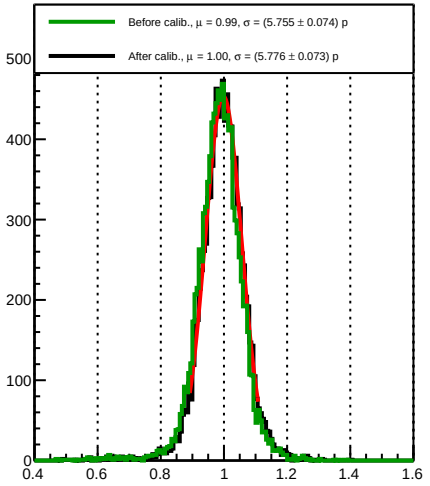
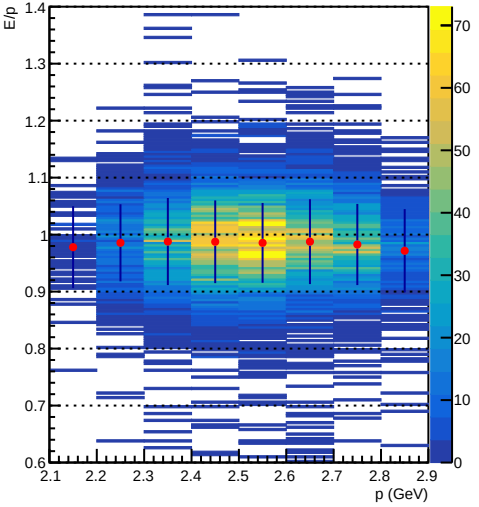
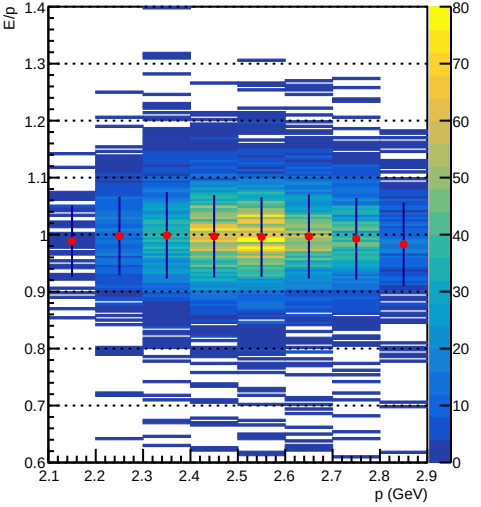
E/p (el. cut)



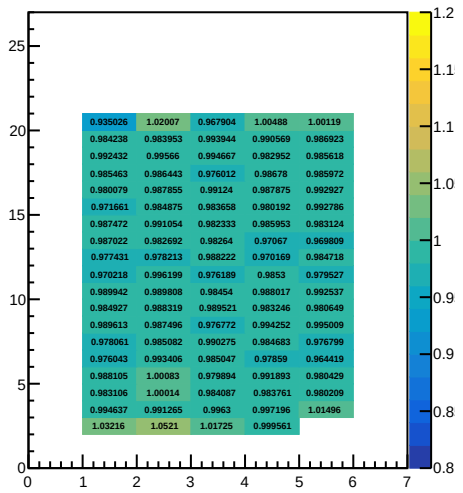
E/p vs p (el. cut)



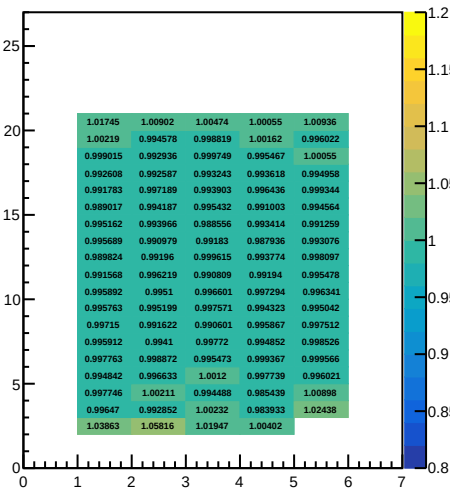
E/p vs p | After Calib. (el. cut)



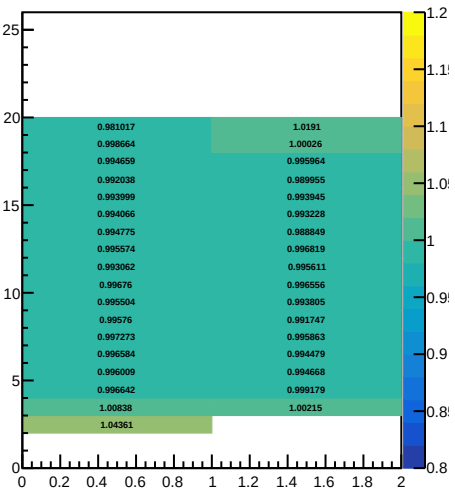
E/p per SH block (el. cut)



