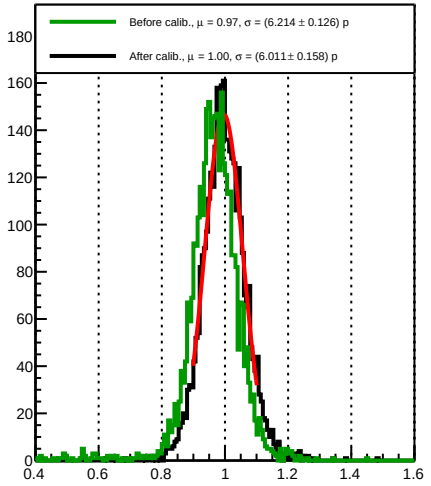
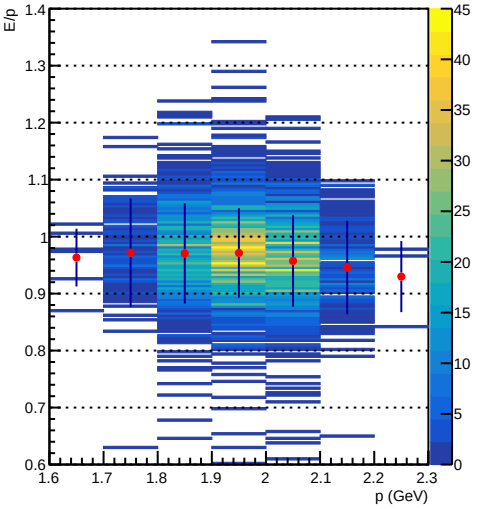
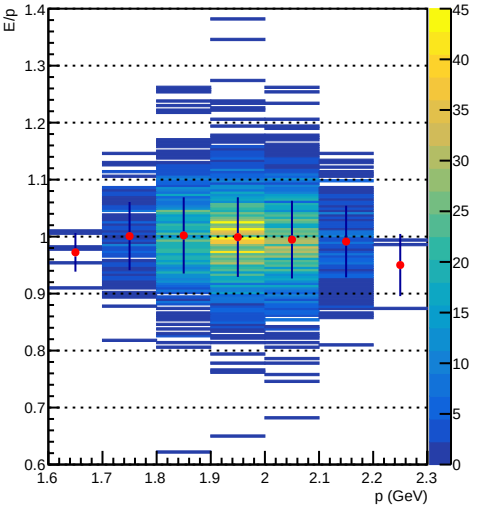
E/p (el. cut)



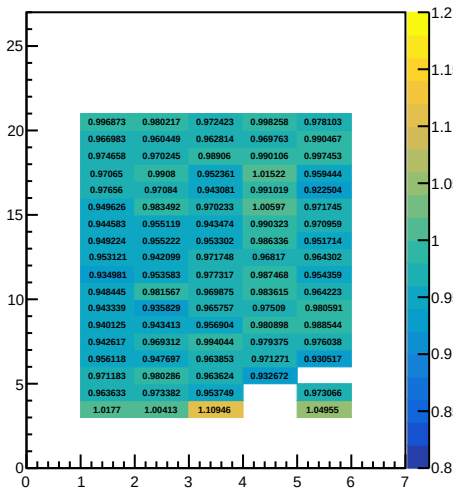
E/p vs p (el. cut)



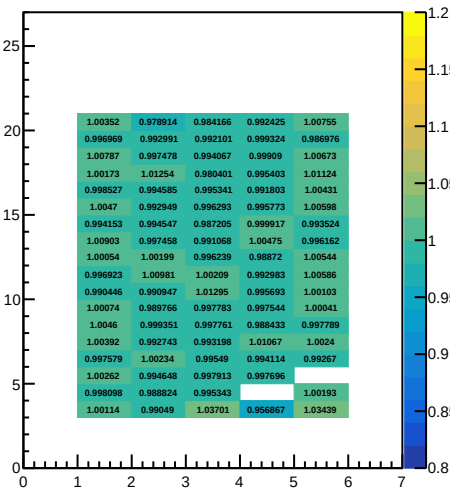
E/p vs p | After Calib. (el. cut)



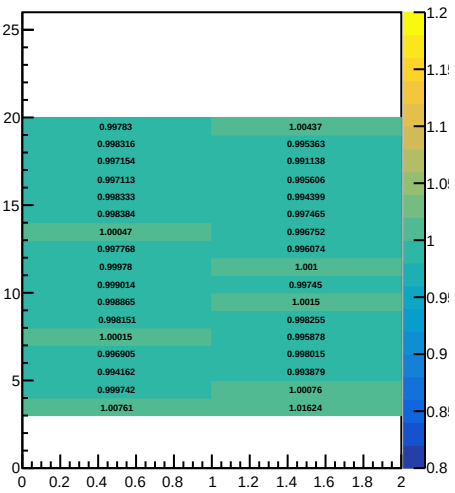
E/p per SH block (el. cut)



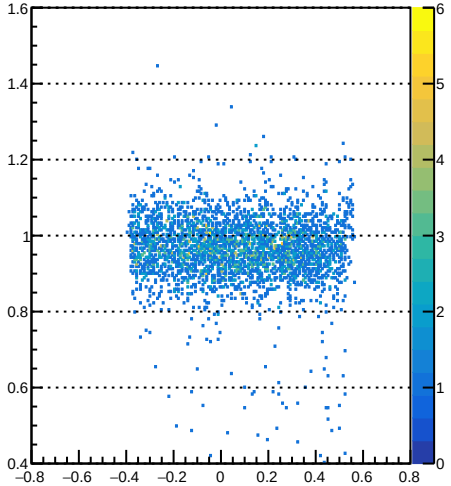
E/p per SH block | After Calib. (el. cut)



