ (arbitrary units)
dashed lines:
HV = 1.1 kV
solid lines:
HV = 1.0 kV
R$_\nu$ = ν/ν$_{wp\text{-}averaged}$
0
10
20
30
40
50
60
70
80
90
0.92
0.94
0.96
0.98
1
1.02
1.04
1.06
1.08

Fig. xxx. .

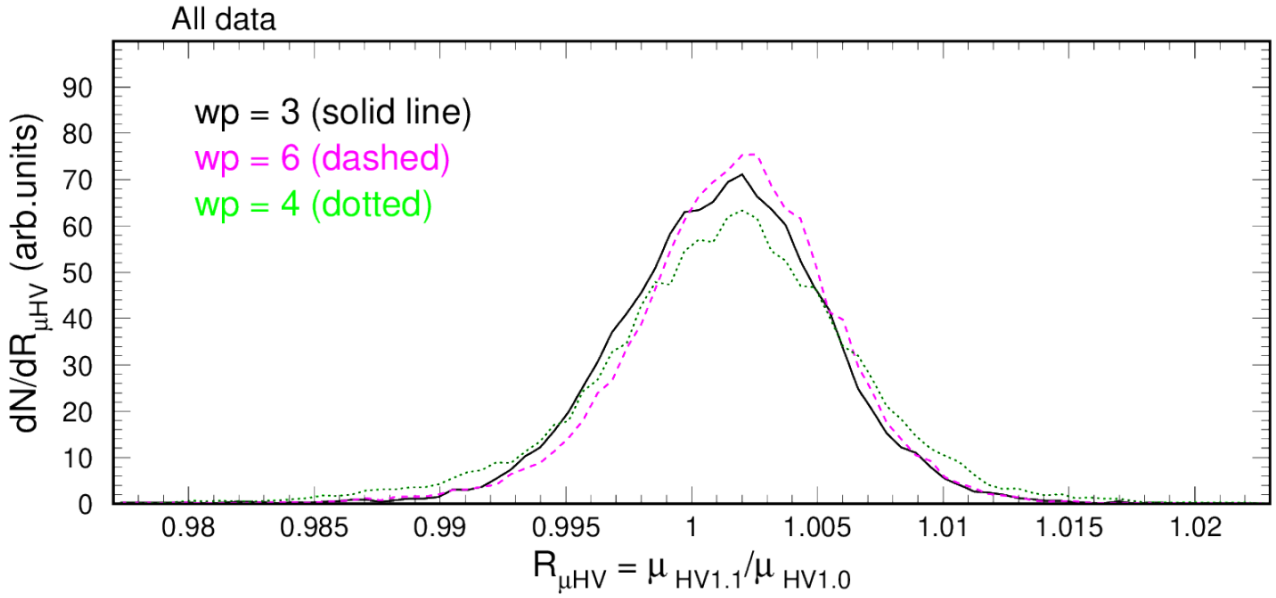
All data
wp = 3 (solid line)
wp = 6 (dashed)
wp = 4 (dotted)
dN/dR_μHV (arb.units)
R_μHV = μ_HV1.1/μ_HV1.0
0
10
20
30
40
50
60
70
80
90
0.98
0.985
0.99
0.995
1
1.005
1.01
1.015
1.02

Fig. xxx. .