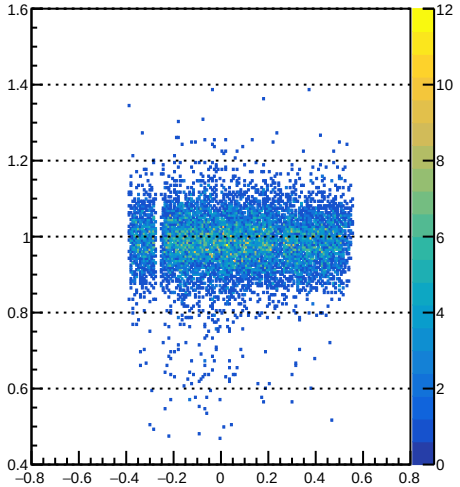
E/p per SH block | After Calib. (el. cut)



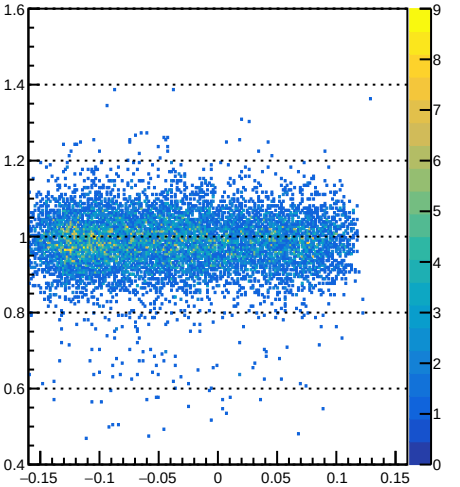
E/p per PS block | After Calib. (el. cut)



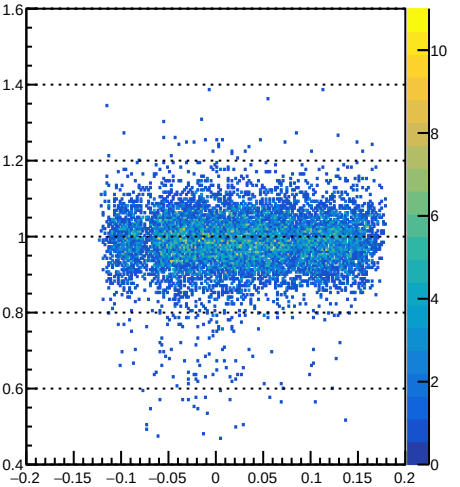
E/p vs Track x (el. cut)



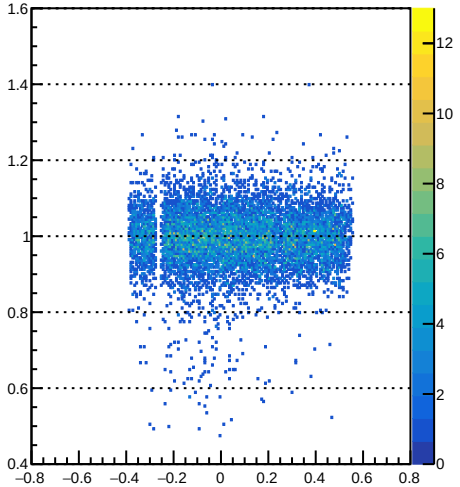
E/p vs Track y (el. cut)



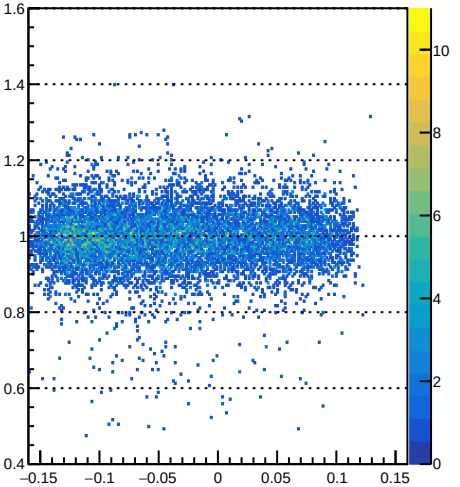
E/p vs Track theta (el. cut)