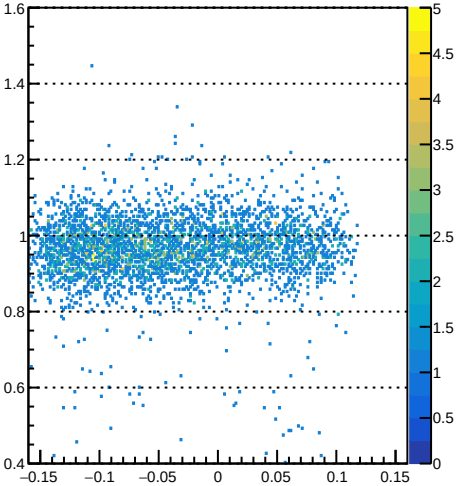
E/p per PS block | After Calib. (el. cut)



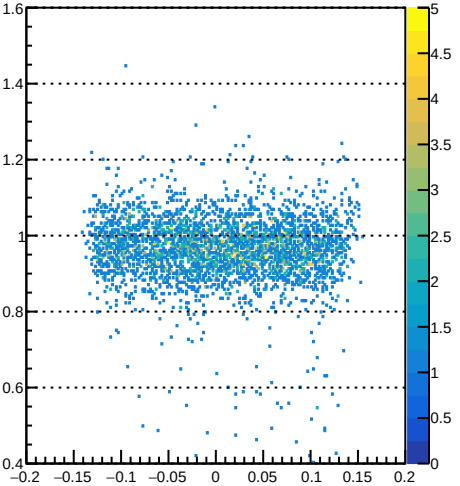
E/p vs Track x (el. cut)



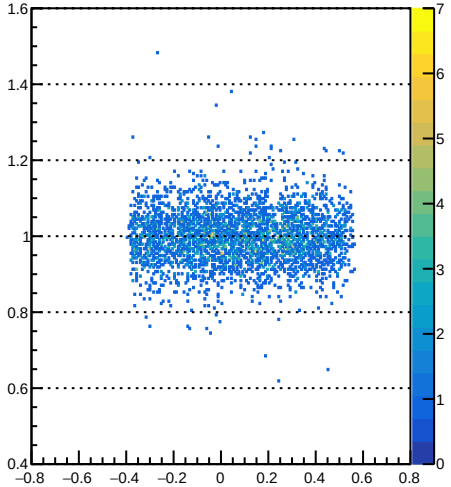
E/p vs Track y (el. cut)



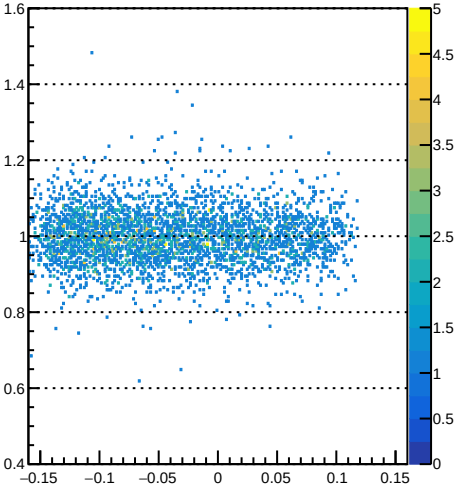
E/p vs Track theta (el. cut)



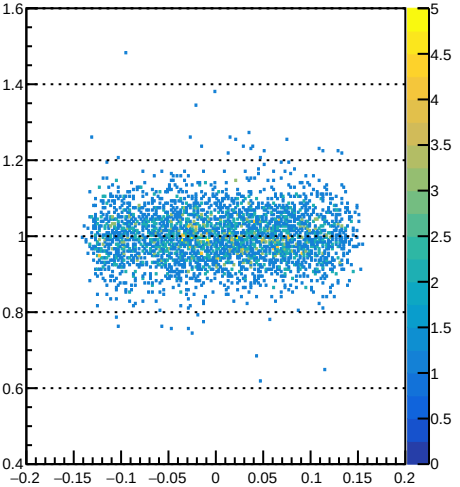
E/p vs Track x | After Calib. (el. cut)



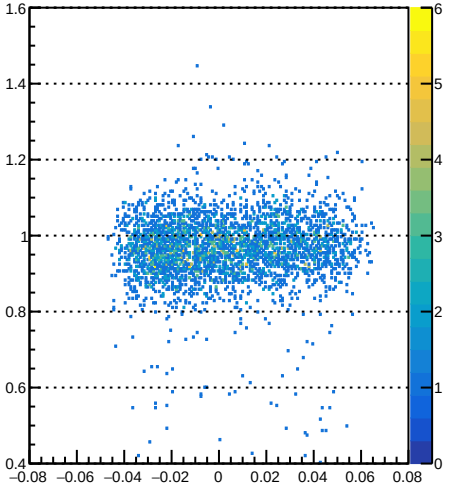
E/p vs Track y | After Calib. (el. cut)



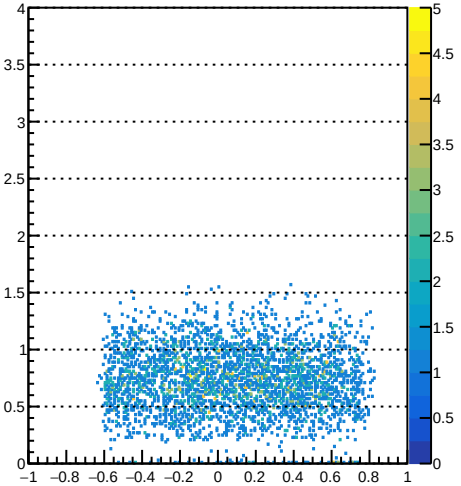
E/p vs Track theta | After Calib. (el. cut)