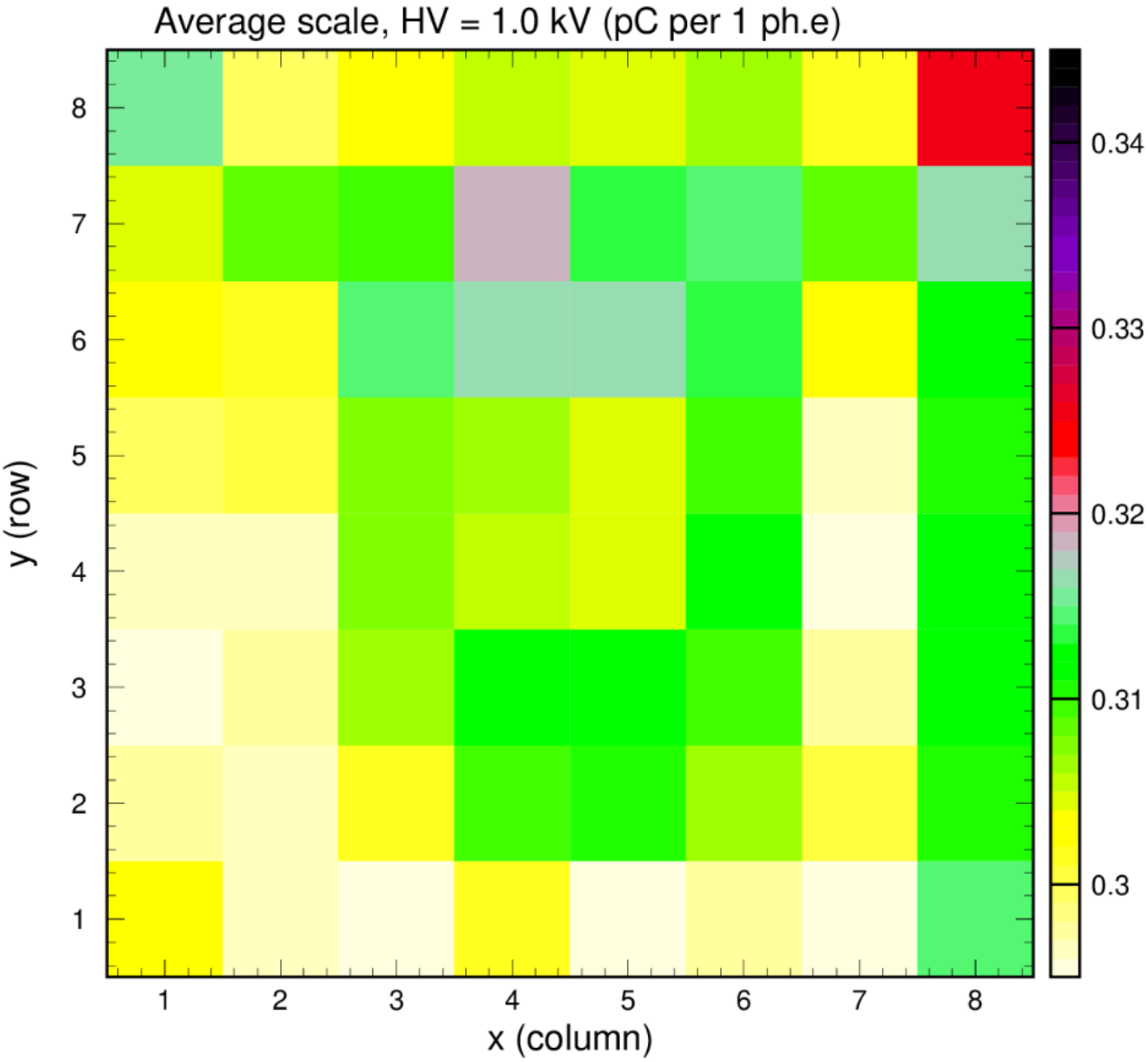
Average scale, HV = 1.0 kV (pC per 1 ph.e)
y (row)
x (column)
1
2
3
4
5
6
7
8
0.34
0.33
0.32
0.31
0.3

Fig. xxx. .