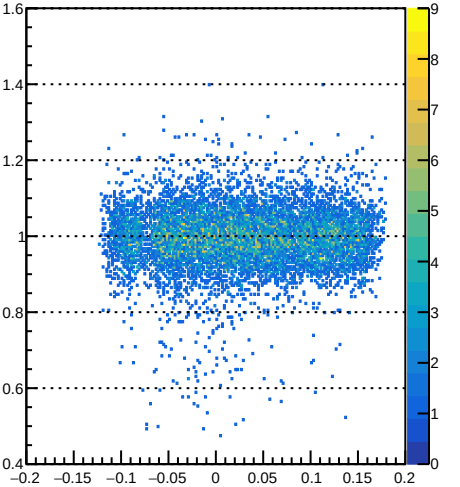
E/p vs Track x | After Calib. (el. cut)



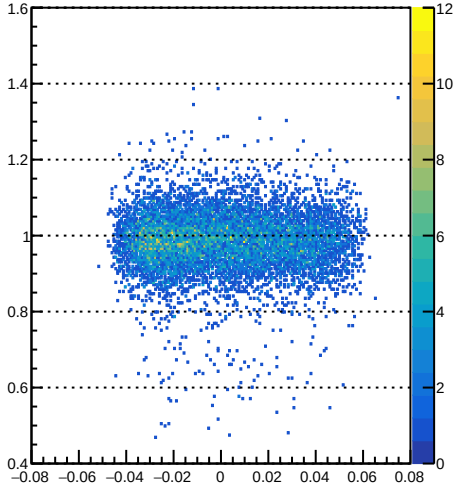
E/p vs Track y | After Calib. (el. cut)



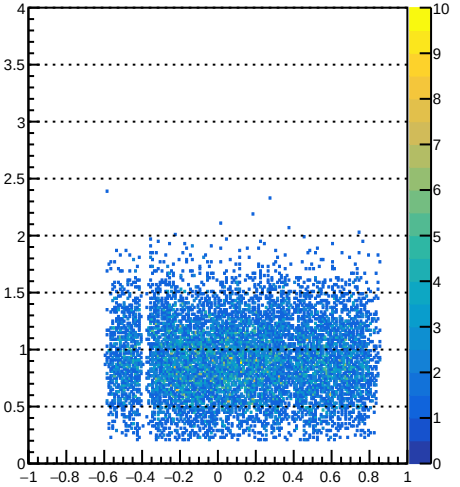
E/p vs Track theta | After Calib. (el. cut)



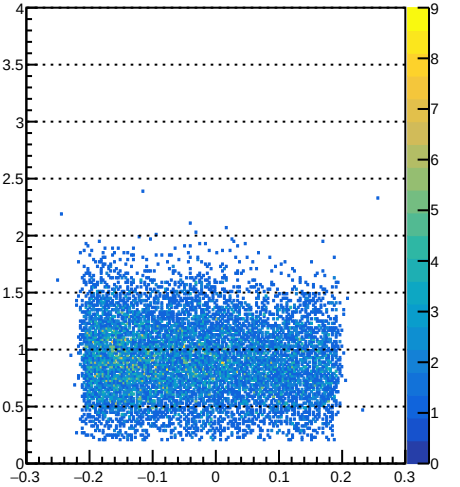
E/p vs Track phi (el. cut)



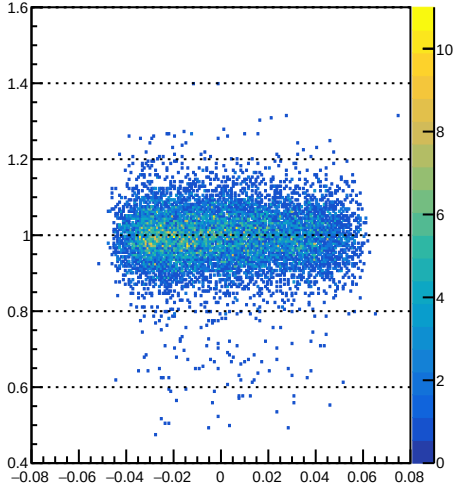
PS energy vs Track x (proj. at PS) (el. cut)



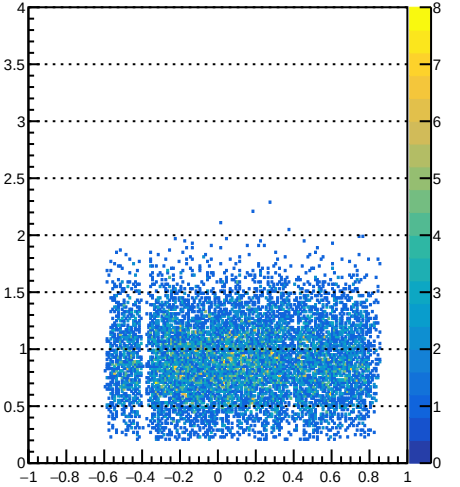
PS energy vs Track y (el. cut) (proj. at PS)



