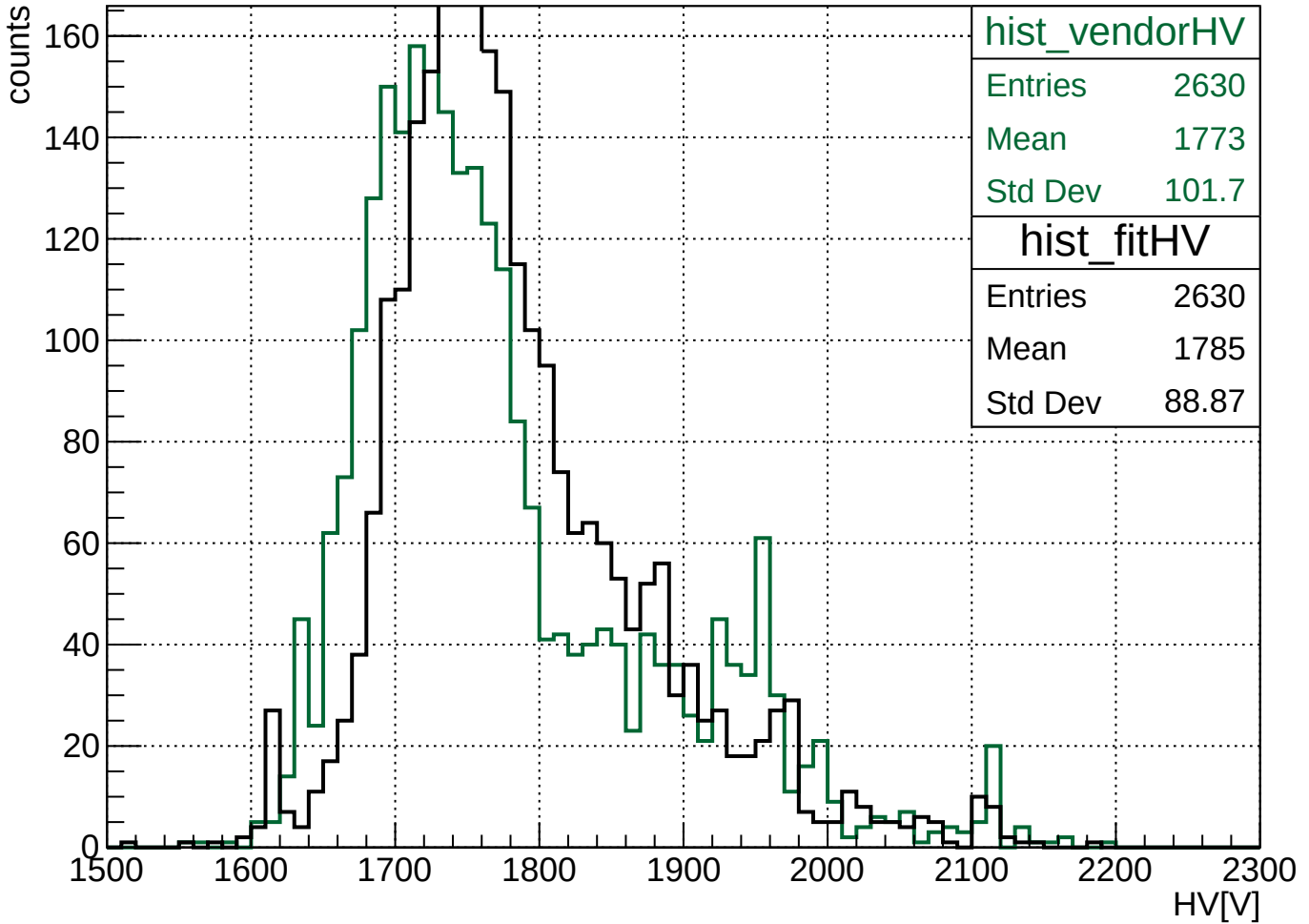
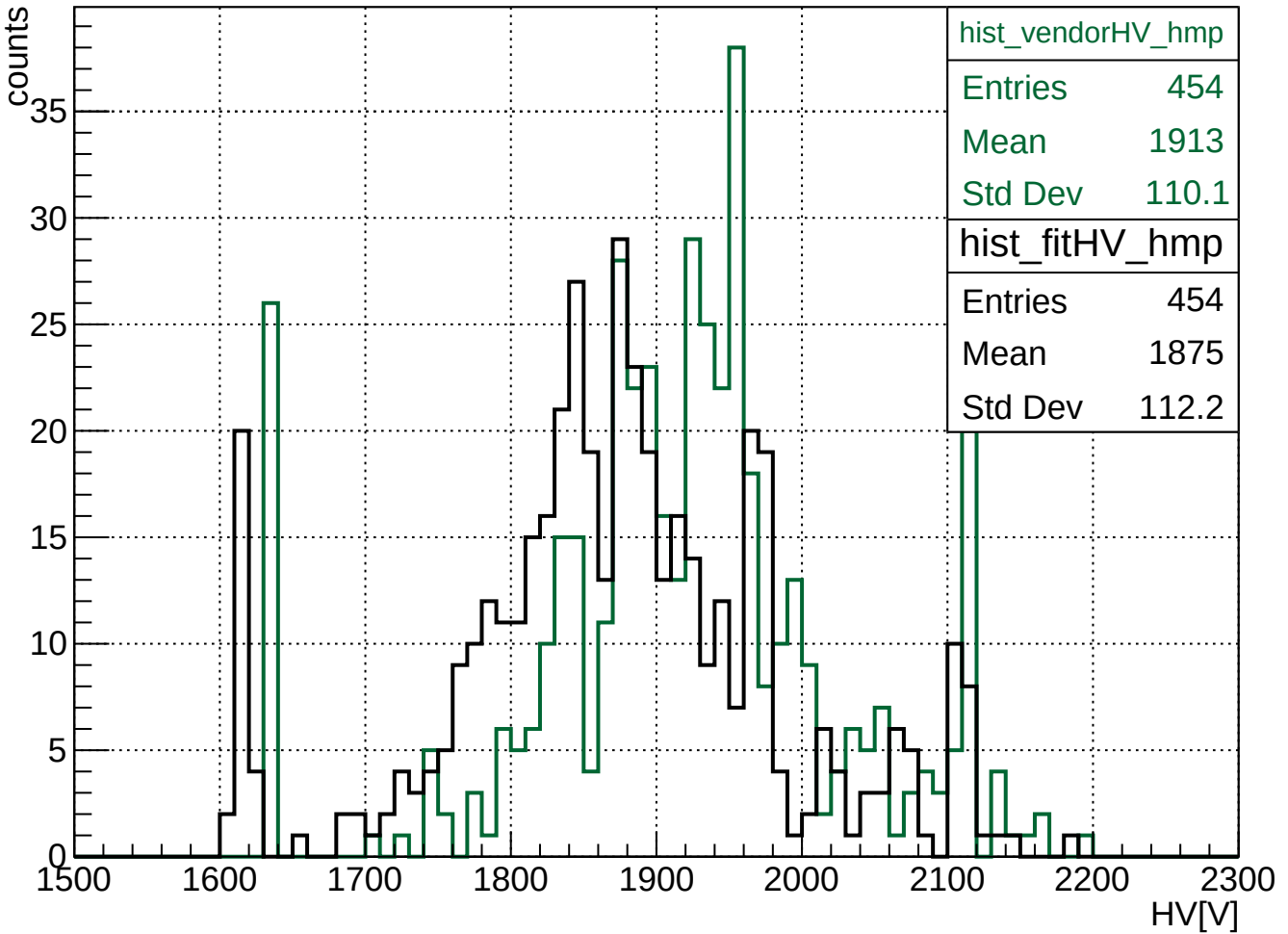
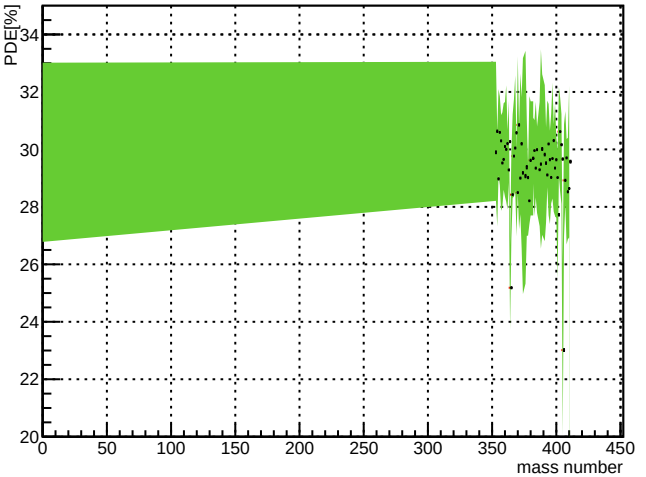
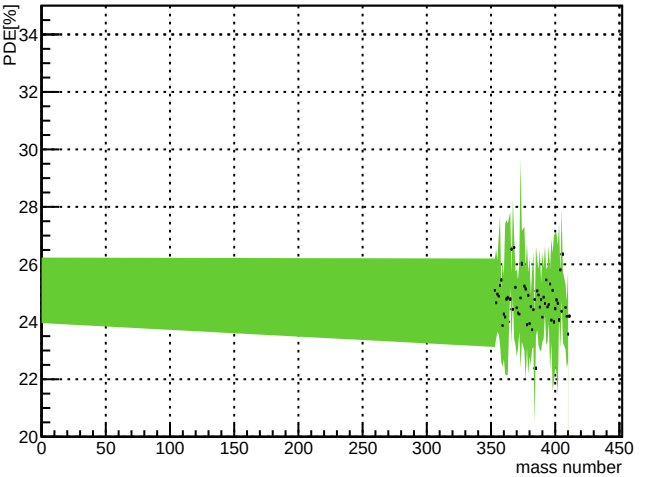

vendor and fit HV of all PMT
counts
HV[V]
hist_vendorHV
Entries 2630
Mean 1773
Std Dev 101.7
hist_fitHV
Entries 2630
Mean 1785
Std Dev 88.87


vendor and fit HV of HMP PMT
counts
HV[V]
hist_vendorHV_hmp
Entries 454
Mean 1913
Std Dev 110.1
hist_fitHV_hmp
Entries 454
Mean 1875
Std Dev 112.2
0
5
10
15
20
25
30
35
1500
1600
1700
1800
1900
2000
2100
2200
2300