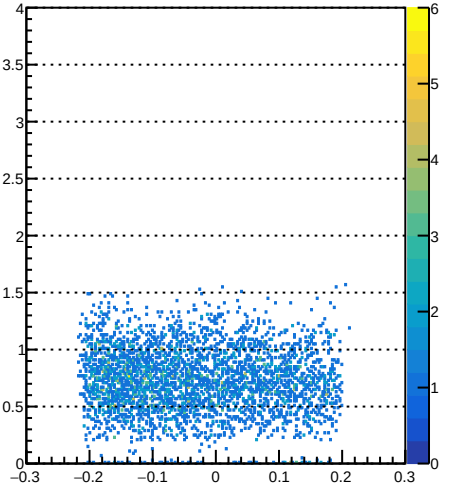
E/p vs Track phi (el. cut)



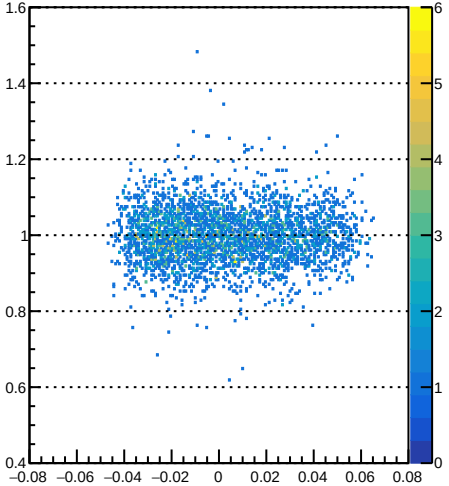
PS energy vs Track x (proj. at PS) (el. cut)



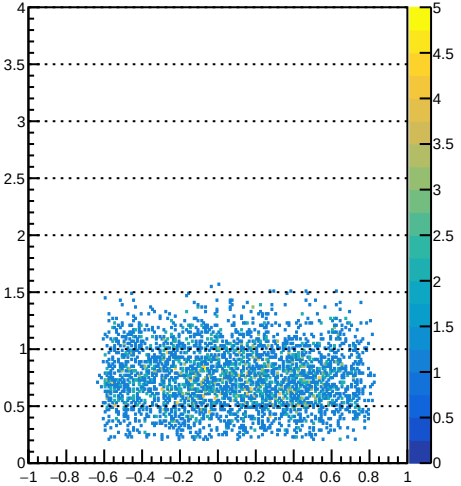
PS energy vs Track y (el. cut) (proj. at PS)



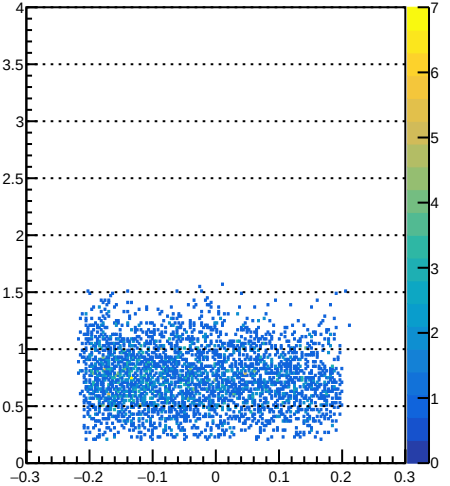
E/p vs Track phi | After Calib. (el. cut)

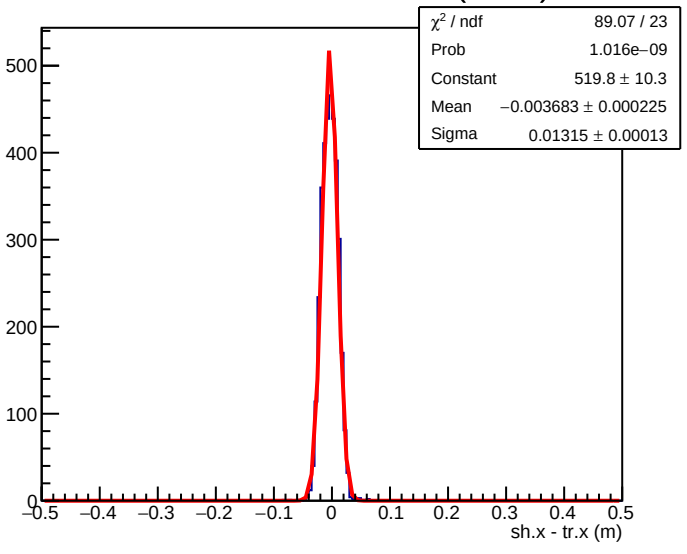


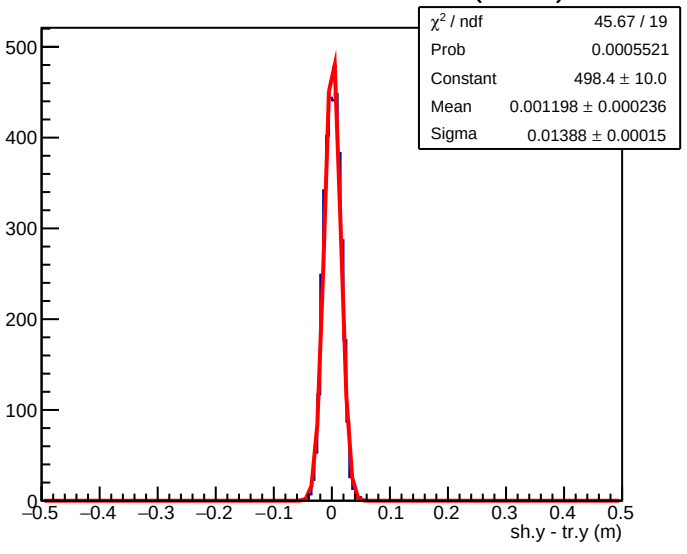
PS energy vs Track x (proj. at PS) | After Calib. (el. cut)