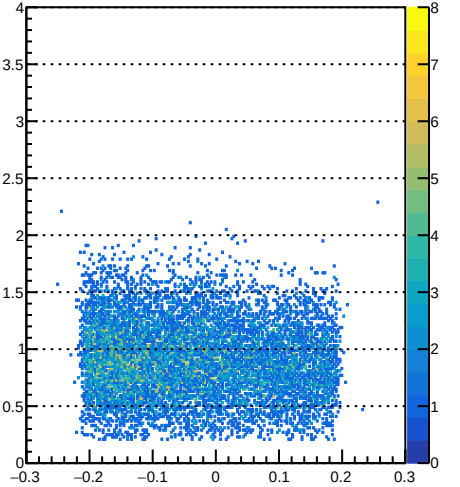
E/p vs Track phi | After Calib. (el. cut)

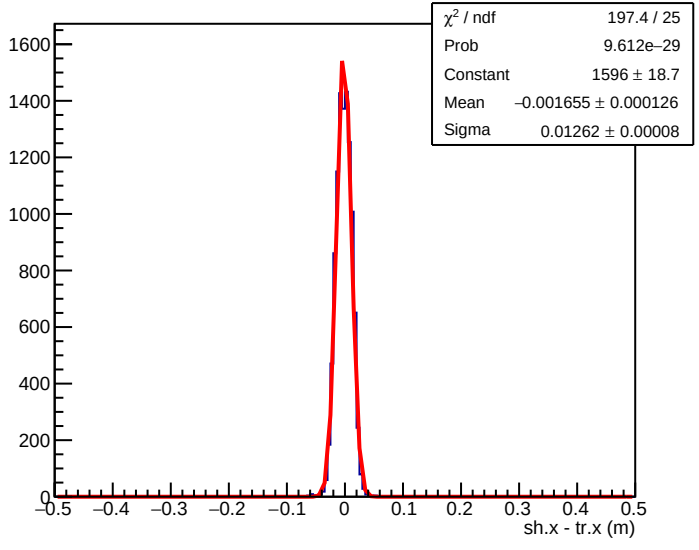


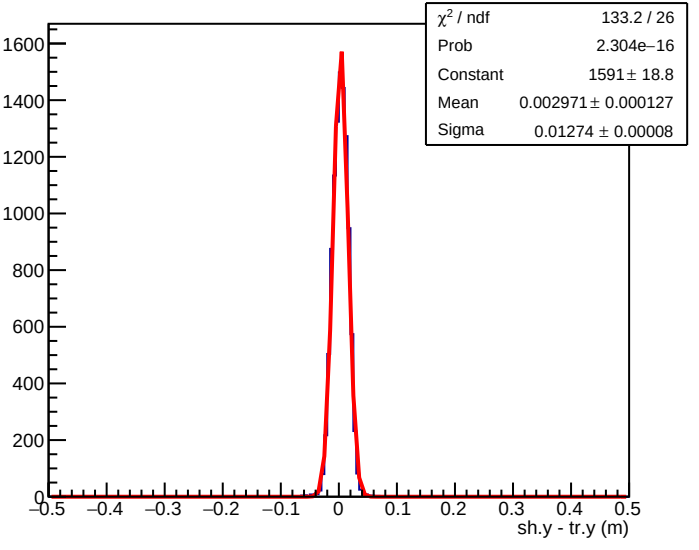
PS energy vs Track x (proj. at PS) | After Calib. (el. cut)