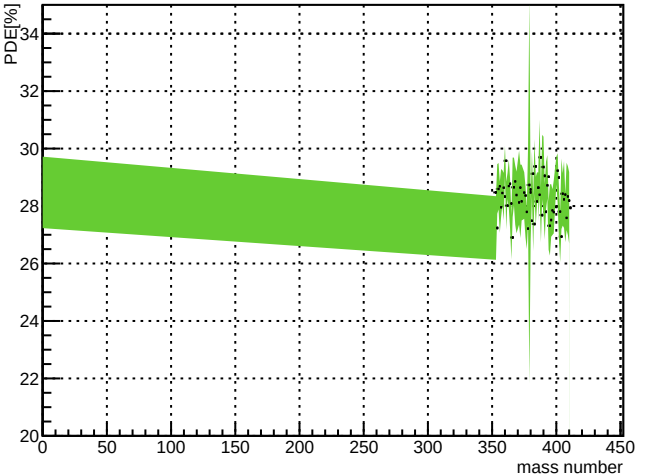
PDE of reference PMT EA0419



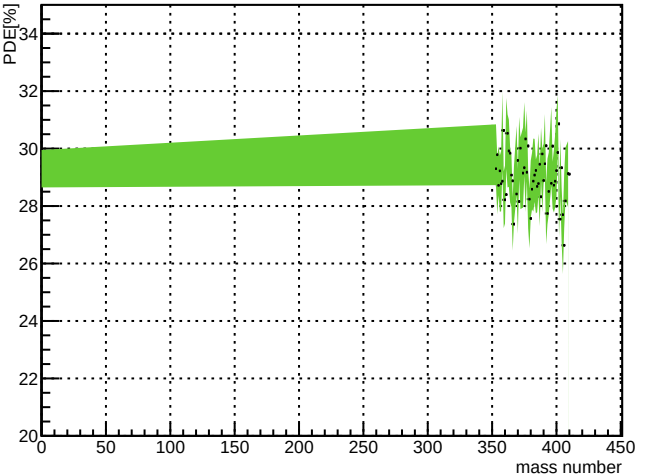
PDE of reference PMT EA1578

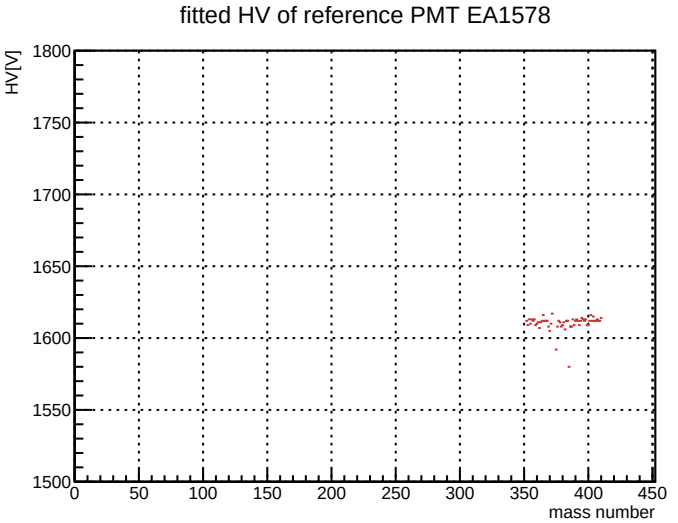


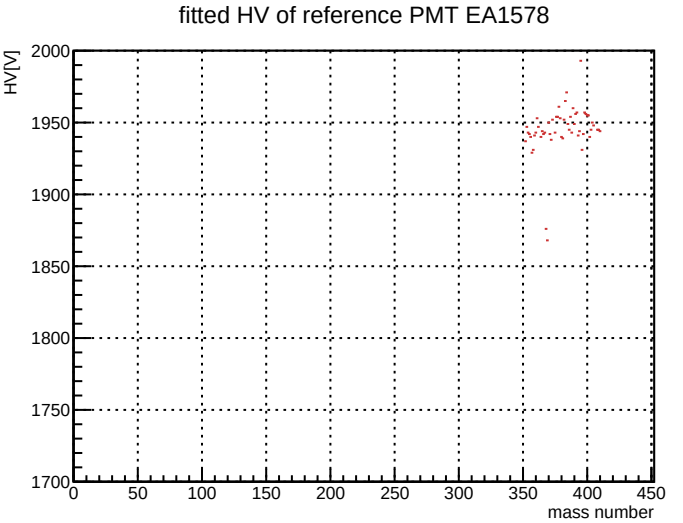
PDE of reference PMT PA1705-117

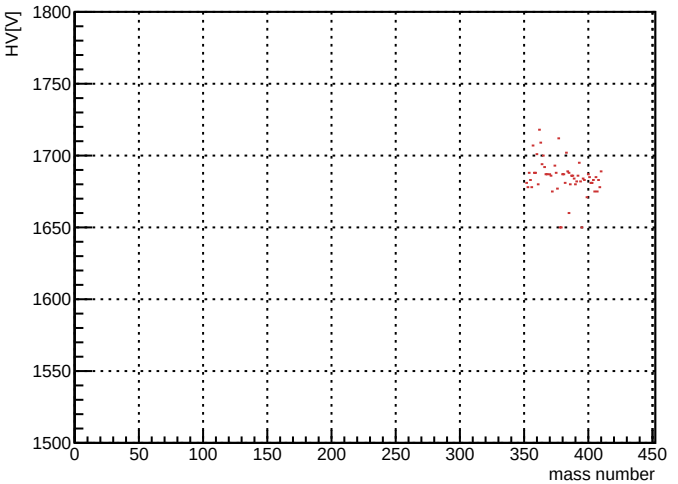


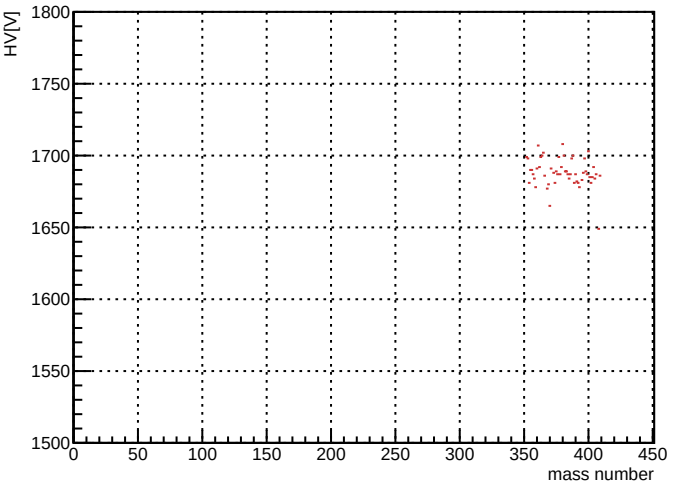
PDE of reference PMT PA1704-731

