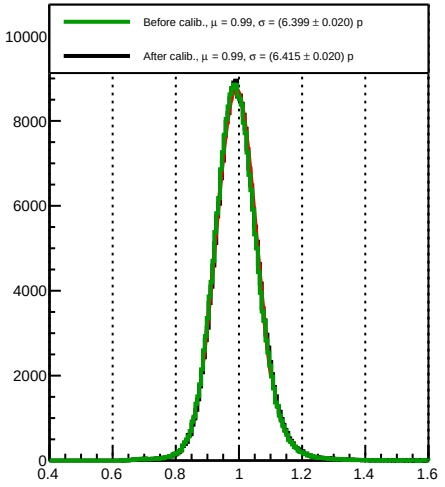
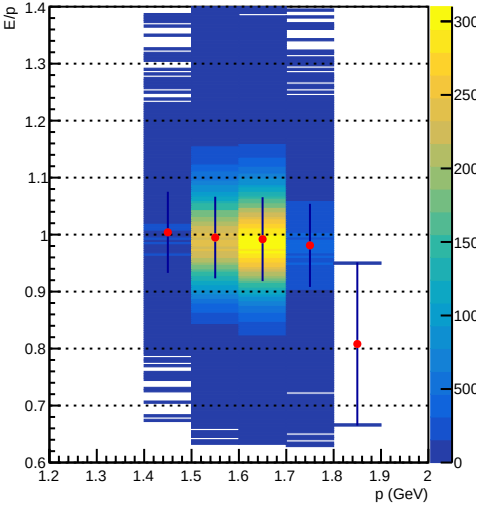
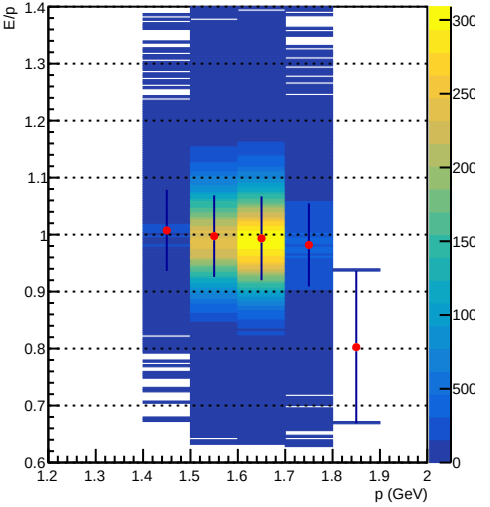
E/p (el. cut)



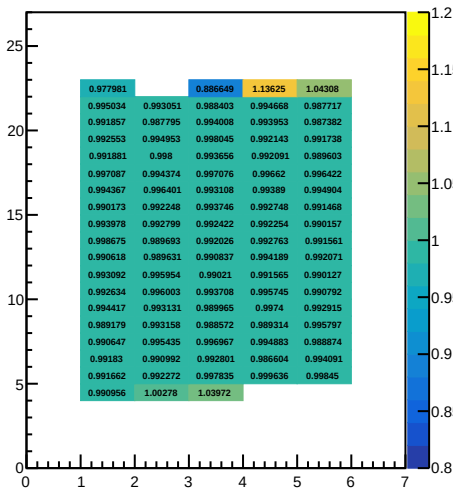
E/p vs p (el. cut)



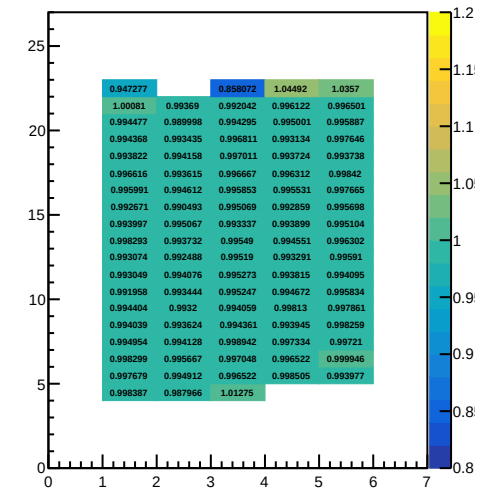
E/p vs p | After Calib. (el. cut)



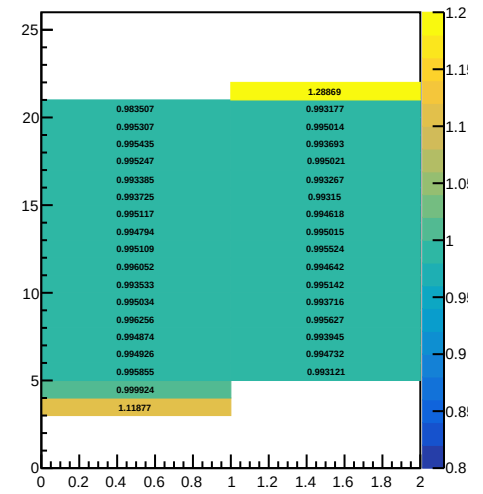
E/p per SH block (el. cut)



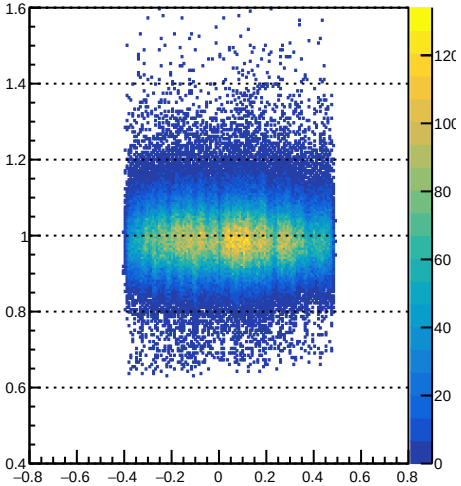
E/p per SH block | After Calib. (el. cut)



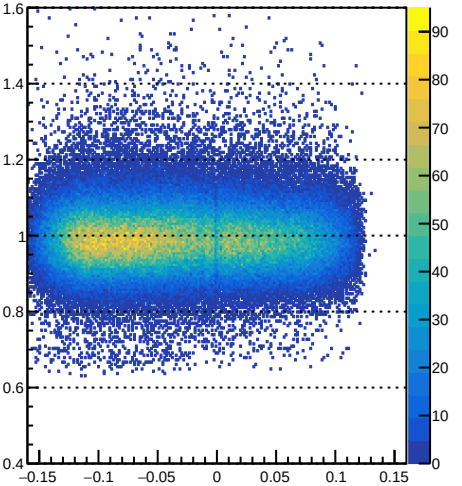
E/p per PS block | After Calib. (el. cut)