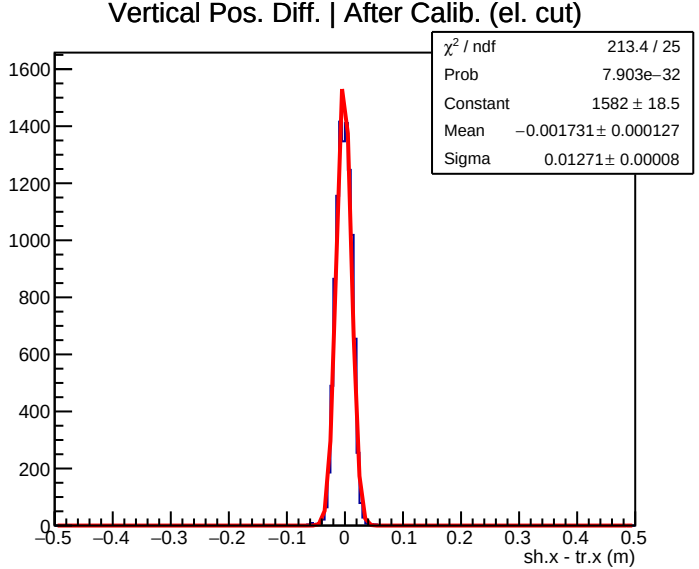


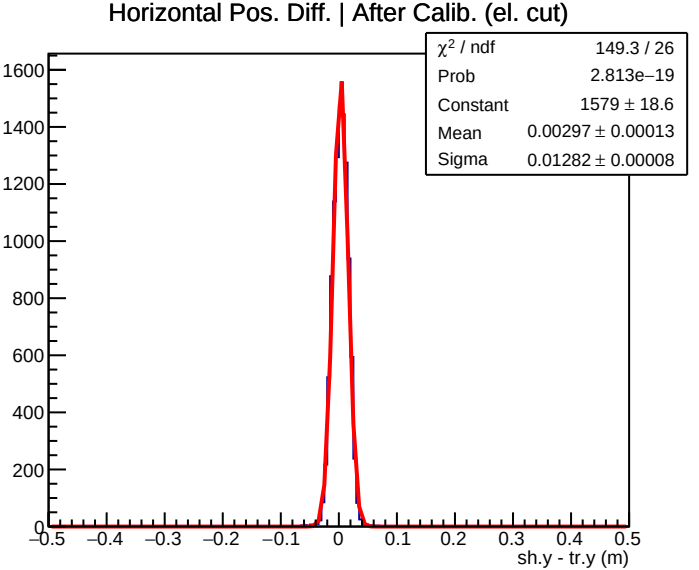
PS energy vs Track y (proj. at PS) | After Calib. (el. cut)