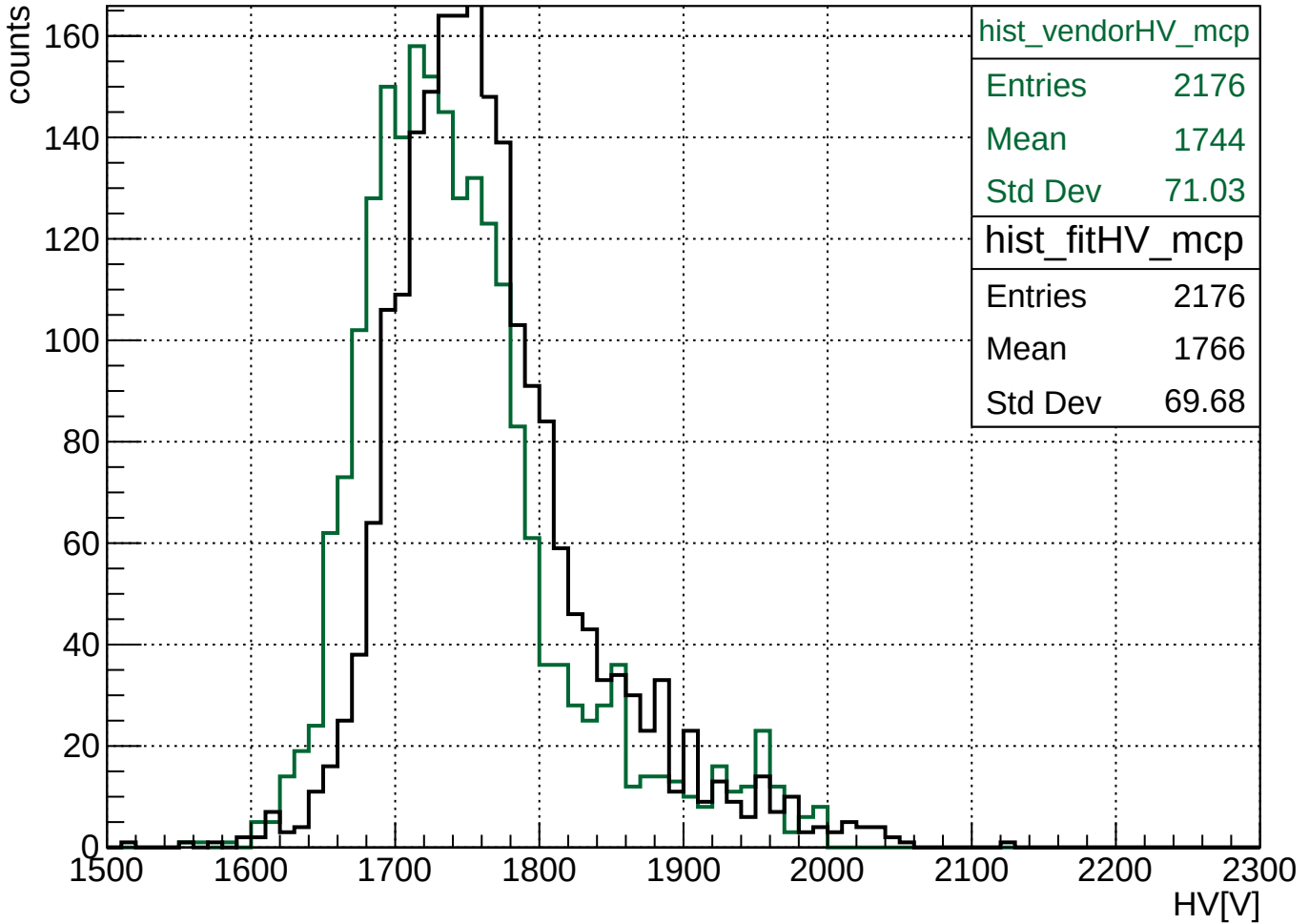


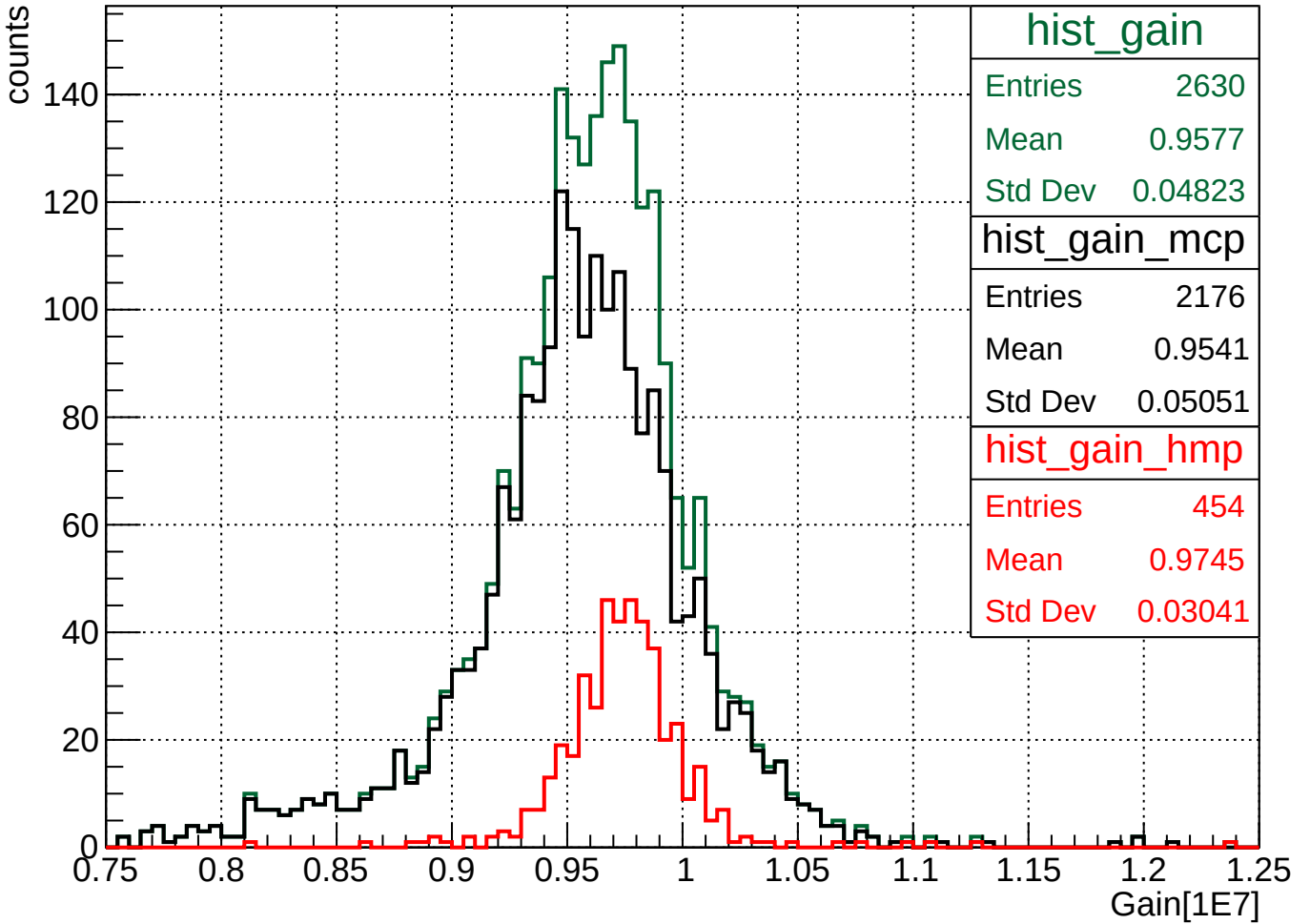

fitted HV of reference PMT EA1578
HV[V]
1800
1750
1700
1650
1600
1550
1500
0
50
100
150
200
250
300
350
400
450
mass number

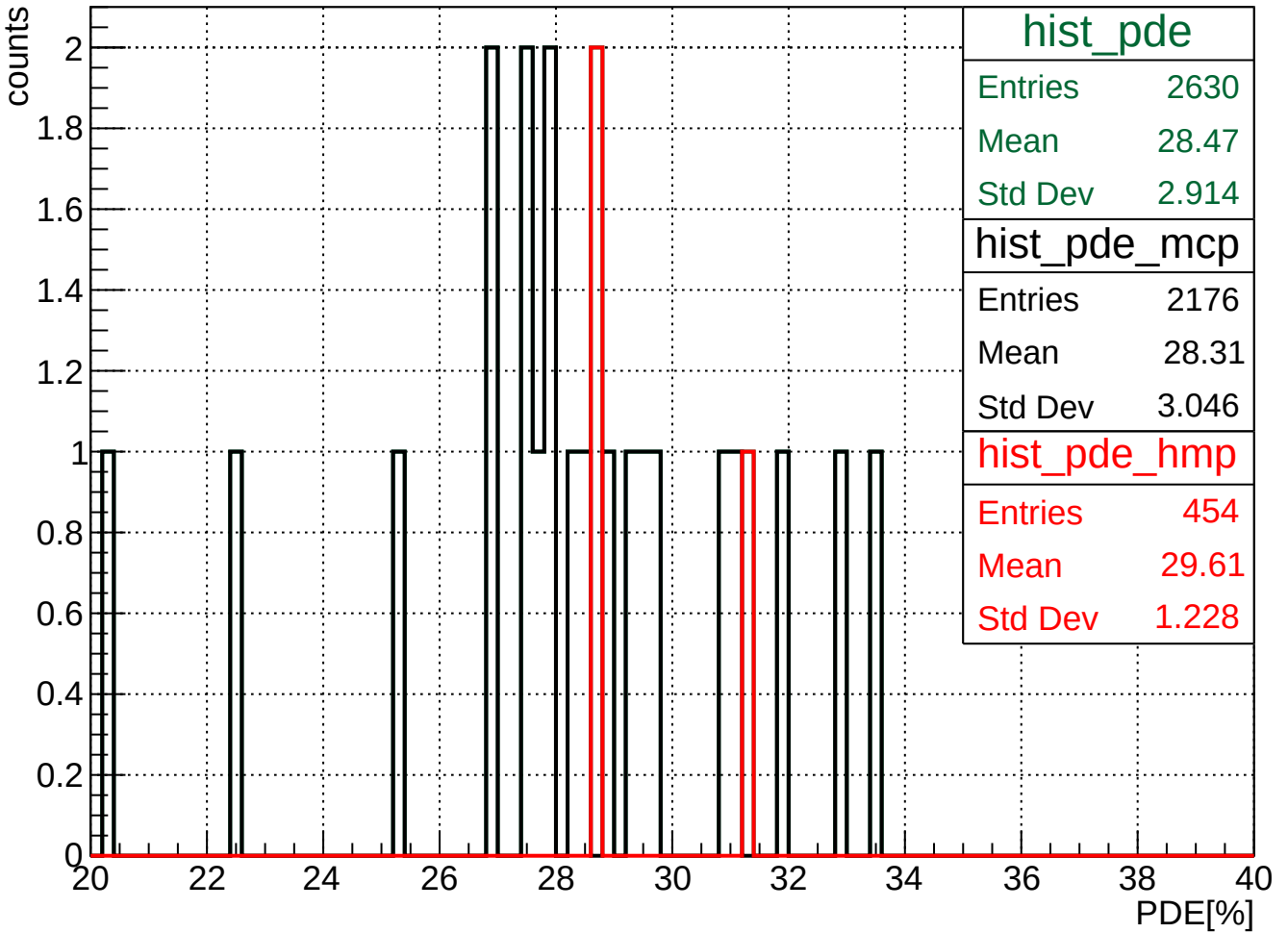

fitted HV of reference PMT EA1578
HV[V]
2000
1950
1900
1850
1800
1750
1700
0
50
100
150
200
250
300
350
400
450
mass number