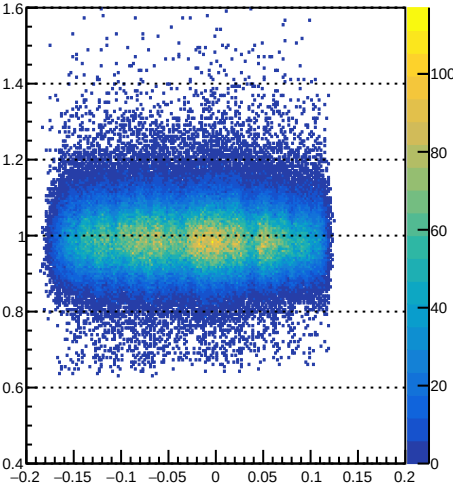
E/p vs Track x (el. cut)



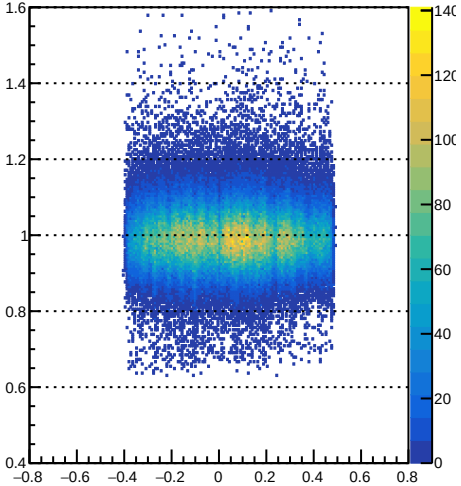
E/p vs Track y (el. cut)



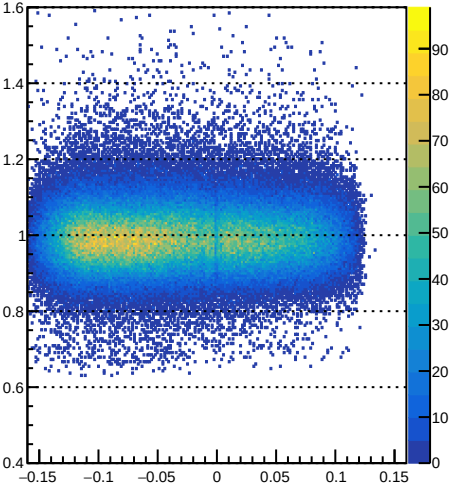
E/p vs Track theta (el. cut)



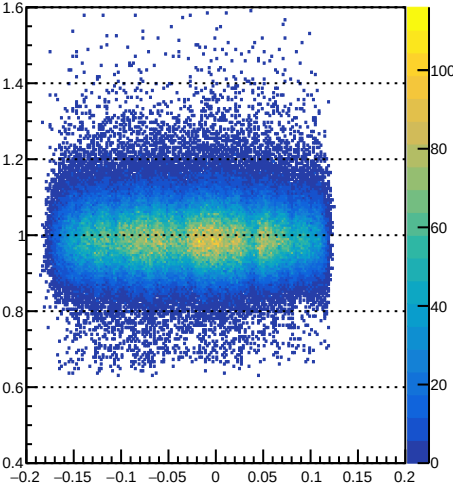
E/p vs Track x | After Calib. (el. cut)



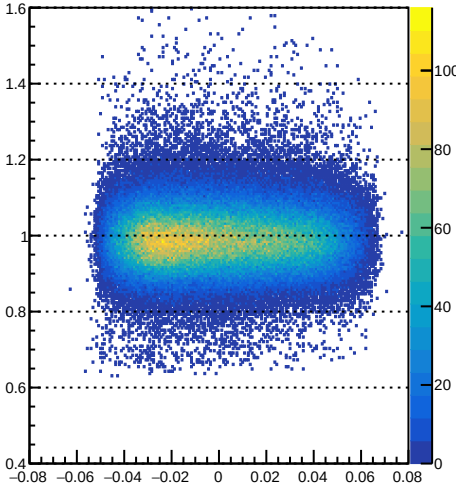
E/p vs Track y | After Calib. (el. cut)



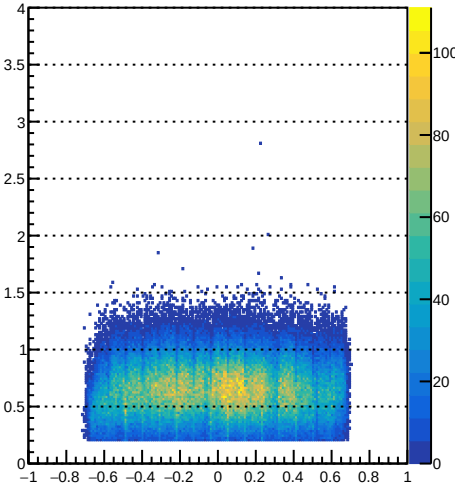
E/p vs Track theta | After Calib. (el. cut)



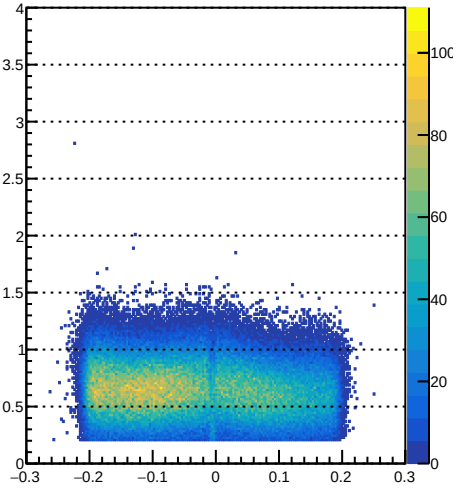
E/p vs Track phi (el. cut)



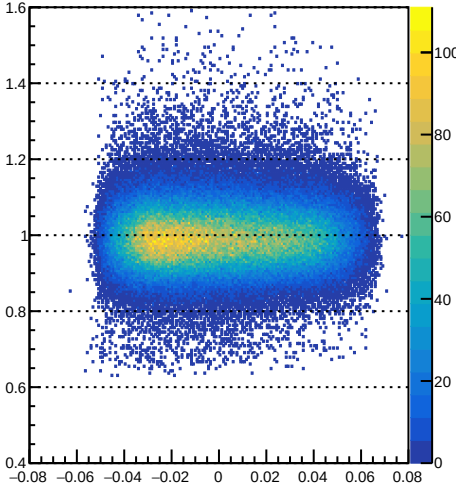
PS energy vs Track x (proj. at PS) (el. cut)