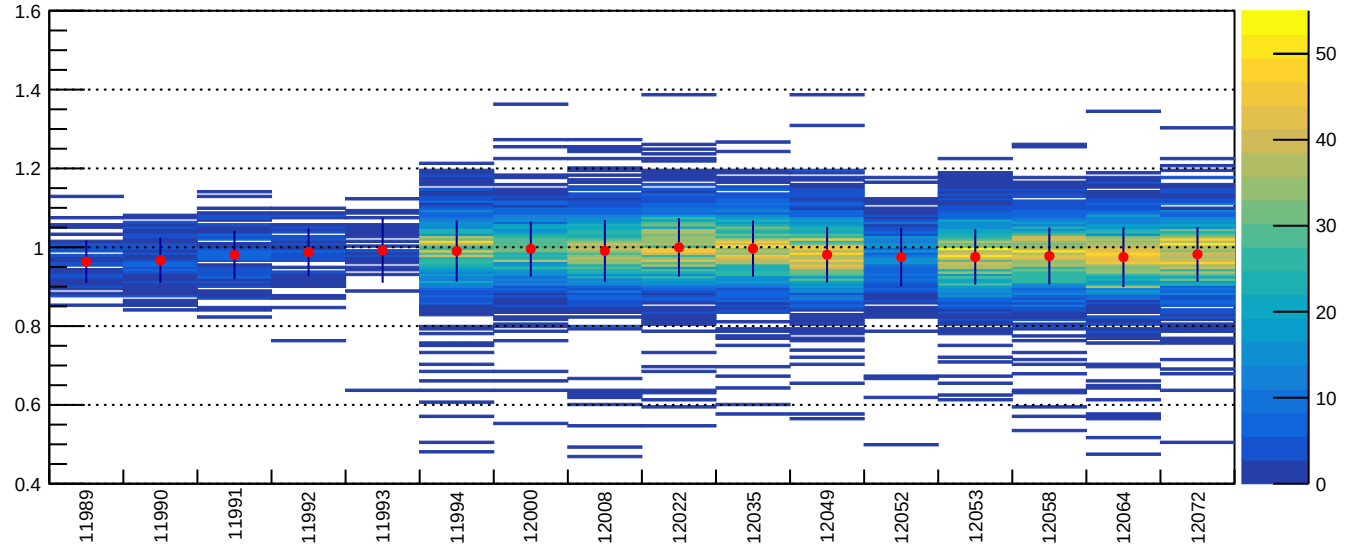


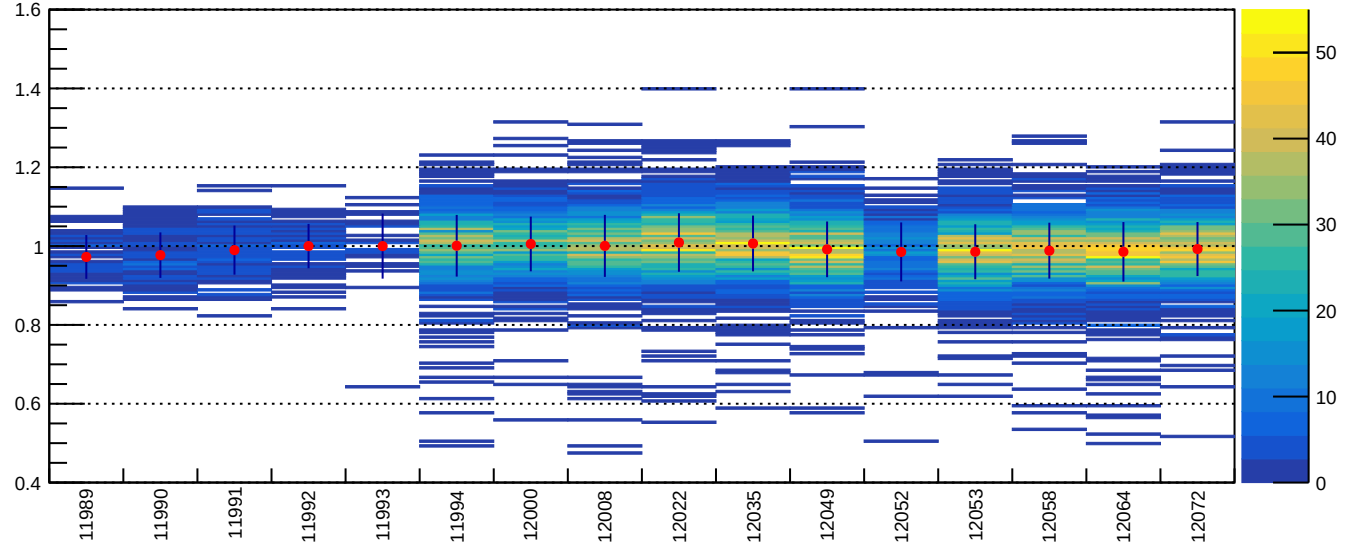

Vertical Position Difference (el. cut)
χ² / ndf 197.4 / 25
Prob 9.612e−29
Constant 1596 ± 18.7
Mean −0.001655 ± 0.000126
Sigma 0.01262 ± 0.00008
sh.x - tr.x (m)


Horizontal Position Difference (el. cut)
χ² / ndf 133.2 / 26
Prob 2.304e−16
Constant 1591 ± 18.8
Mean 0.002971 ± 0.000127
Sigma 0.01274 ± 0.00008
sh.y - tr.y (m)

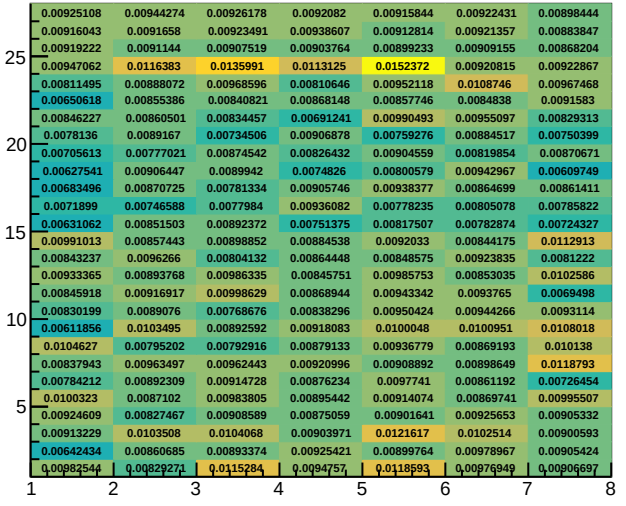

Vertical Pos. Diff. | After Calib. (el. cut)
χ² / ndf 213.4 / 25
Prob 7.903e−32
Constant 1582 ± 18.5
Mean −0.001731 ± 0.000127
Sigma 0.01271 ± 0.00008
sh.x - tr.x (m)


Horizontal Pos. Diff. | After Calib. (el. cut)
χ² / ndf 149.3 / 26
Prob 2.813e−19
Constant 1579 ± 18.6
Mean 0.00297 ± 0.00013
Sigma 0.01282 ± 0.00008
sh.y - tr.y (m)