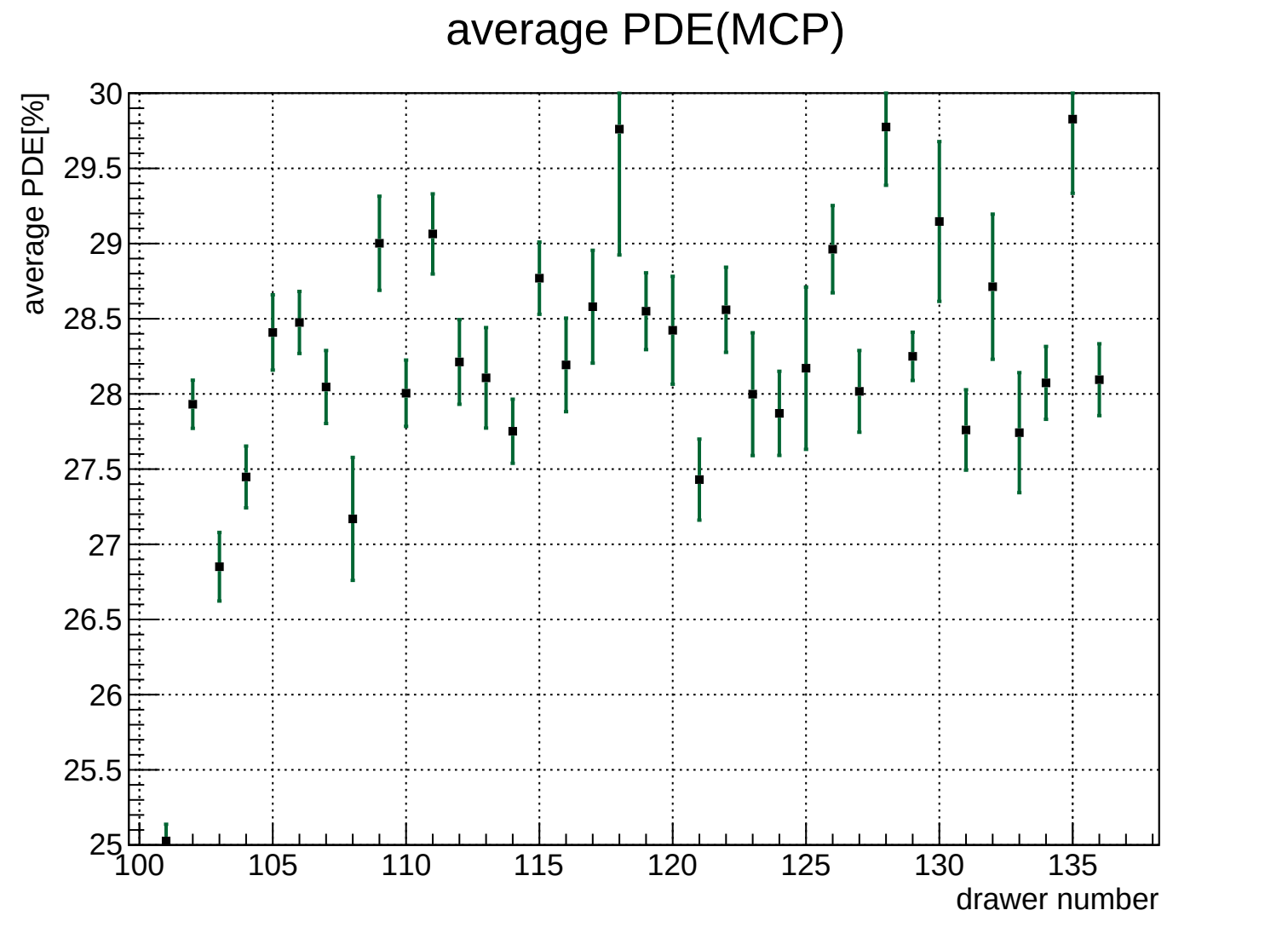

fitted HV of reference PMT PA1705-117
HV[V]
1800
1750
1700
1650
1600
1550
1500
0
50
100
150
200
250
300
350
400
450
mass number

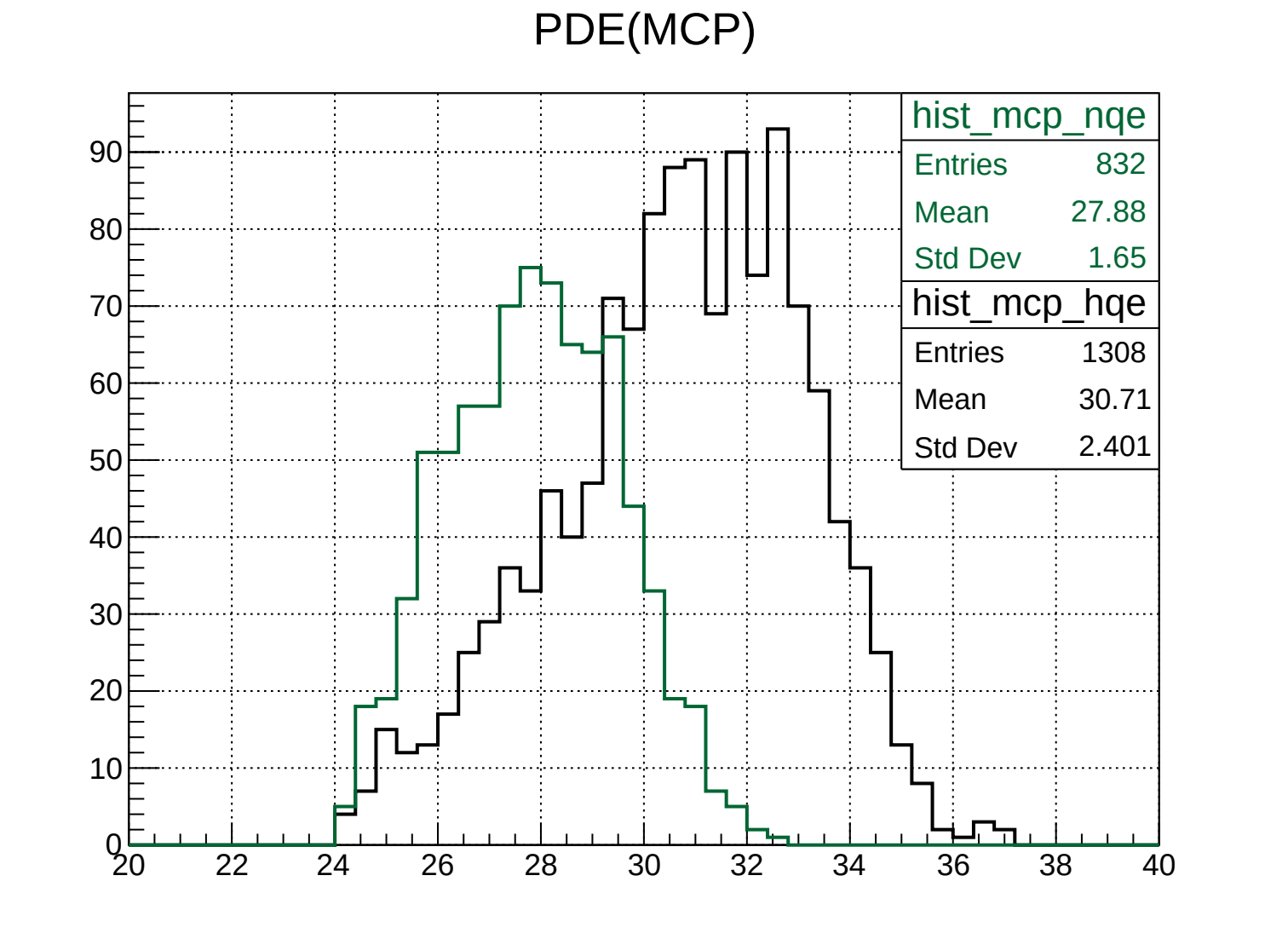

fitted HV of reference PMT PA1704-731
HV[V]
1800
1750
1700
1650
1600
1550
1500
0
50
100
150
200
250
300
350
400
450
mass number

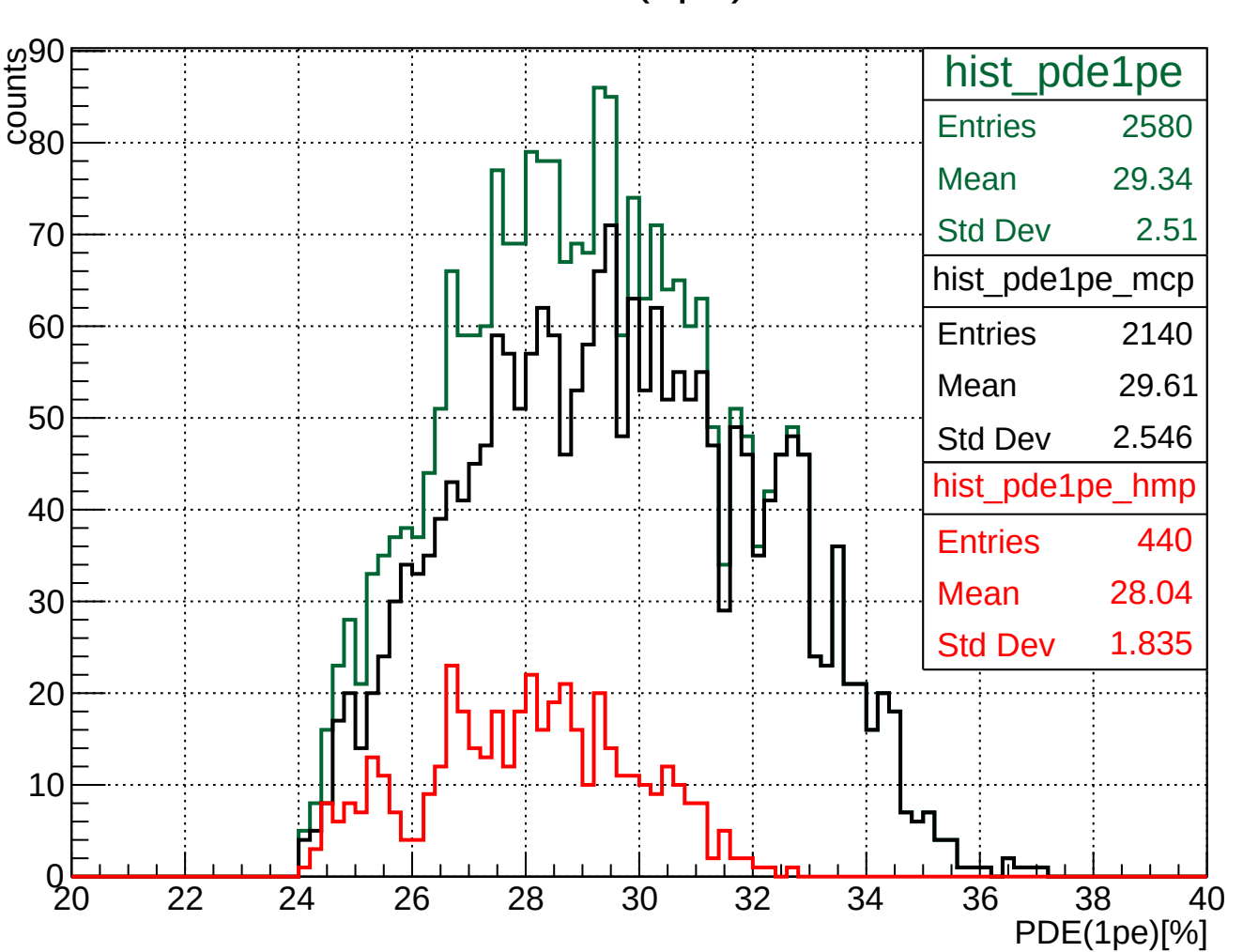

vendor and fit HV of MCP PMT
counts
HV[V]
hist_vendorHV_mcp
Entries 2176
Mean 1744
Std Dev 71.03
hist_fitHV_mcp
Entries 2176
Mean 1766
Std Dev 69.68