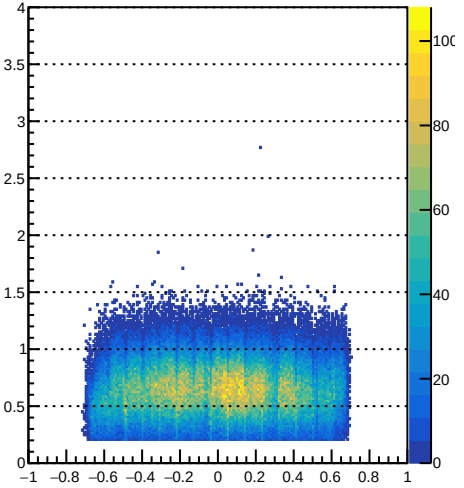
PS energy vs Track y (el. cut) (proj. at PS)



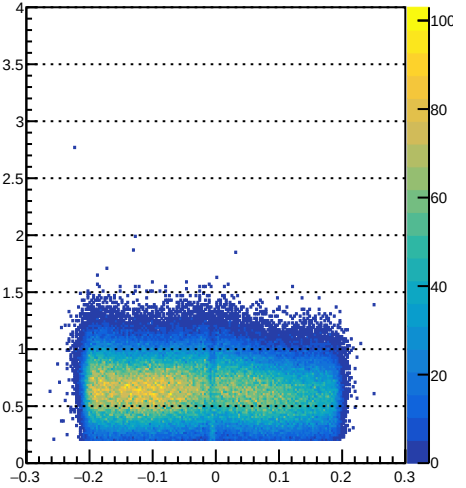
E/p vs Track phi | After Calib. (el. cut)

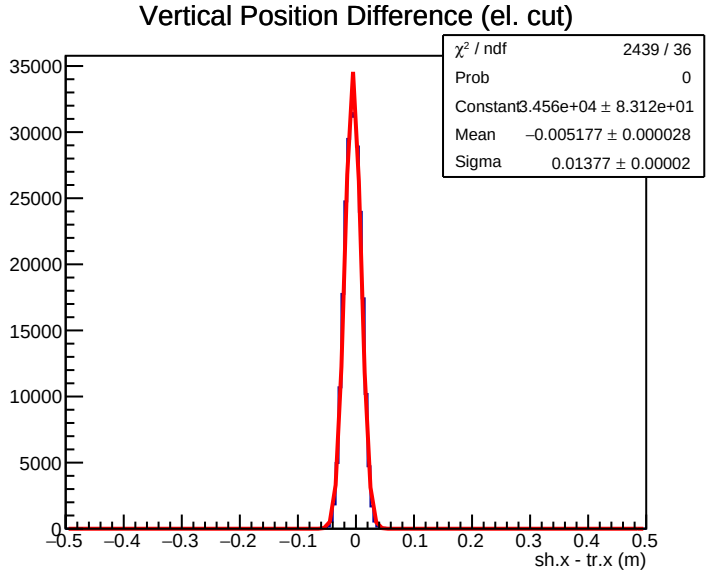


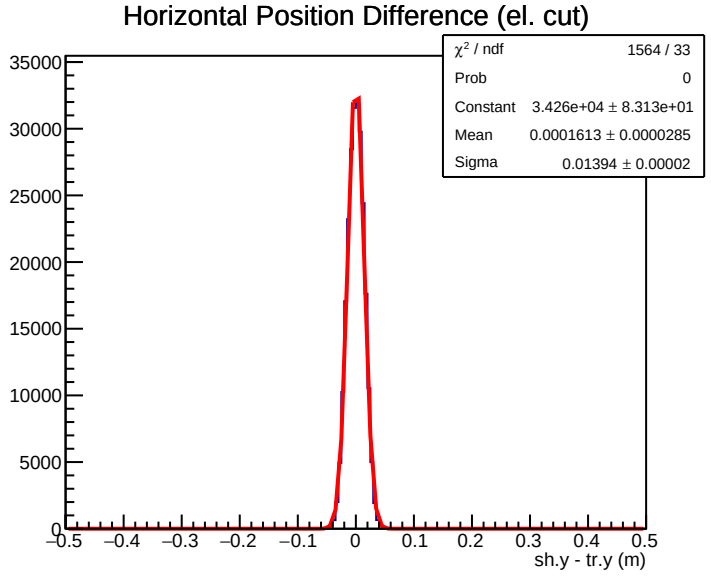
PS energy vs Track x (proj. at PS) | After Calib. (el. cut)