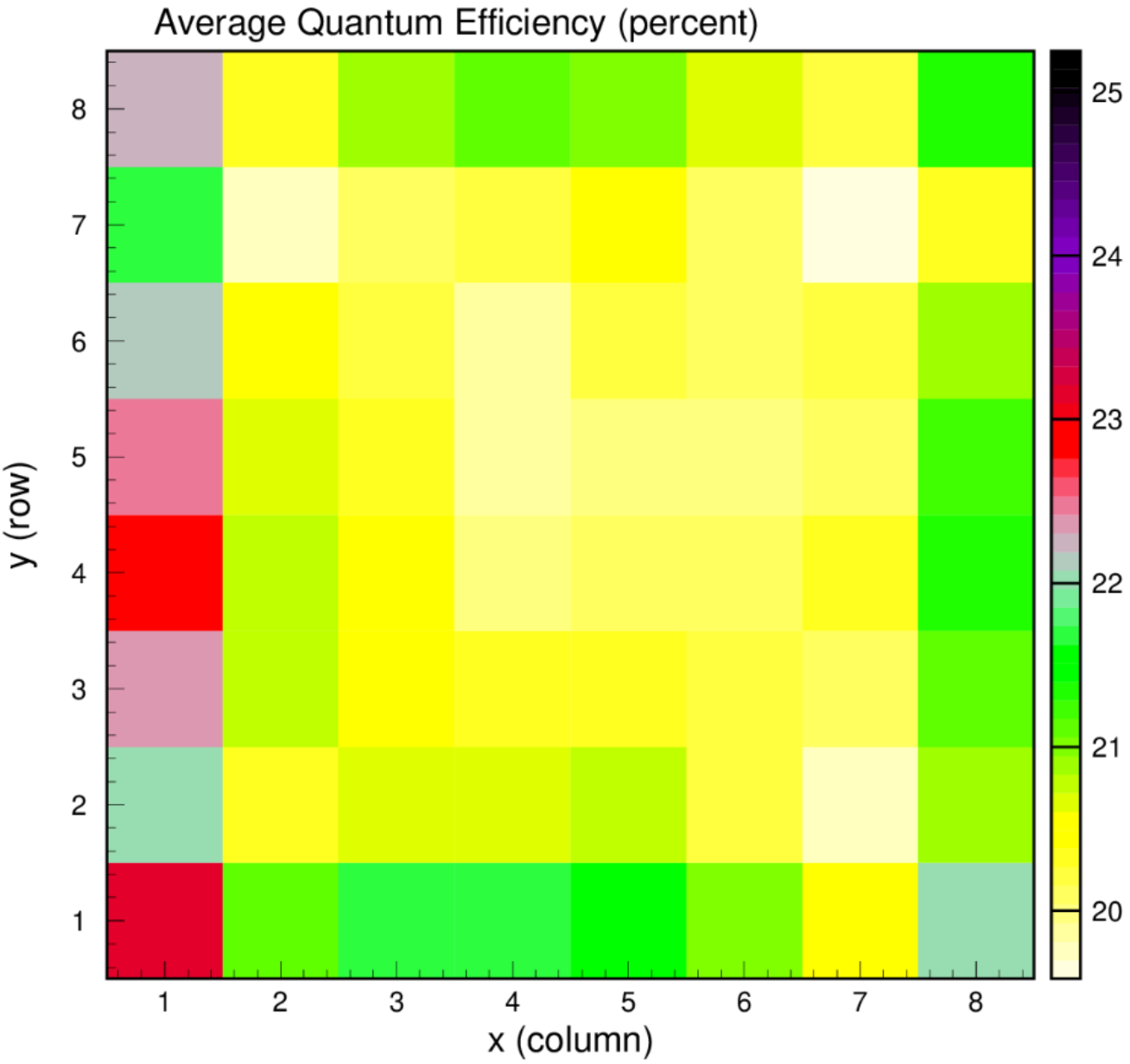
Average Quantum Efficiency (percent)
y (row)
x (column)
1
2
3
4
5
6
7
8
20
21
22
23
24
25

Fig. xxx. .