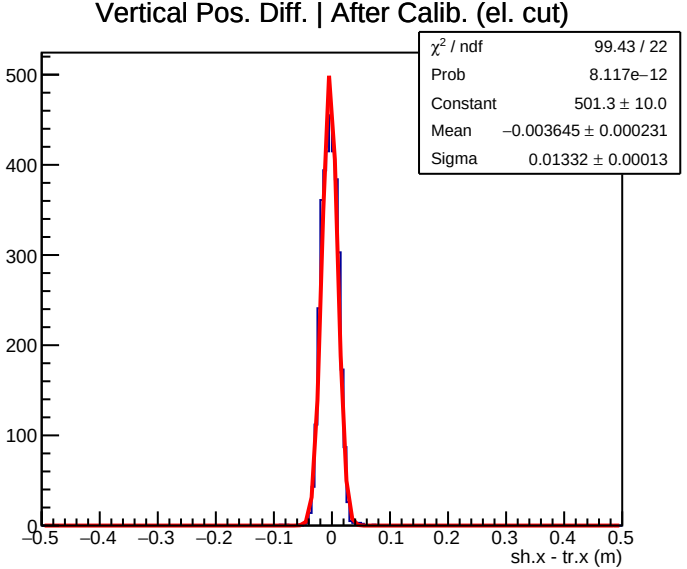


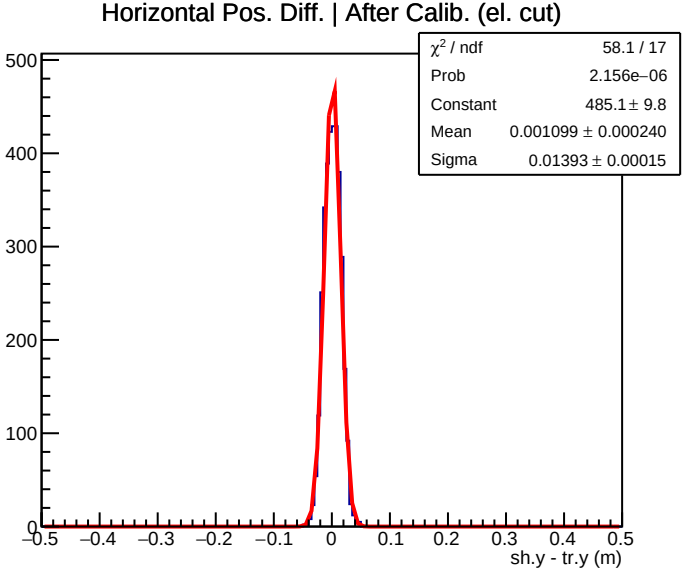
PS energy vs Track y (proj. at PS) | After Calib. (el. cut)



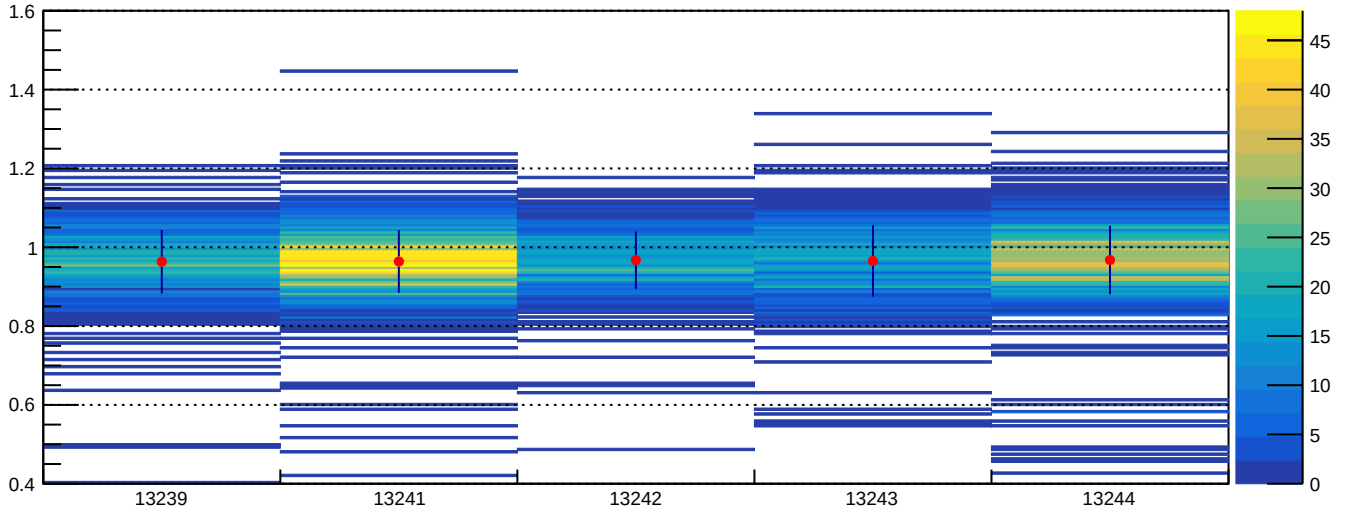

Vertical Position Difference (el. cut)
χ² / ndf 89.07 / 23
Prob 1.016e−09
Constant 519.8 ± 10.3
Mean −0.003683 ± 0.000225
Sigma 0.01315 ± 0.00013
sh.x - tr.x (m)


Horizontal Position Difference (el. cut)
χ² / ndf 45.67 / 19
Prob 0.0005521
Constant 498.4 ± 10.0
Mean 0.001198 ± 0.000236
Sigma 0.01388 ± 0.00015
sh.y - tr.y (m)