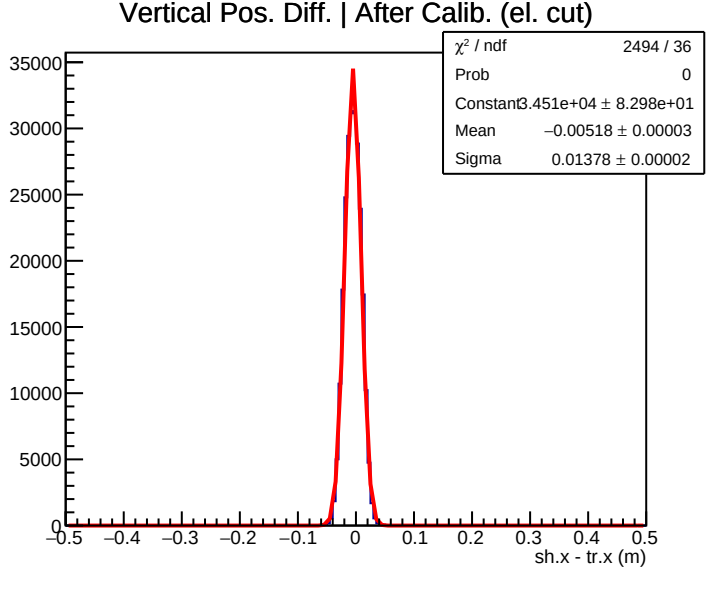


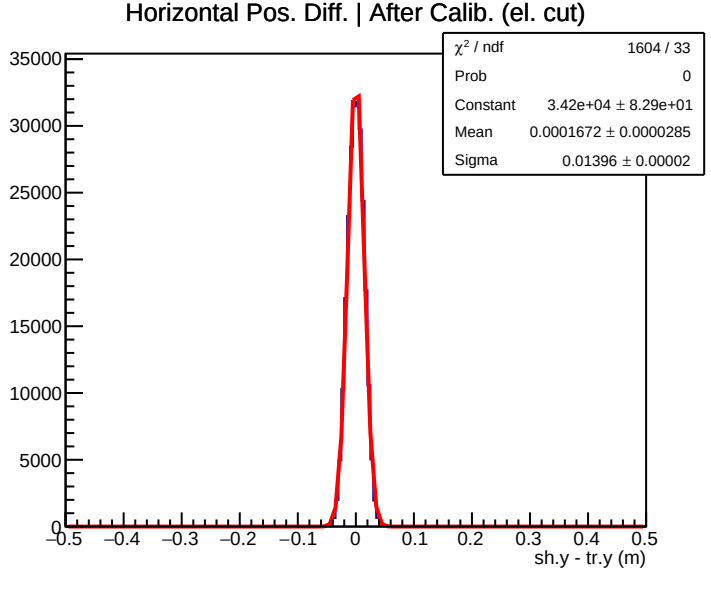
PS energy vs Track y (proj. at PS) | After Calib. (el. cut)

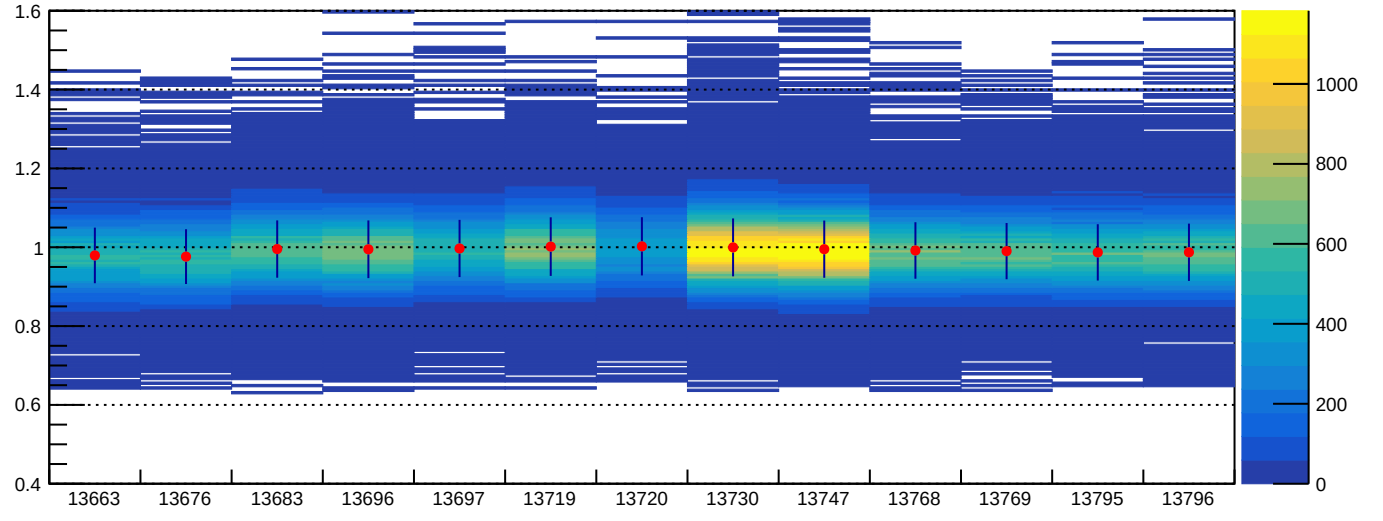


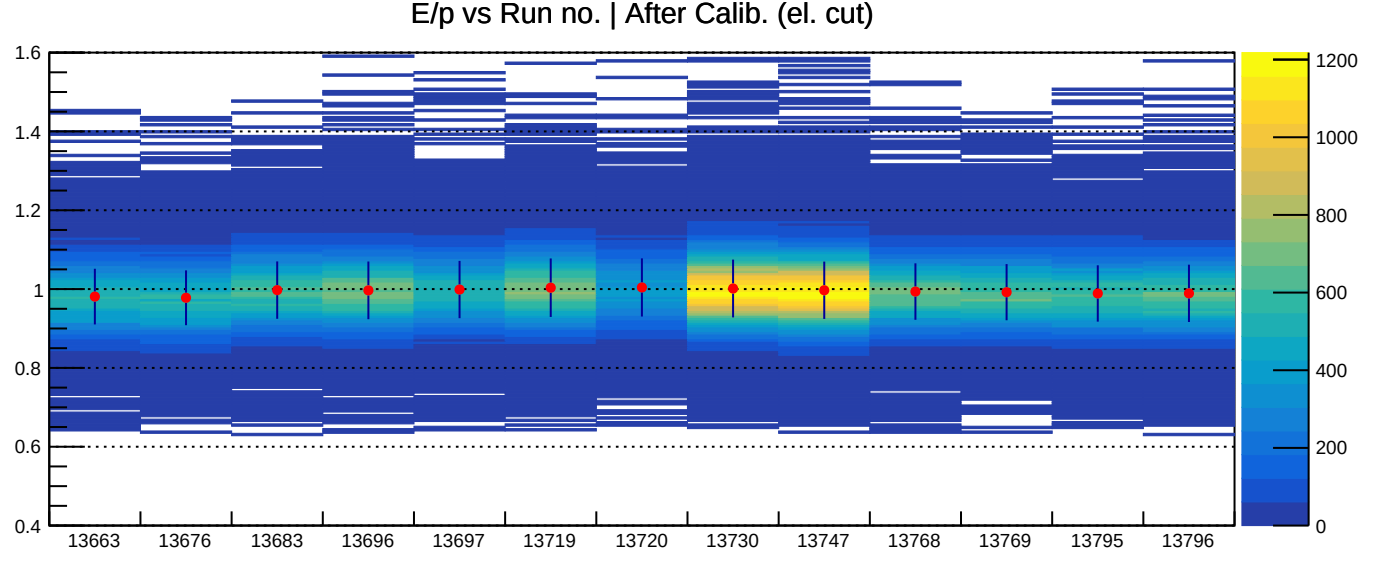

Vertical Position Difference (el. cut)
χ² / ndf 2439 / 36
Prob 0
Constant 3.456e+04 ± 8.312e+01
Mean −0.005177 ± 0.000028
Sigma 0.01377 ± 0.00002
sh.x - tr.x (m)