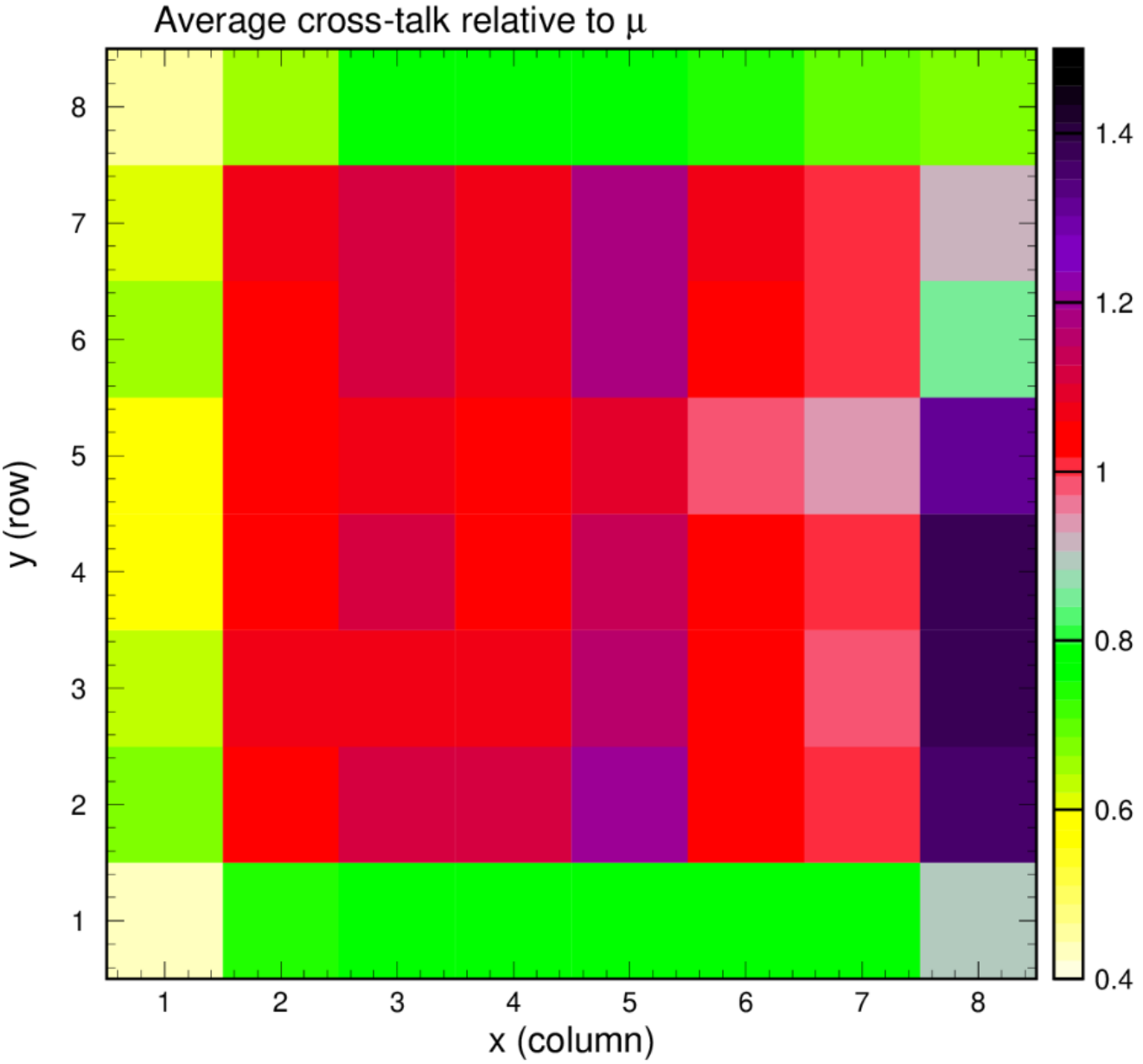
Average cross-talk relative to μ
y (row)
x (column)
1
2
3
4
5
6
7
8
0.4
0.6
0.8
1
1.2
1.4

Fig. xxx. .