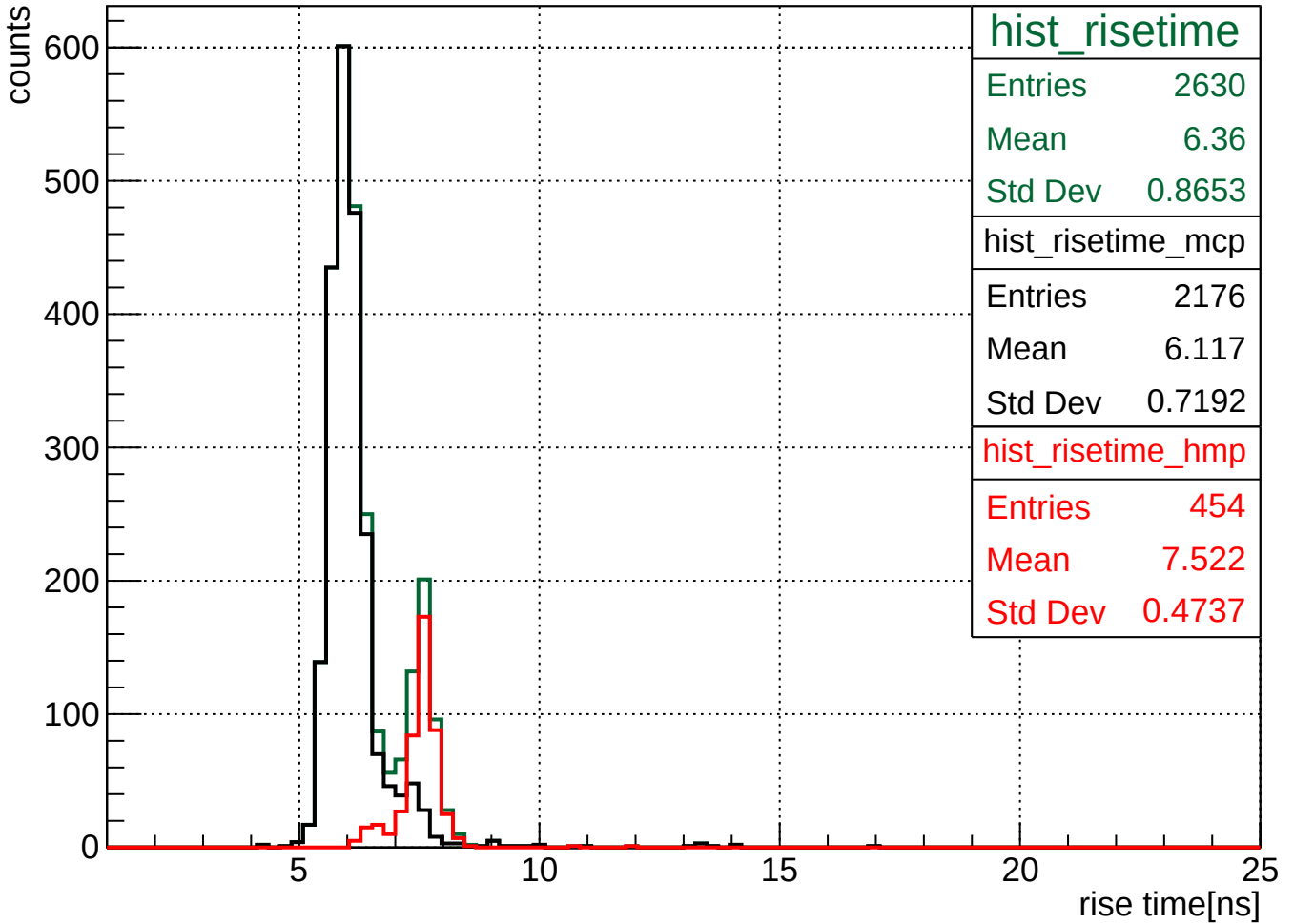

Gain of PMT
counts
Gain[1E7]
hist_gain
Entries 2630
Mean 0.9577
Std Dev 0.04823
hist_gain_mcp
Entries 2176
Mean 0.9541
Std Dev 0.05051
hist_gain_hmp
Entries 454
Mean 0.9745
Std Dev 0.03041

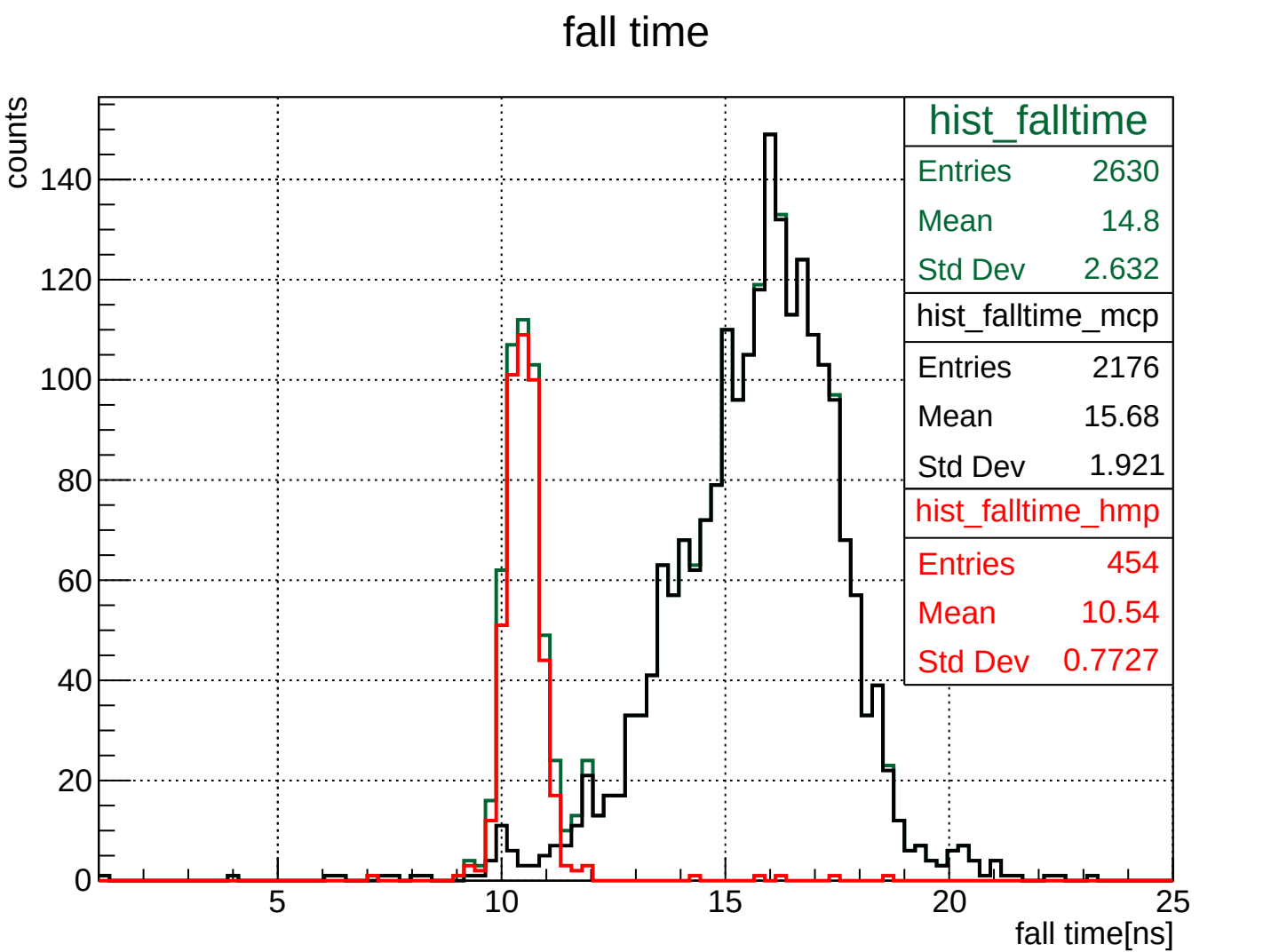

PDE
counts
PDE[%]
hist_pde
Entries 2630
Mean 28.47
Std Dev 2.914
hist_pde_mcp
Entries 2176
Mean 28.31
Std Dev 3.046
hist_pde_hmp
Entries 454
Mean 29.61
Std Dev 1.228

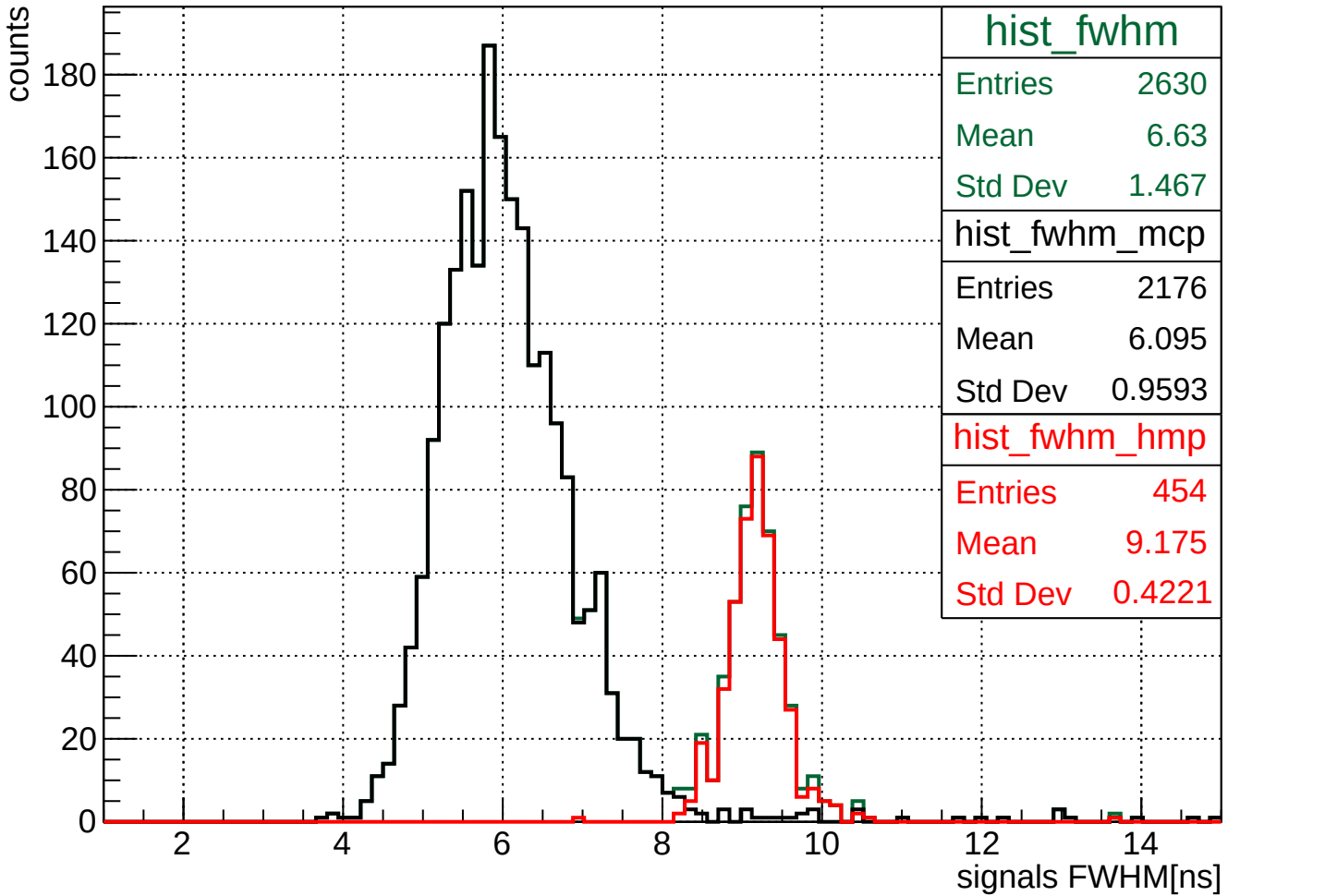

average PDE(MCP)
average PDE[%]
30
29.5
29
28.5
28
27.5
27
26.5
26
25.5
25
100
105
110
115
120
125
130
135
drawer number