Horizontal Position Difference (el. cut)
χ² / ndf 1564 / 33
Prob 0
Constant 3.426e+04 ± 8.313e+01
Mean 0.0001613 ± 0.0000285
Sigma 0.01394 ± 0.00002
sh.y - tr.y (m)

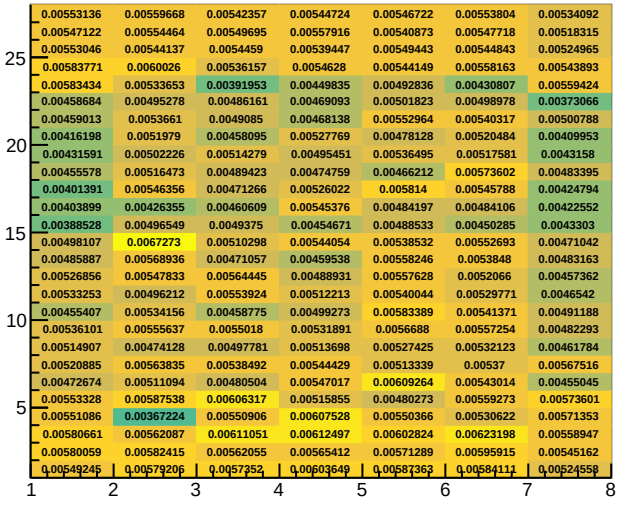

Vertical Pos. Diff. | After Calib. (el. cut)
χ² / ndf 2494 / 36
Prob 0
Constant 3.451e+04 ± 8.298e+01
Mean −0.00518 ± 0.00003
Sigma 0.01378 ± 0.00002
sh.x - tr.x (m)


Horizontal Pos. Diff. | After Calib. (el. cut)
χ² / ndf 1604 / 33
Prob 0
Constant 3.42e+04 ± 8.29e+01
Mean 0.0001672 ± 0.0000285
Sigma 0.01396 ± 0.00002
sh.y - tr.y (m)

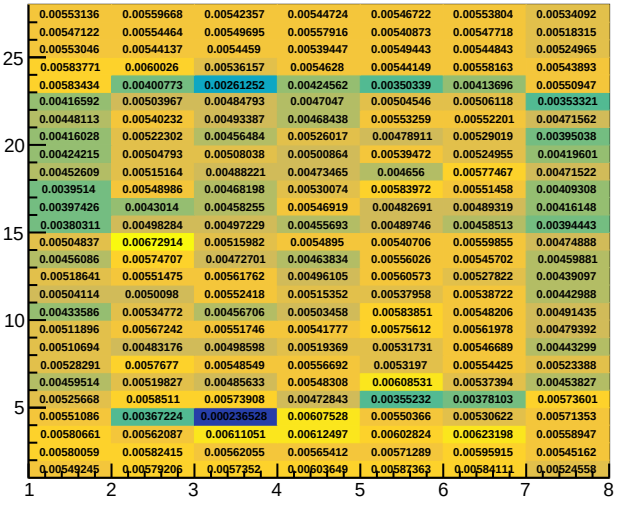

E/p vs Run no. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
13663
13676
13683
13696
13697
13719
13720
13730
13747
13768
13769
13795
13796
1000
800
600
400
200
0


E/p vs Run no. | After Calib. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
13663
13676
13683
13696
13697
13719
13720
13730
13747
13768
13769
13795
13796
1200
1000
800
600
400
200
0