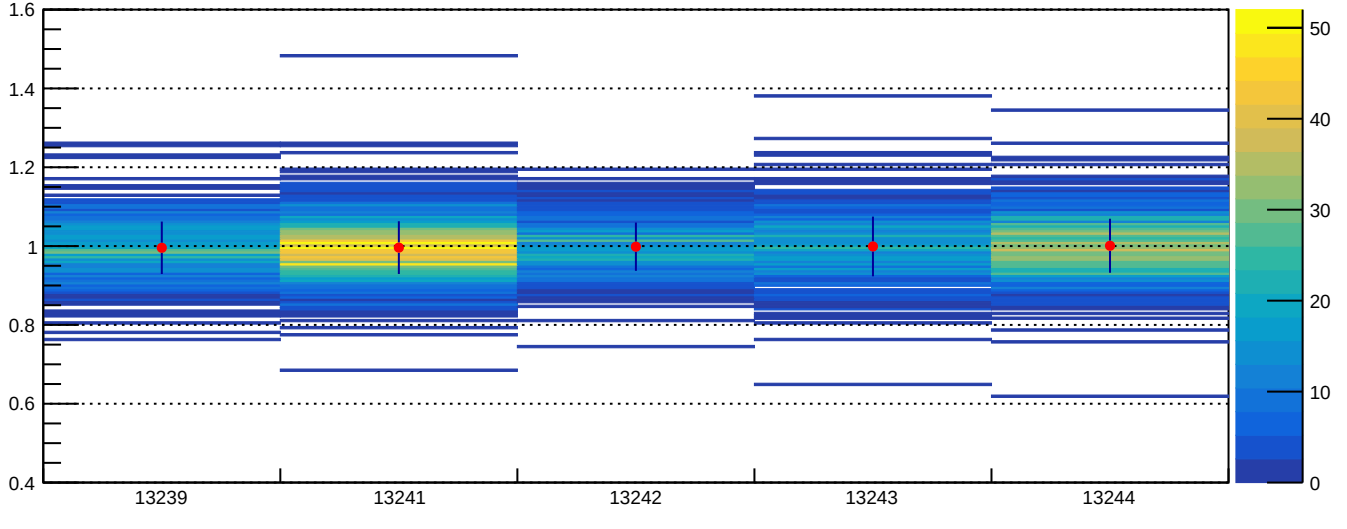

Vertical Pos. Diff. | After Calib. (el. cut)
χ² / ndf 99.43 / 22
Prob 8.117e−12
Constant 501.3 ± 10.0
Mean −0.003645 ± 0.000231
Sigma 0.01332 ± 0.00013
sh.x - tr.x (m)


Horizontal Pos. Diff. | After Calib. (el. cut)
χ² / ndf 58.1 / 17
Prob 2.156e−06
Constant 485.1 ± 9.8
Mean 0.001099 ± 0.000240
Sigma 0.01393 ± 0.00015
sh.y - tr.y (m)

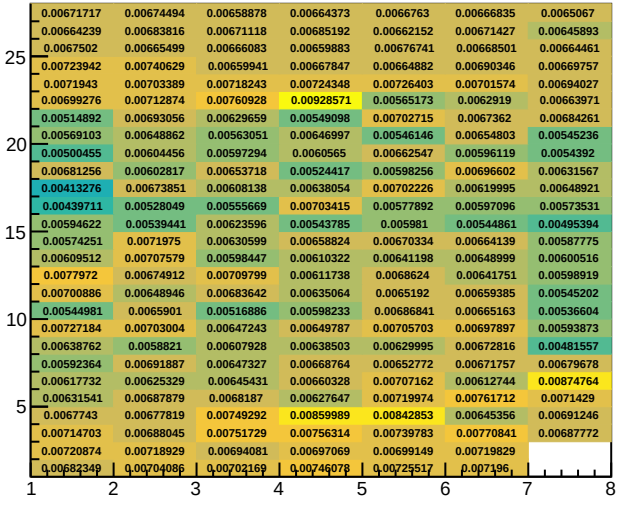
E/p vs Run no. (el. cut)



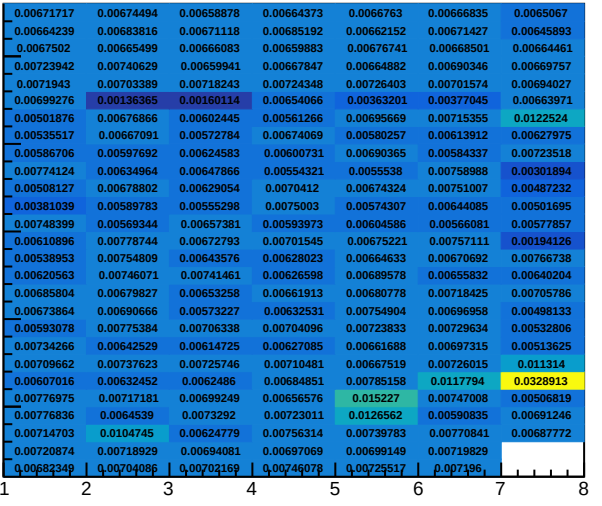
E/p vs Run no. | After Calib. (el. cut)