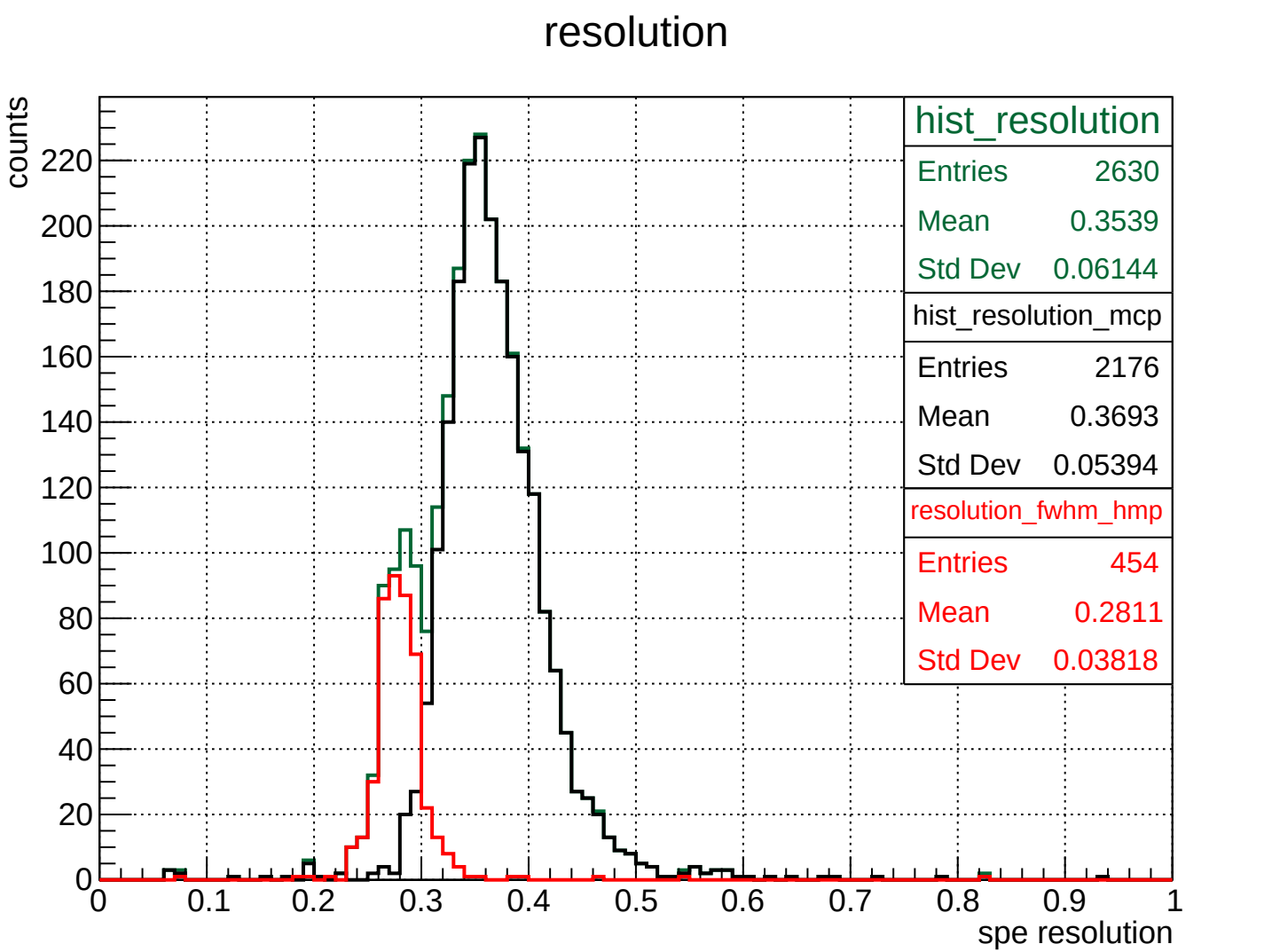

PDE(MCP)
hist_mcp_nqe
Entries 832
Mean 27.88
Std Dev 1.65
hist_mcp_hqe
Entries 1308
Mean 30.71
Std Dev 2.401
0
10
20
30
40
50
60
70
80
90
20
22
24
26
28
30
32
34
36
38
40

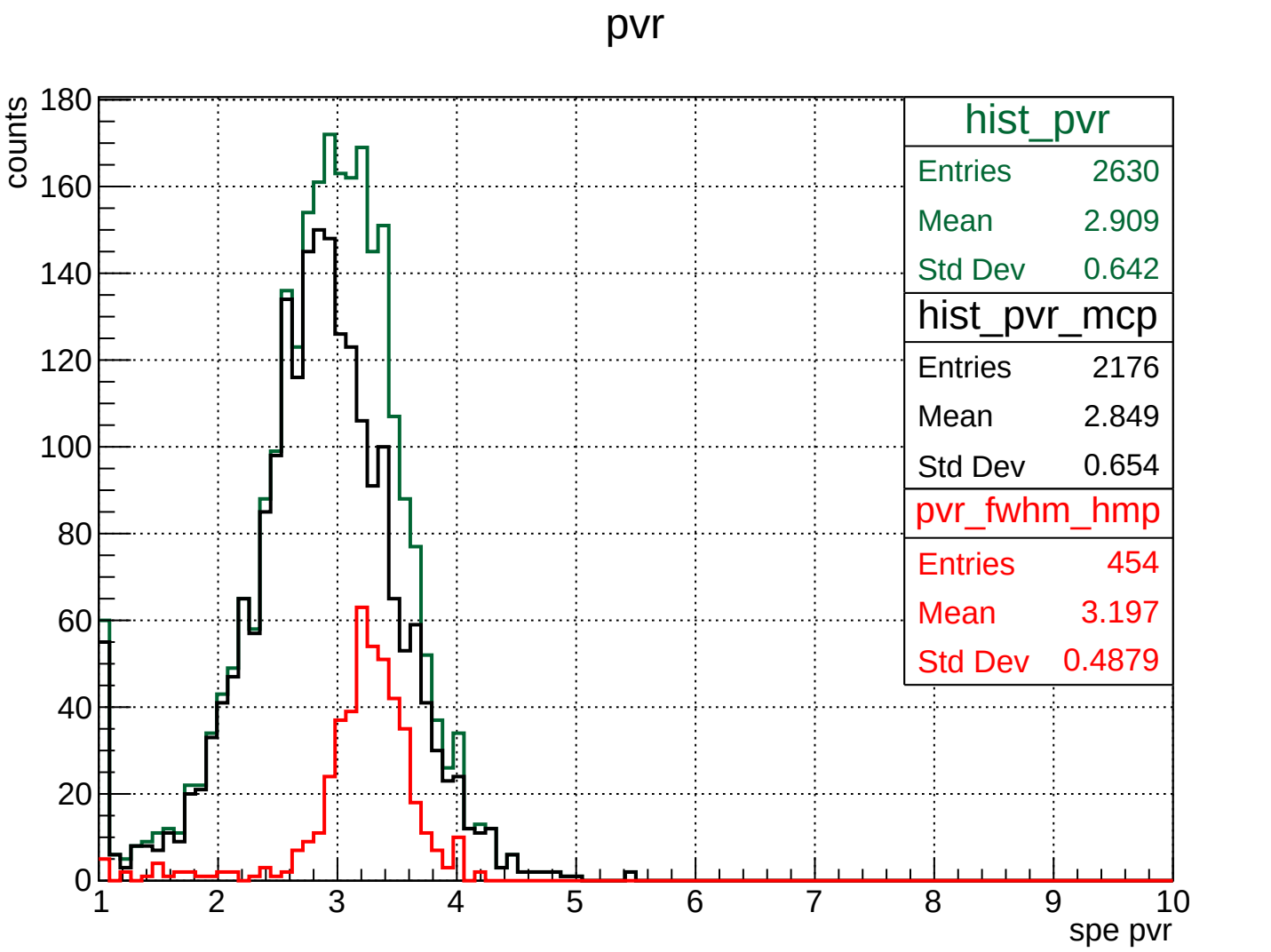

PDE(1pe)
counts
PDE(1pe)[%]
hist_pde1pe
Entries 2580
Mean 29.34
Std Dev 2.51
hist_pde1pe_mcp
Entries 2140
Mean 29.61
Std Dev 2.546
hist_pde1pe_hmp
Entries 440
Mean 28.04
Std Dev 1.835