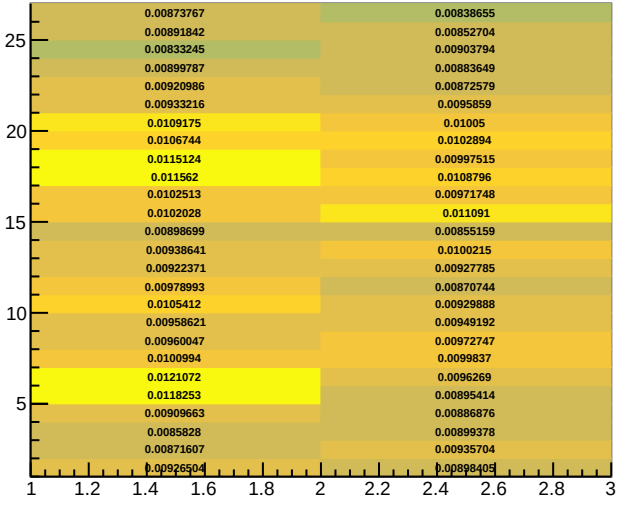
Old ADC Gain Coefficients | SH



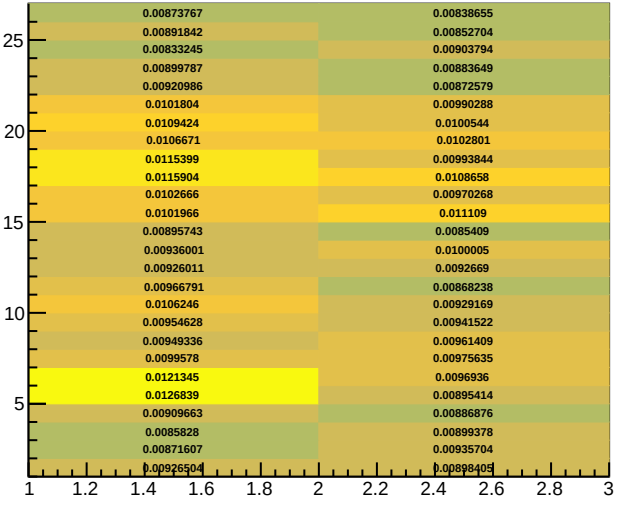
New ADC Gain Coefficients | SH

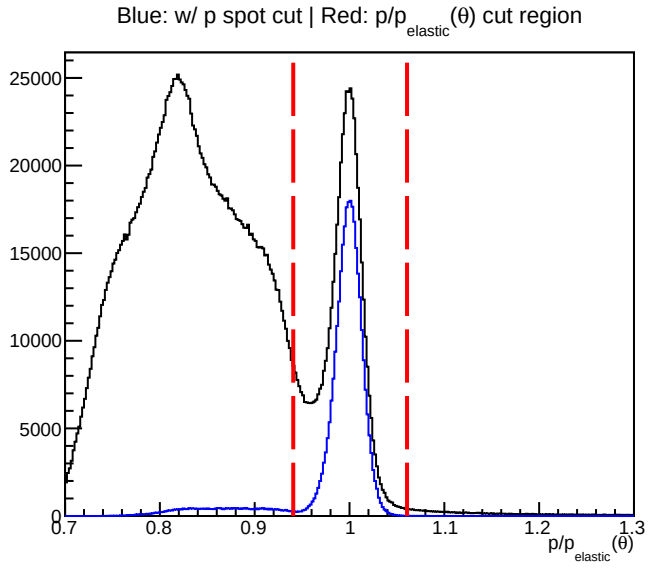


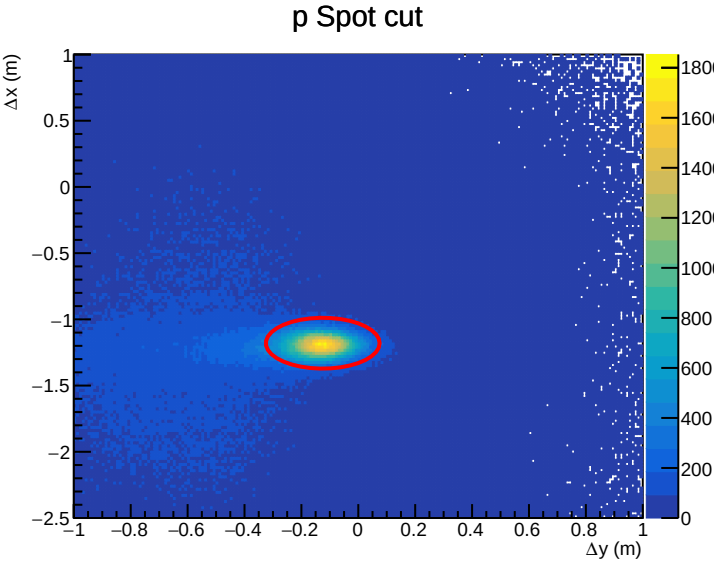
Old ADC Gain Coefficients | PS

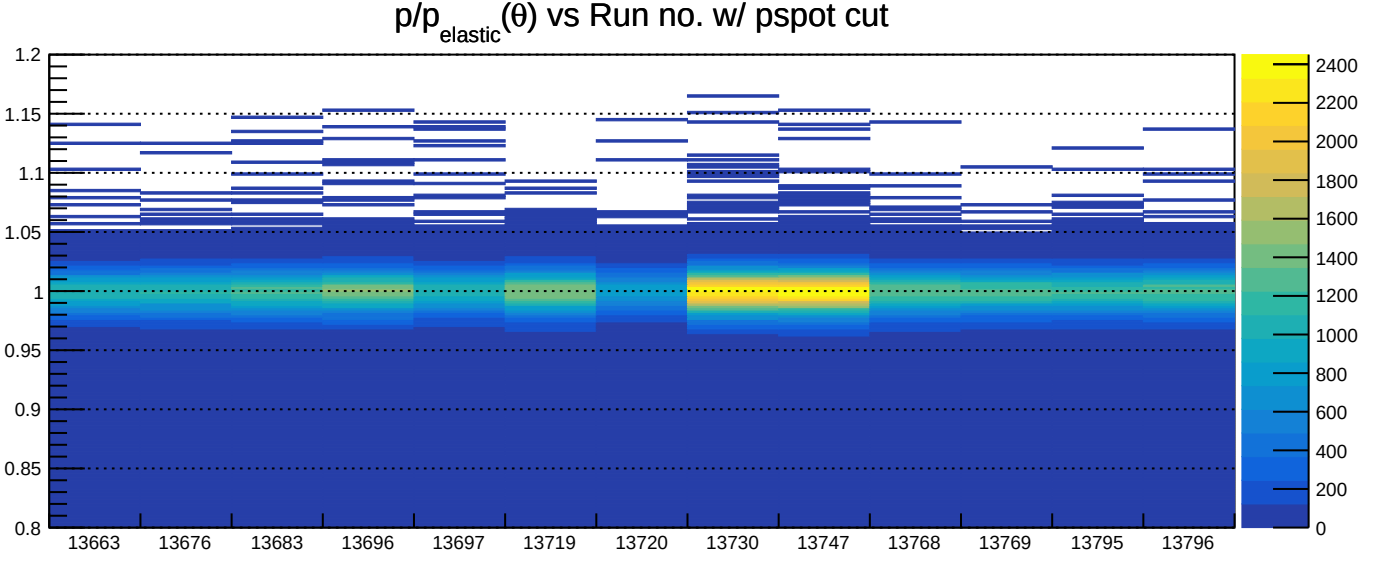


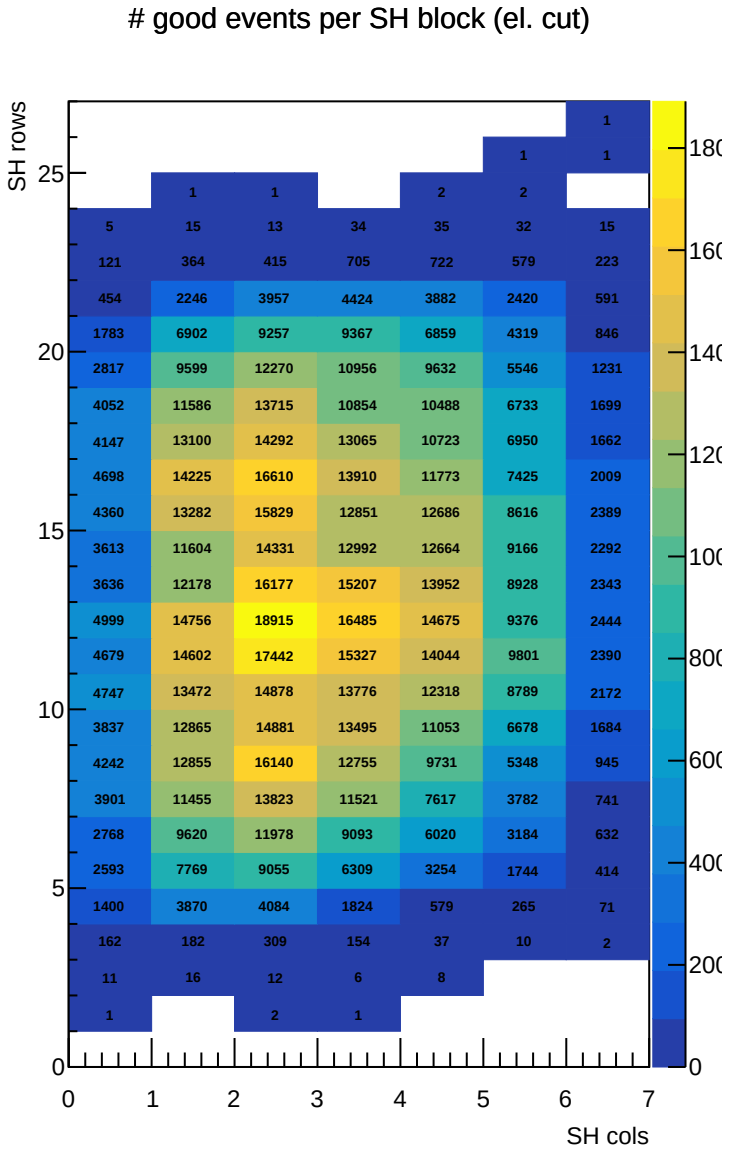
New ADC Gain Coefficients | PS

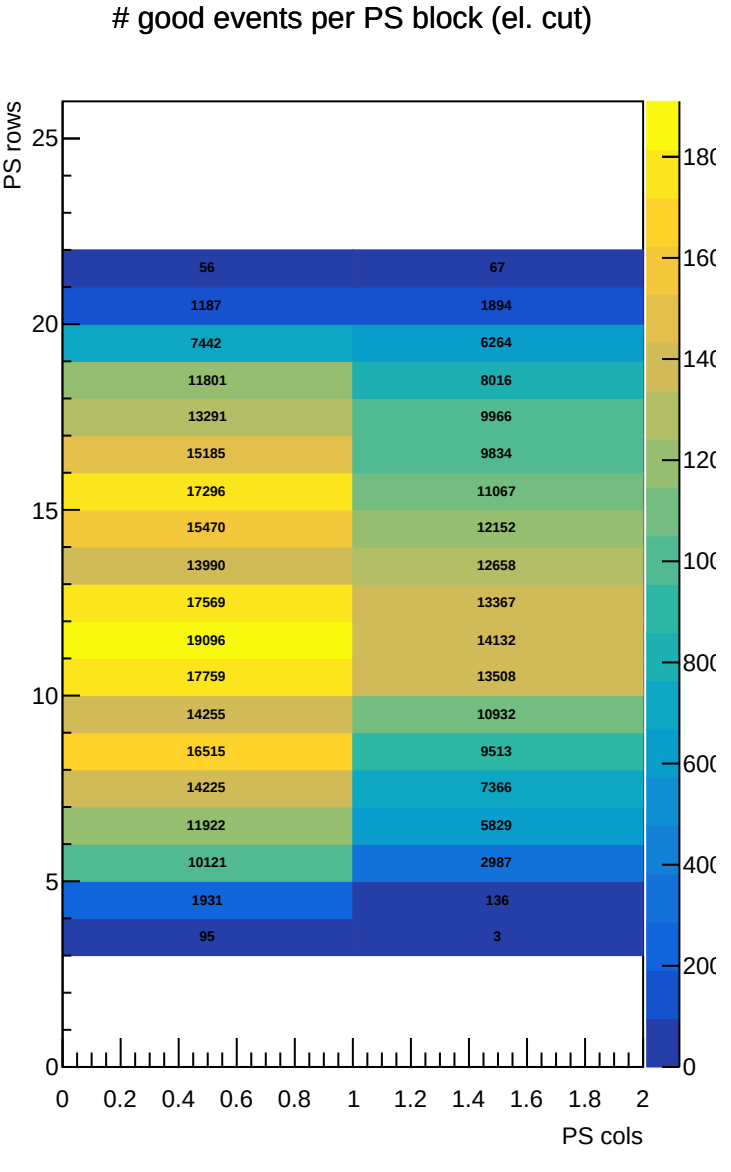



Blue: w/ p spot cut | Red: p/p_elastic(θ) cut region