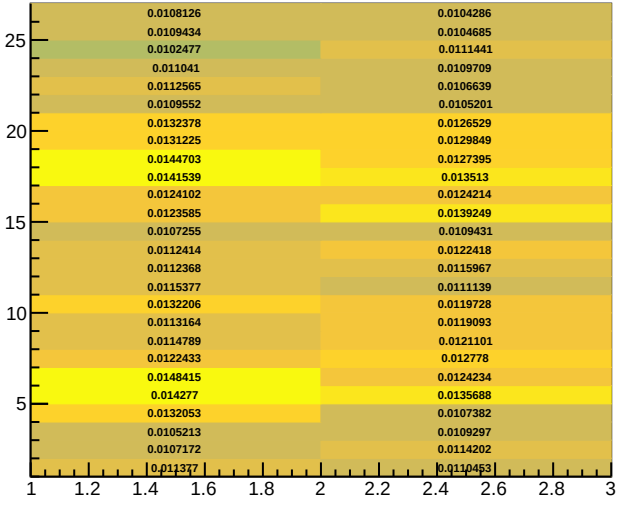
Old ADC Gain Coefficients | SH



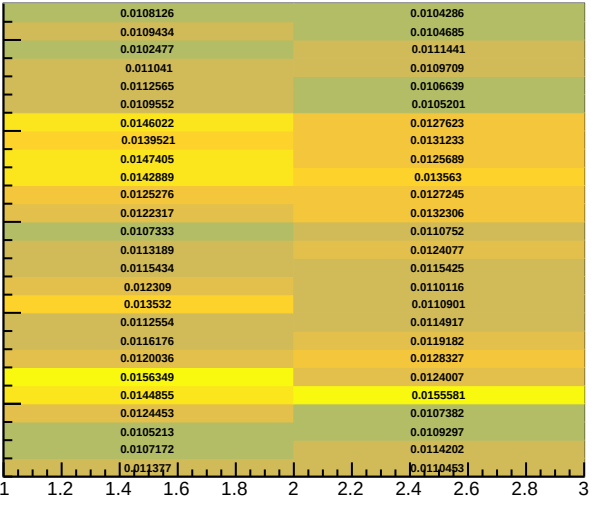
New ADC Gain Coefficients | SH

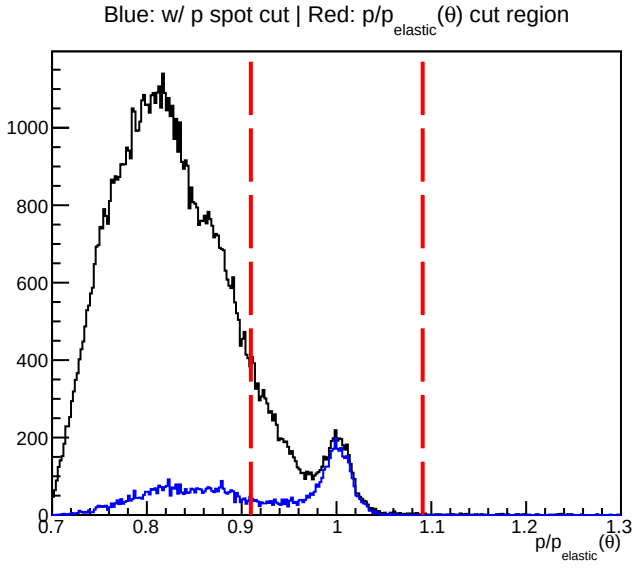


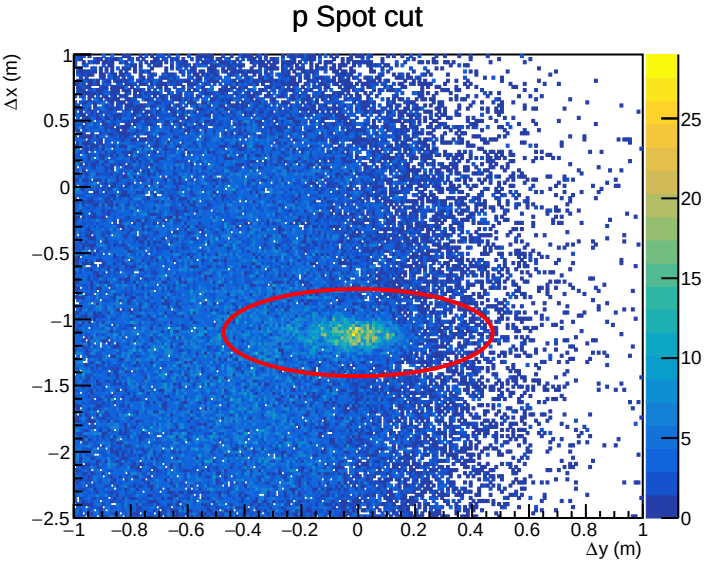
Old ADC Gain Coefficients | PS