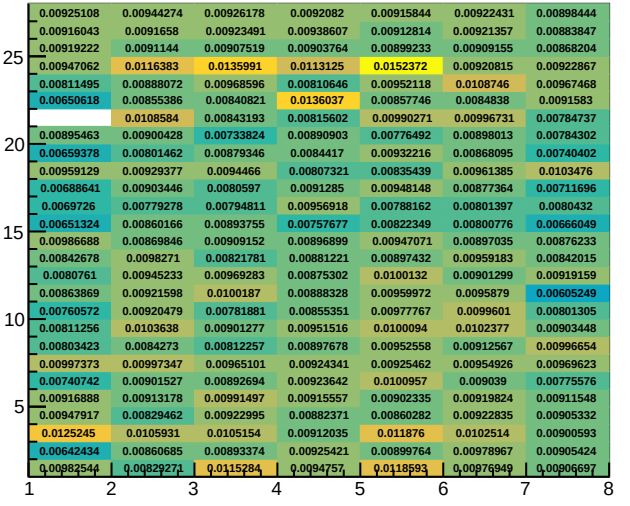

E/p vs Run no. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
11989
11990
11991
11992
11993
11994
12000
12008
12022
12035
12049
12052
12053
12058
12064
12072
50
40
30
20
10
0


E/p vs Run no. | After Calib. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
11989
11990
11991
11992
11993
11994
12000
12008
12022
12035
12049
12052
12053
12058
12064
12072
50
40
30
20
10
0