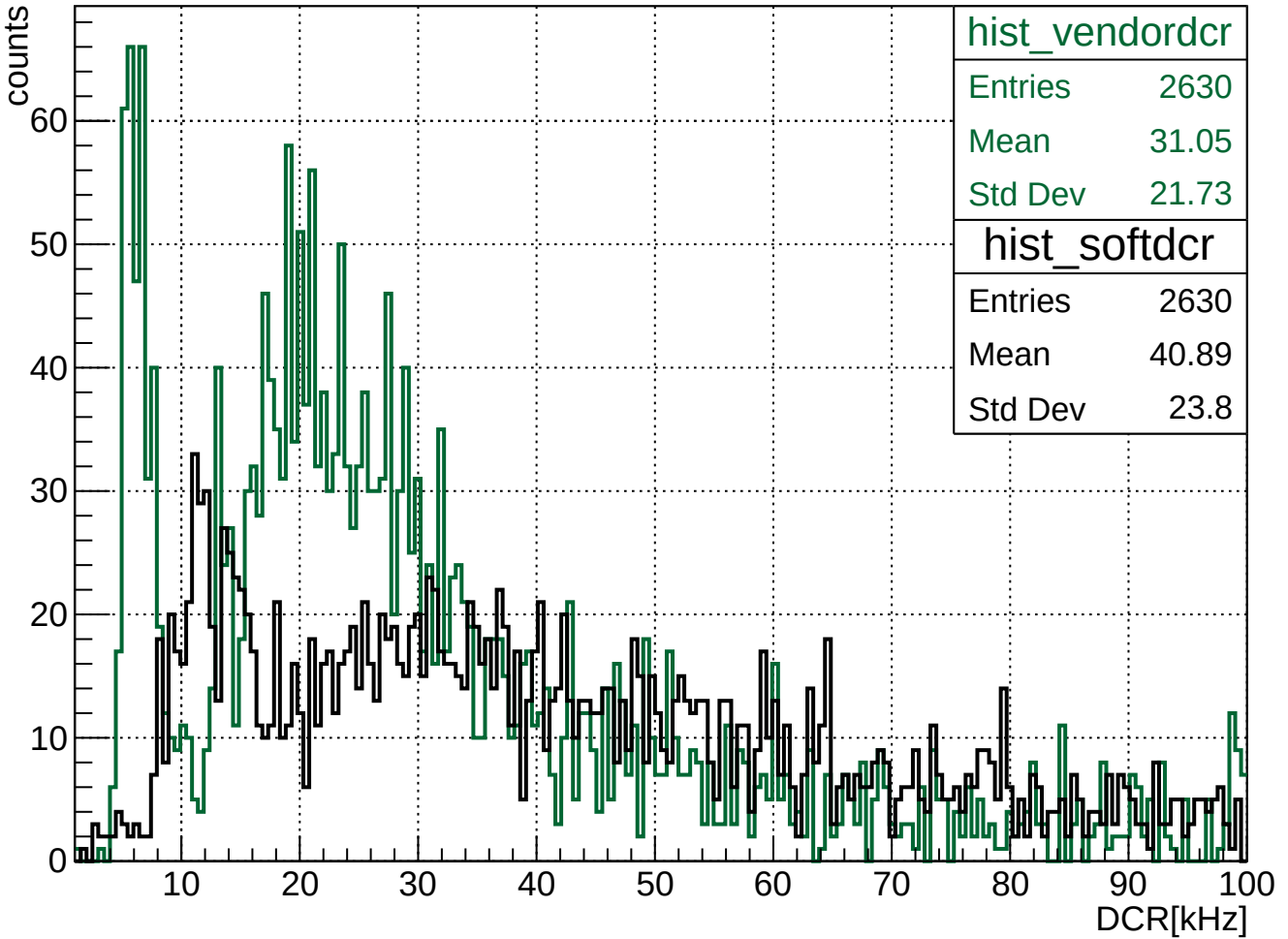

rise time
counts
600
500
400
300
200
100
0
5
10
15
20
25
rise time[ns]
hist_risetime
Entries 2630
Mean 6.36
Std Dev 0.8653
hist_risetime_mcp
Entries 2176
Mean 6.117
Std Dev 0.7192
hist_risetime_hmp
Entries 454
Mean 7.522
Std Dev 0.4737

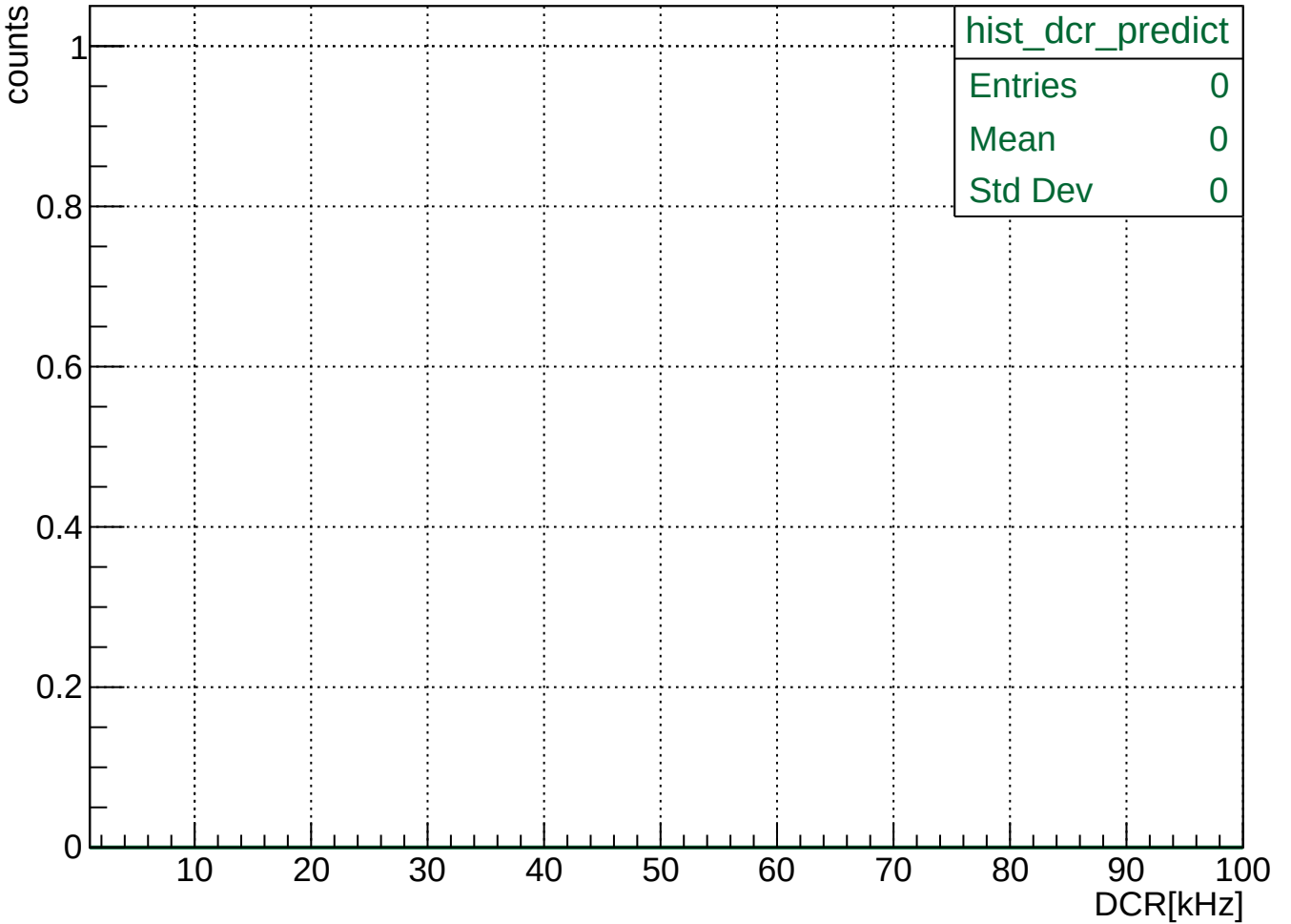

fall time
counts
0
20
40
60
80
100
120
140
5
10
15
20
25
fall time[ns]
hist_falltime
Entries 2630
Mean 14.8
Std Dev 2.632
hist_falltime_mcp
Entries 2176
Mean 15.68
Std Dev 1.921
hist_falltime_hmp
Entries 454
Mean 10.54
Std Dev 0.7727

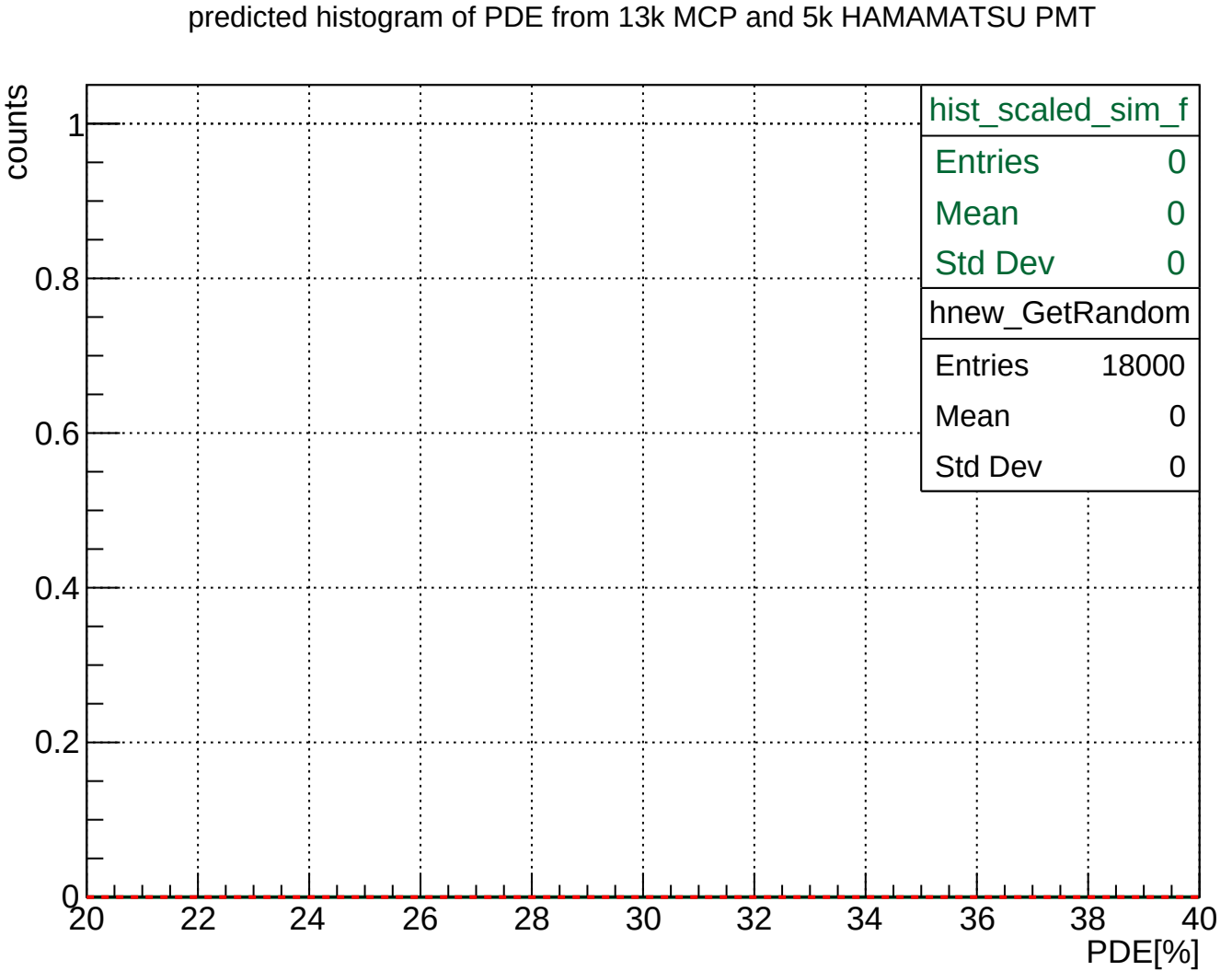

FWHM
counts
signals FWHM[ns]
hist_fwhm
Entries 2630
Mean 6.63
Std Dev 1.467
hist_fwhm_mcp
Entries 2176
Mean 6.095
Std Dev 0.9593
hist_fwhm_hmp
Entries 454
Mean 9.175
Std Dev 0.4221