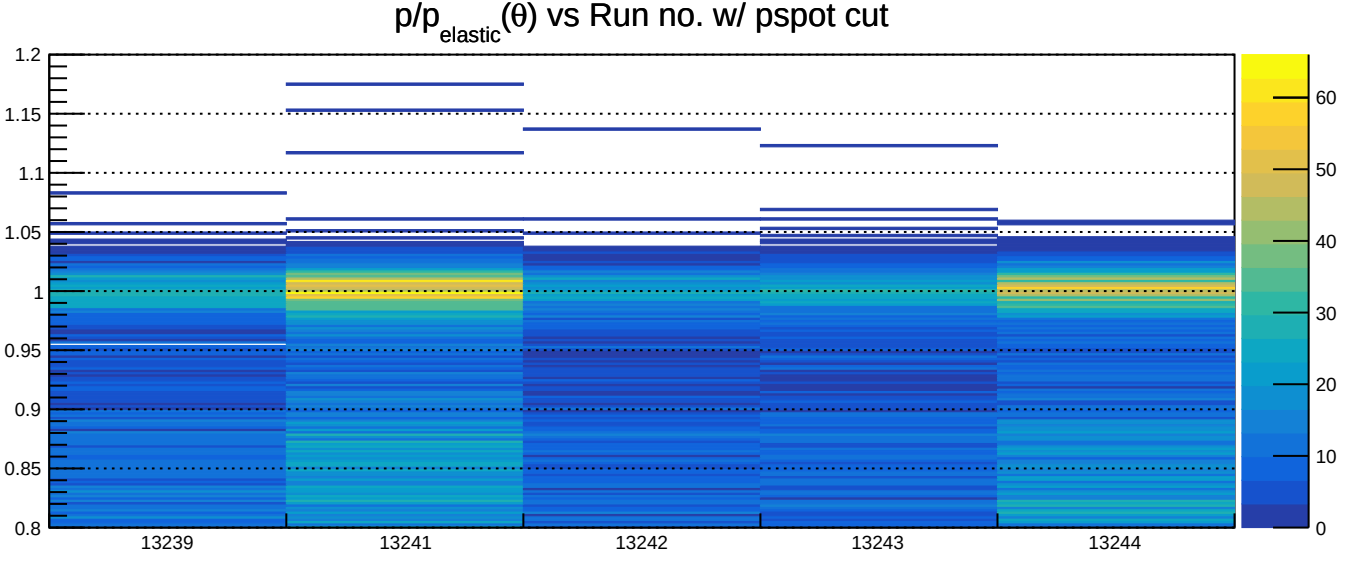


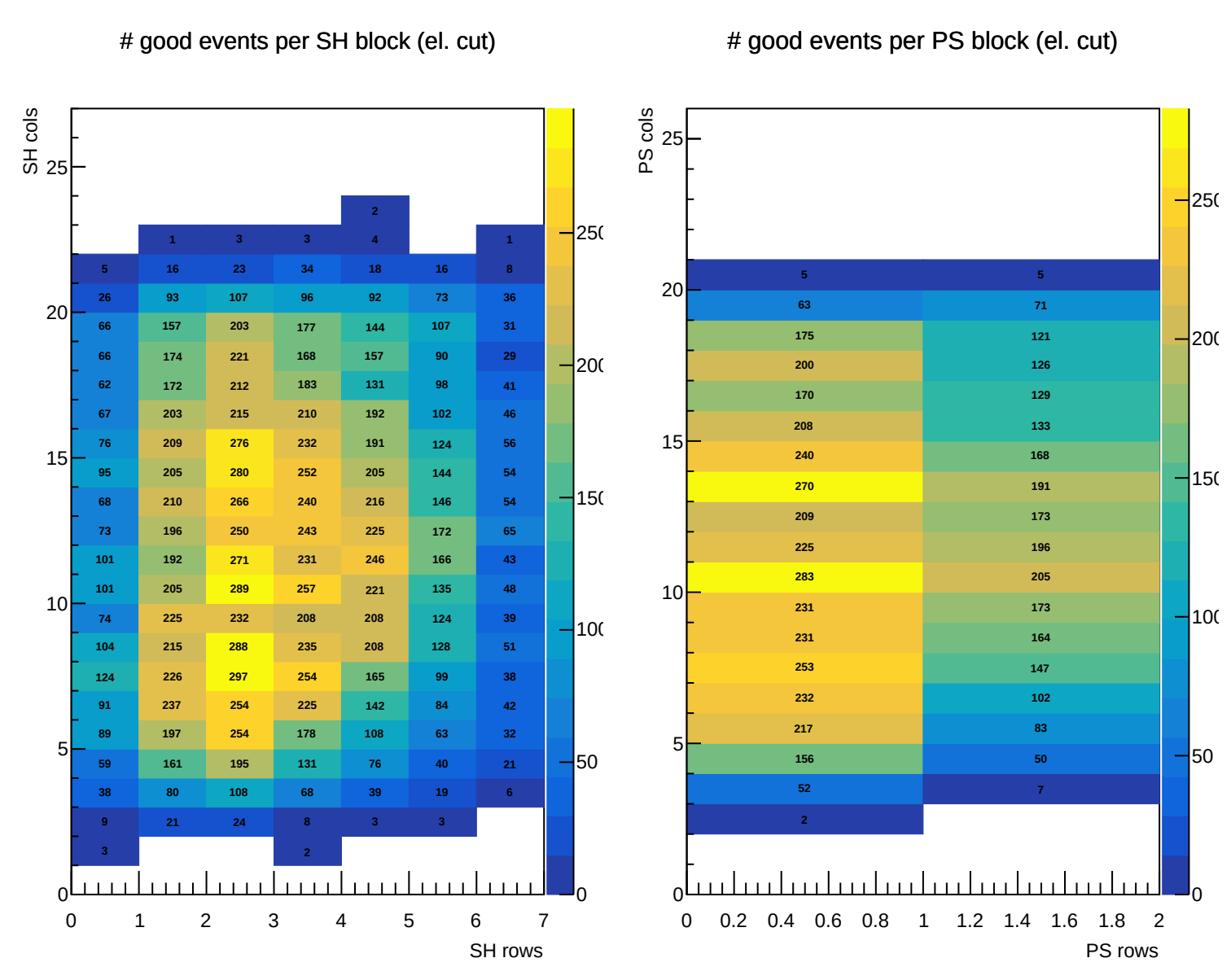
New ADC Gain Coefficients | PS



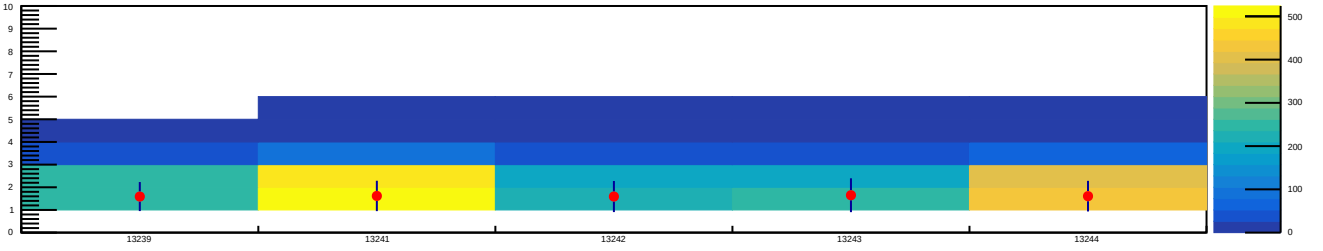

Blue: w/ p spot cut | Red: p/p_elastic(θ) cut region
1000
800
600
400
200
0
0.7
0.8
0.9
1
1.1
1.2
1.3
p/p_elastic(θ)