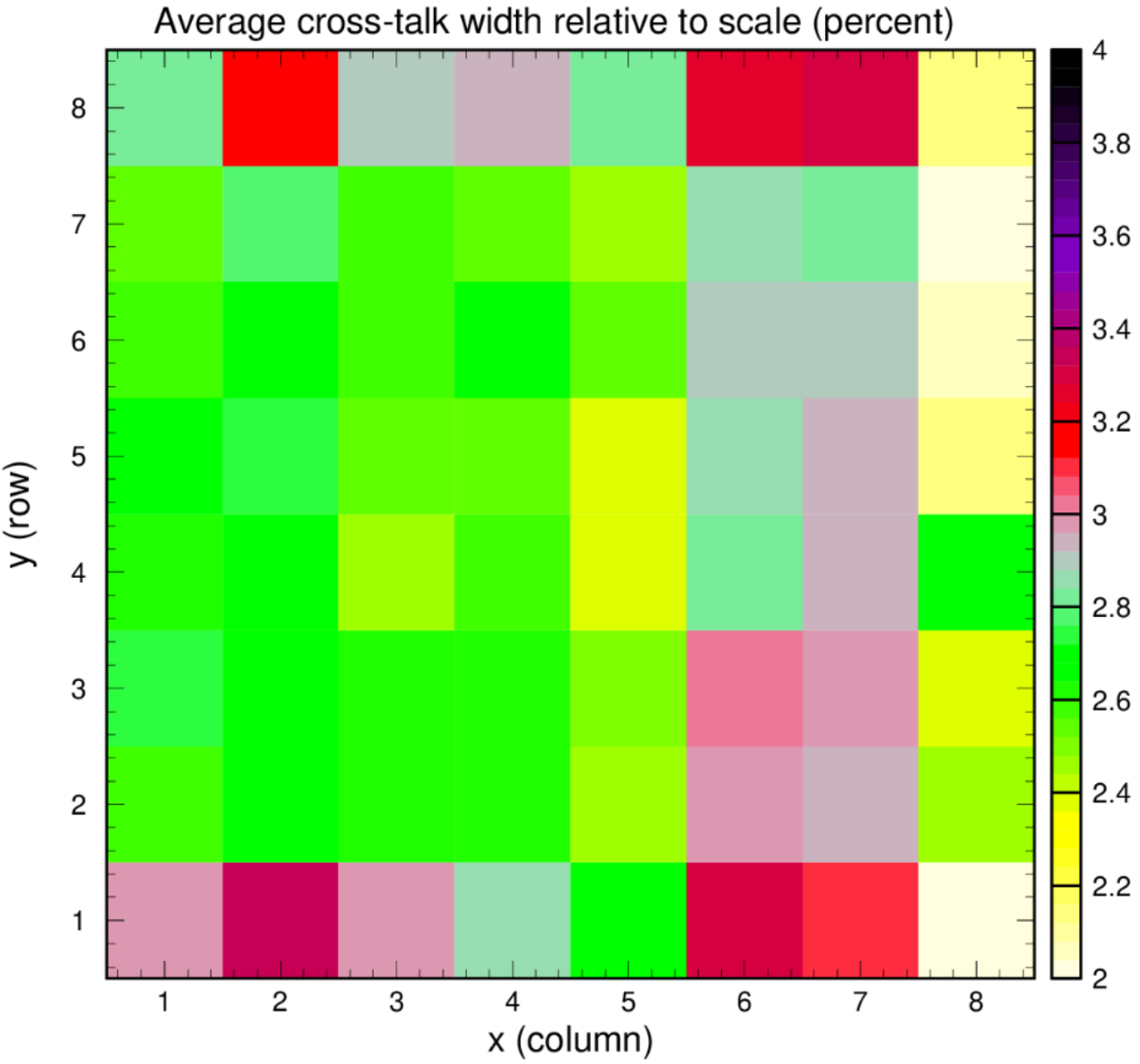
Average cross-talk width relative to scale (percent)
y (row)
x (column)
1
2
3
4
5
6
7
8
4
3.8
3.6
3.4
3.2
3
2.8
2.6
2.4
2.2
2

Fig. xxx. .