25000
20000
15000
10000
5000
0
0.7
0.8
0.9
1
1.1
1.2
1.3
p/p_elastic(θ)

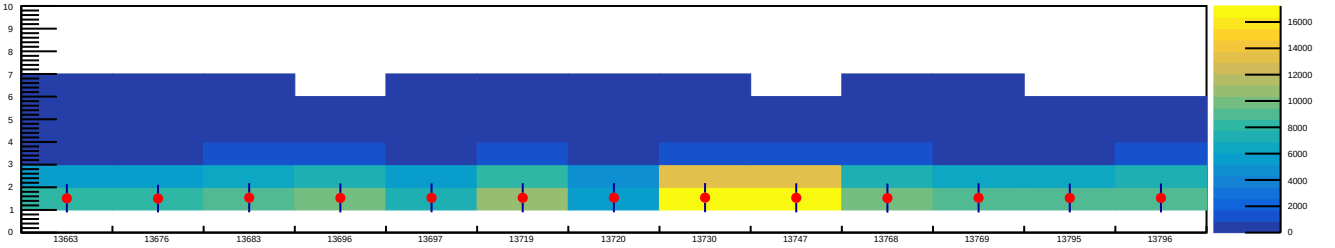

p Spot cut
Δx (m)
1
0.5
0
−0.5
−1
−1.5
−2
−2.5
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1
Δy (m)
1800
1600
1400
1200
1000
800
600
400
200
0


p/p_elastic(θ) vs Run no. w/ pspot cut
1.2
1.15
1.1
1.05
1
0.95
0.9
0.85
0.8
13663
13676
13683
13696
13697
13719
13720
13730
13747
13768
13769
13795
13796
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0