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)
25
20
15
10
5
0

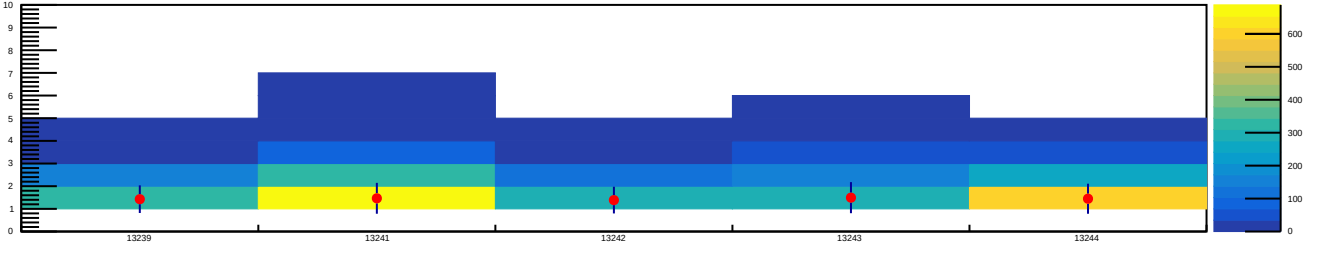

p/p_elastic(θ) vs Run no. w/ pspot cut
1.2
1.15
1.1
1.05
1
0.95
0.9
0.85
0.8
13239
13241
13242
13243
13244
60
50
40
30
20
10
0


good events per SH block (el. cut)
SH cols
SH rows
0 1 2 3 4 5 6 7
0 5 10 15 20 25
2
1 3 3 4 1
5 16 23 34 18 16 8
26 93 107 96 92 73 36
66 157 203 177 144 107 31
66 174 221 168 157 90 29
62 172 212 183 131 98 41
67 203 215 210 192 102 46
76 209 276 232 191 124 56
95 205 280 252 205 144 54
68 210 266 240 216 146 54
73 196 250 243 225 172 65
101 192 271 231 246 166 43
101 205 289 257 221 135 48
74 225 232 208 208 124 39
104 215 288 235 208 128 51
124 226 297 254 165 99 38
91 237 254 225 142 84 42
89 197 254 178 108 63 32
59 161 195 131 76 40 21
38 80 108 68 39 19 6
9 21 24 8 3 3
3 2
0 50 100 150 200 250
good events per PS block (el. cut)
PS cols
PS rows
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
5 5
63 71
175 121
200 126
170 129
208 133
240 168
270 191
209 173
225 196
283 205
231 173
231 164
253 147
232 102
217 83
156 50
52 7
2
0 50 100 150 200 250

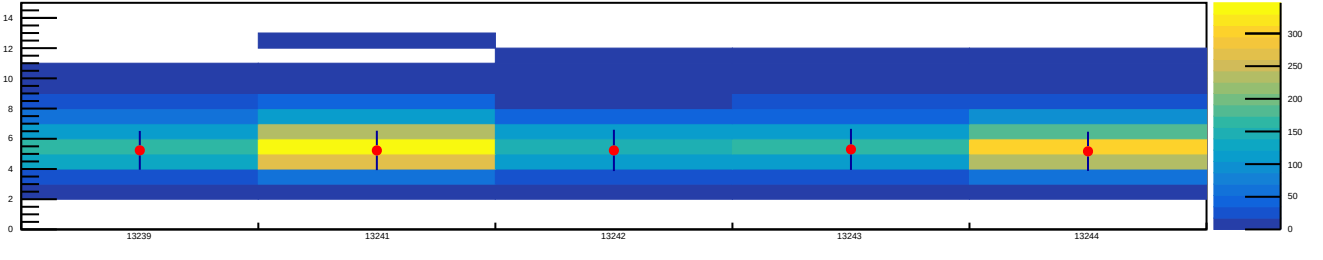
PS (best) cluster size vs Run no. (el. cut)



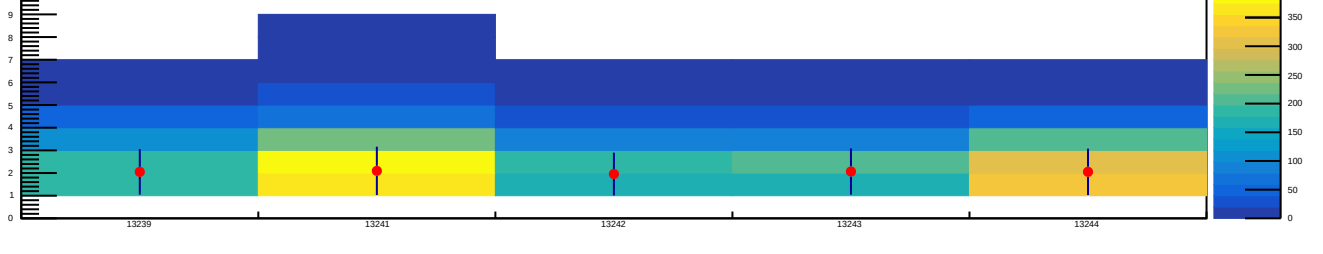
PS cluster multiplicity vs Run no. (el. cut)



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



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



Date of creation: 12/11/2023

Configfile: BBCal_replay/macros/Combined_macros/cfg/sbs14-sbs70p-set1.cfg

Total # events analyzed: 564455, Preparing for replay pass: 2

E/p (before calib.) | μ = 0.97, σ = (6.214 $\pm$ 0.126) p

E/p (after calib.) | μ = 1.00, σ = (6.011 $\pm$ 0.158) 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]-0.035)<0.335,
PS cluster energy > 0.2 GeV
p_recon > 1.5 GeV/c

events passed global cuts: 86799

Elastic cuts:

$|p/p_{el}(\theta) - 1.000| \leq 6.0*0.015$

proton spot cut ranges:

Δx (m): Mean = -1.1000, 4.0σ = 0.0823
Δy (m): Mean = -0.0006, 5.0σ = 0.0946

events passed global & elastic cuts: 4317

Other cuts:

Minimum # events per block: 15 | 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 53.1s | Real 98.6s