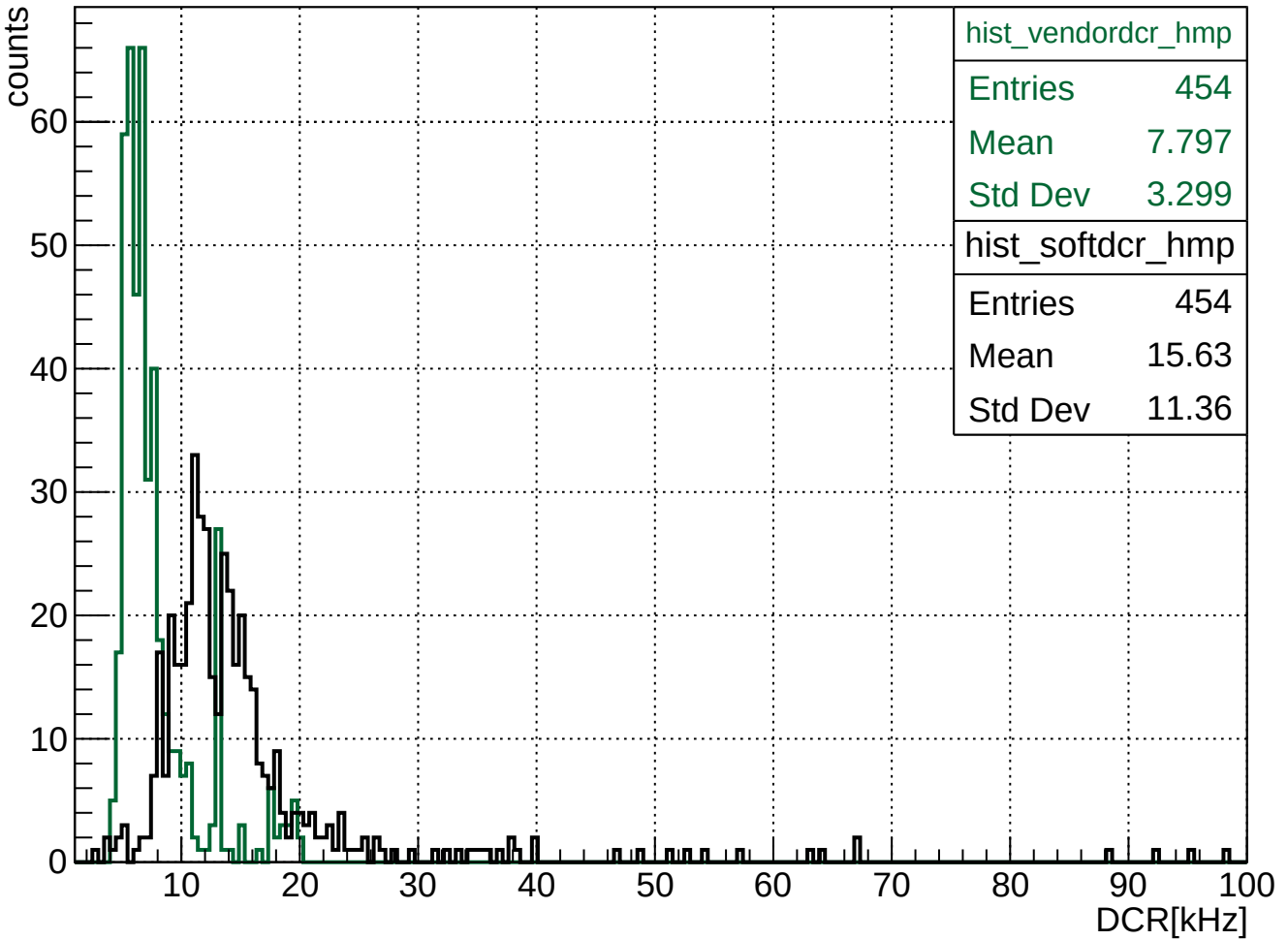

resolution
counts
spe resolution
hist_resolution
Entries 2630
Mean 0.3539
Std Dev 0.06144
hist_resolution_mcp
Entries 2176
Mean 0.3693
Std Dev 0.05394
resolution_fwhm_hmp
Entries 454
Mean 0.2811
Std Dev 0.03818

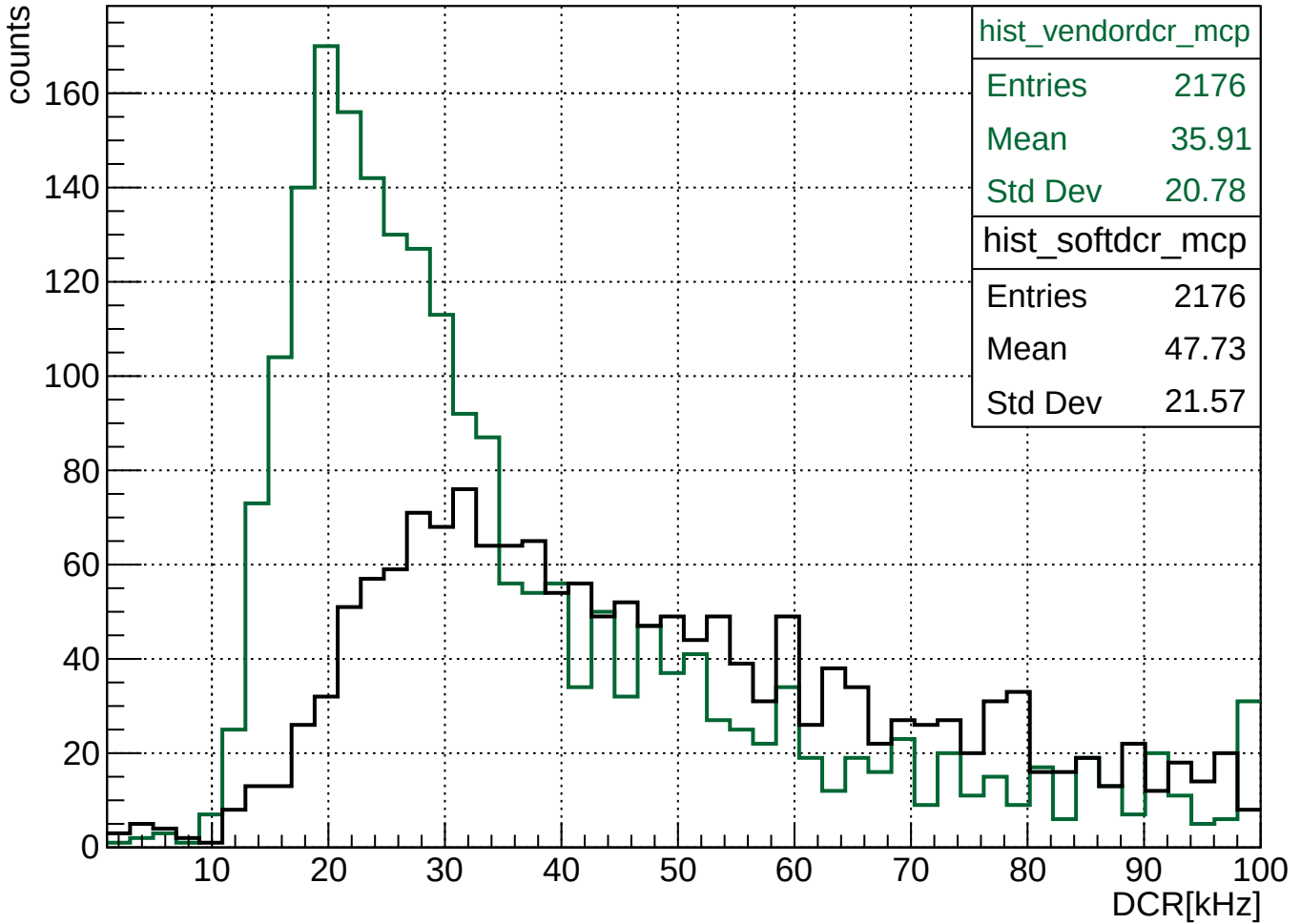

pvr
counts
spe pvr
hist_pvr
Entries 2630
Mean 2.909
Std Dev 0.642
hist_pvr_mcp
Entries 2176
Mean 2.849
Std Dev 0.654
pvr_fwhm_hmp
Entries 454
Mean 3.197
Std Dev 0.4879


vendor and soft dcr of all PMT
counts
DCR[kHz]
hist_vendordcr
Entries 2630
Mean 31.05
Std Dev 21.73
hist_softdcr
Entries 2630
Mean 40.89
Std Dev 23.8


softdcr_all
counts
1
0.8
0.6
0.4
0.2
0
10
20
30
40
50
60
70
80
90
100
DCR[kHz]
hist_dcr_predict
Entries 0
Mean 0
Std Dev 0


predicted histogram of PDE from 13k MCP and 5k HAMAMATSU PMT
counts
PDE[%]
hist_scaled_sim_f
Entries 0
Mean 0
Std Dev 0
hnew_GetRandom
Entries 18000
Mean 0
Std Dev 0


vendor and soft dcr of HMP PMT
counts
DCR[kHz]
hist_vendordcr_hmp
Entries 454
Mean 7.797
Std Dev 3.299
hist_softdcr_hmp
Entries 454
Mean 15.63
Std Dev 11.36


vendor and soft dcr of MCP PMT
counts
DCR[kHz]
hist_vendordcr_mcp
Entries 2176
Mean 35.91
Std Dev 20.78
hist_softdcr_mcp
Entries 2176
Mean 47.73
Std Dev 21.57