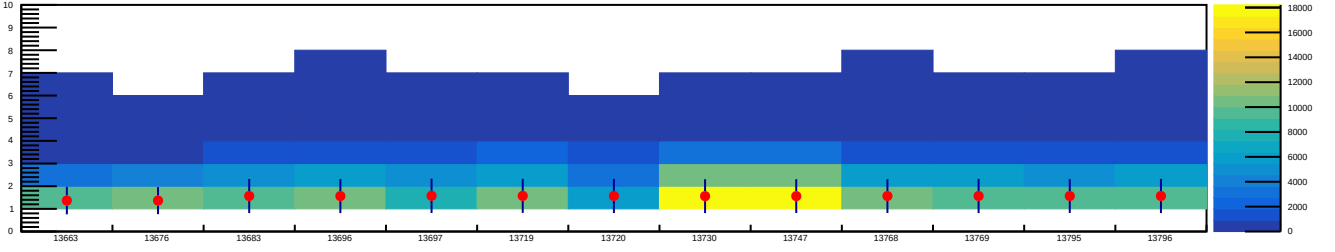

good events per SH block (el. cut)
SH rows
SH cols
0 1 2 3 4 5 6 7
0 5 10 15 20 25
1 1 1 2 2
1 1
5 15 13 34 35 32 15
121 364 415 705 722 579 223
454 2246 3957 4424 3882 2420 591
1783 6902 9257 9367 6859 4319 846
2817 9599 12270 10956 9632 5546 1231
4052 11586 13715 10854 10488 6733 1699
4147 13100 14292 13065 10723 6950 1662
4698 14225 16610 13910 11773 7425 2009
4360 13282 15829 12851 12686 8616 2389
3613 11604 14331 12992 12664 9166 2292
3636 12178 16177 15207 13952 8928 2343
4999 14756 18915 16485 14675 9376 2444
4679 14602 17442 15327 14044 9801 2390
4747 13472 14878 13776 12318 8789 2172
3837 12865 14881 13495 11053 6678 1684
4242 12855 16140 12755 9731 5348 945
3901 11455 13823 11521 7617 3782 741
2768 9620 11978 9093 6020 3184 632
2593 7769 9055 6309 3254 1744 414
1400 3870 4084 1824 579 265 71
162 182 309 154 37 10 2
11 16 12 6 8
1 2 1
0 20 40 60 80 100 120 140 160 180


good events per PS block (el. cut)
PS rows
PS cols
0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2
0 5 10 15 20 25
56 67
1187 1894
7442 6264
11801 8016
13291 9966
15185 9834
17296 11067
15470 12152
13990 12658
17569 13367
19096 14132
17759 13508
14255 10932
16515 9513
14225 7366
11922 5829
10121 2987
1931 136
95 3
0 20 40 60 80 100 120 140 160 180

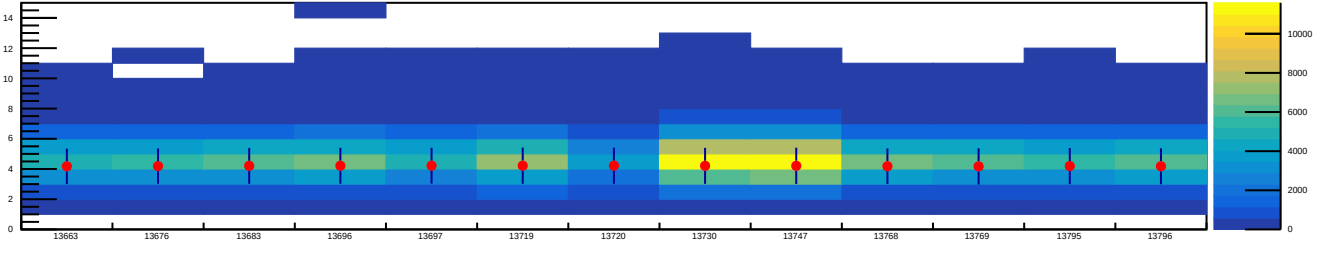
PS (best) cluster size vs Run no. (el. cut)



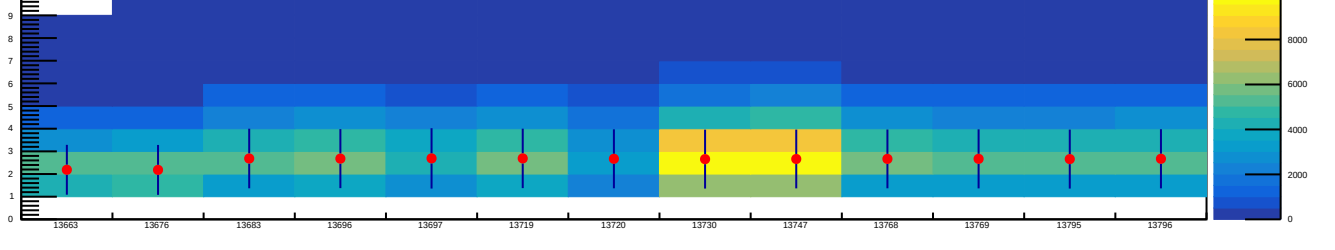
PS cluster multiplicity vs Run no. (el. cut)



SH (best) cluster size vs Run no. (el. cut)



SH cluster multiplicity vs Run no. (el. cut)



Date of creation: 1/4/2024

Configfile: BBCal_replay/macros/Combined_macros/cfg/sbs9-sbs70p.cfg

Total # events analyzed: 17706321, Preparing for replay pass: 2

E/p (before calib.) | μ = 0.99, σ = (6.399 $\pm$ 0.020) p

E/p (after calib.) | μ = 0.99, σ = (6.415 $\pm$ 0.020) p

Global cuts:

bb.tr.n==1, abs(bb.tr.vz[0])<0.08, bb.gem.track.nhits>3,
abs(bb.tr.r_x[0]-0.9*bb.tr.r_th[0]-0.025)<0.3,
PS cluster energy > 0.2 GeV
p_recon > 1.2 GeV/c

 # events passed global cuts: 2493995

Elastic cuts:

$|p/p_{el}(\theta) - 1.001| \leq 6.0*0.010$

proton spot cut ranges:

Δx (m): Mean = -1.1800, 2.0σ = 0.0960
Δy (m): Mean = -0.1250, 2.0σ = 0.1000

 # events passed global & elastic cuts: 302024

Other cuts:

Minimum # events per block: 200 | Cluster hit threshold: 0.02 GeV (SH), 0.01 GeV (PS)
Cluster tmax cut: 10.0 ns (SH), 10.0 ns (PS) | Cluster energy fraction cut: 0.0 GeV (SH), 0.0 GeV (PS)

Various offsets:

Momentum fudge factor: 1.00, BBCAL cluster energy scale factor: 1.00

Macro processing time: CPU 1357.5s | Real 2028.3s