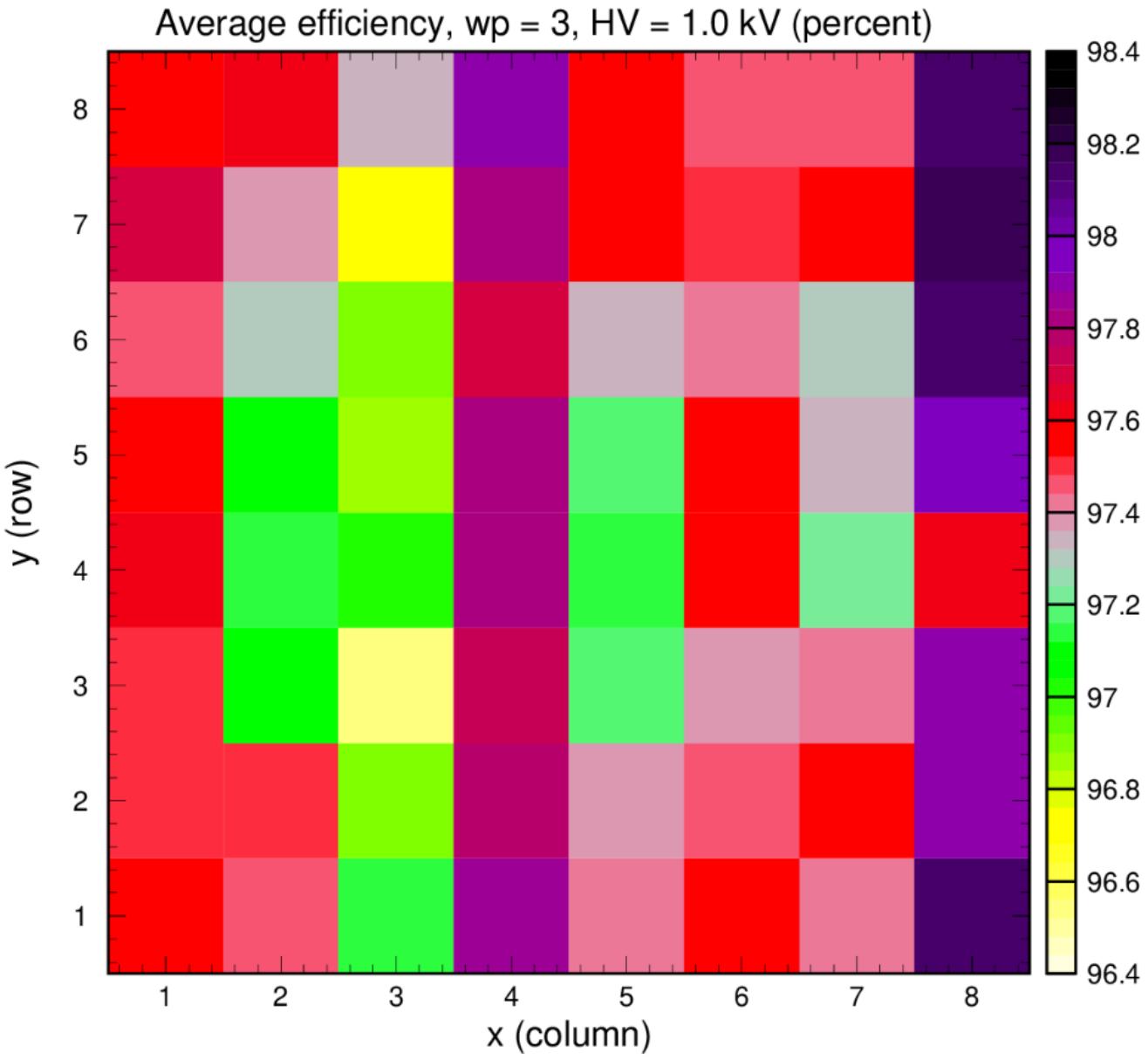
Average efficiency, wp = 3, HV = 1.0 kV (percent)
y (row)
x (column)
1
2
3
4
5
6
7
8
98.4
98.2
98
97.8
97.6
97.4
97.2
97
96.8
96.6
96.4

Fig. xxx. .