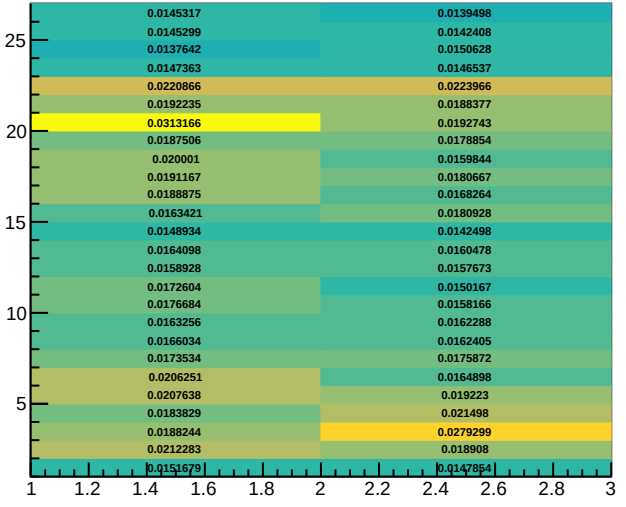
Old ADC Gain Coefficients | SH



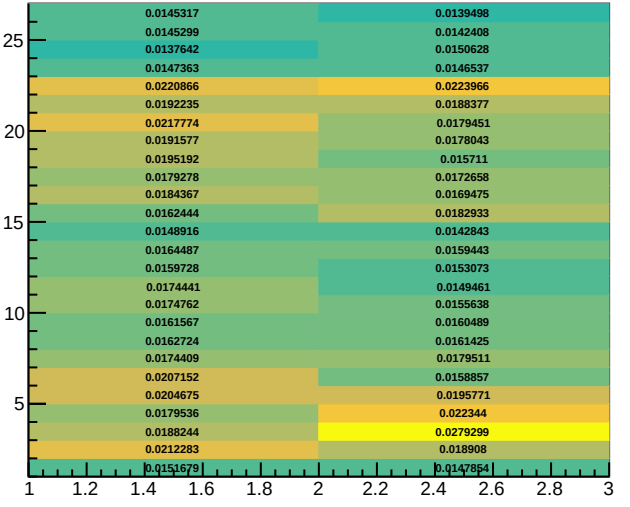
New ADC Gain Coefficients | SH

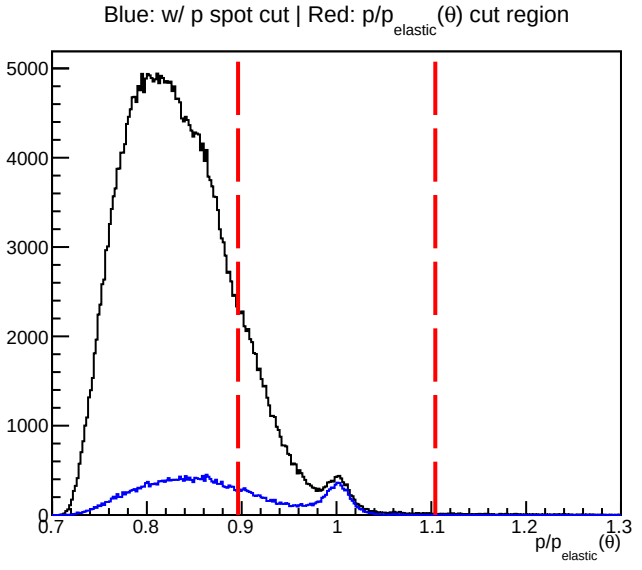


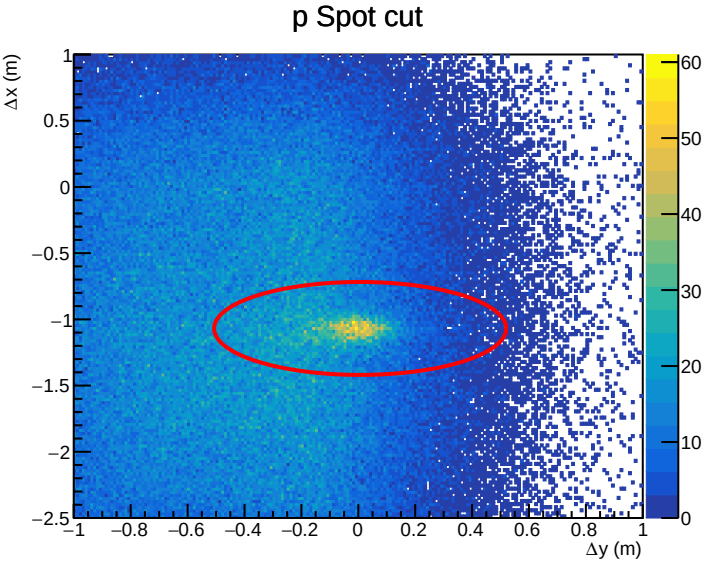
Old ADC Gain Coefficients | PS

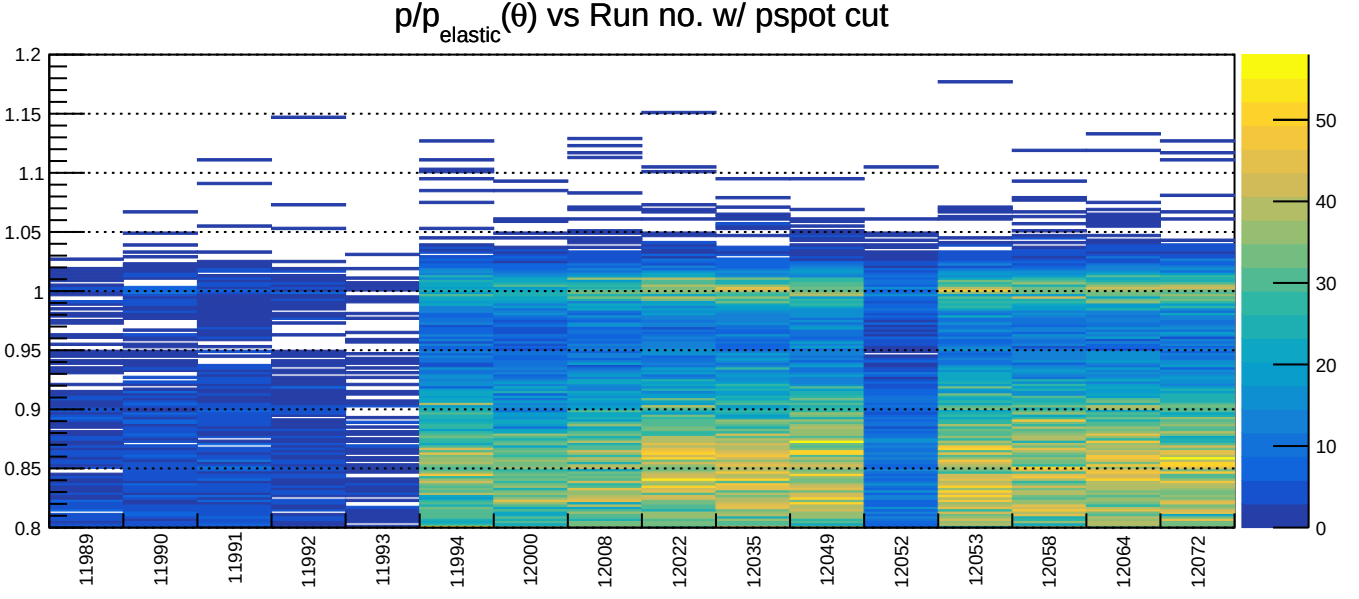


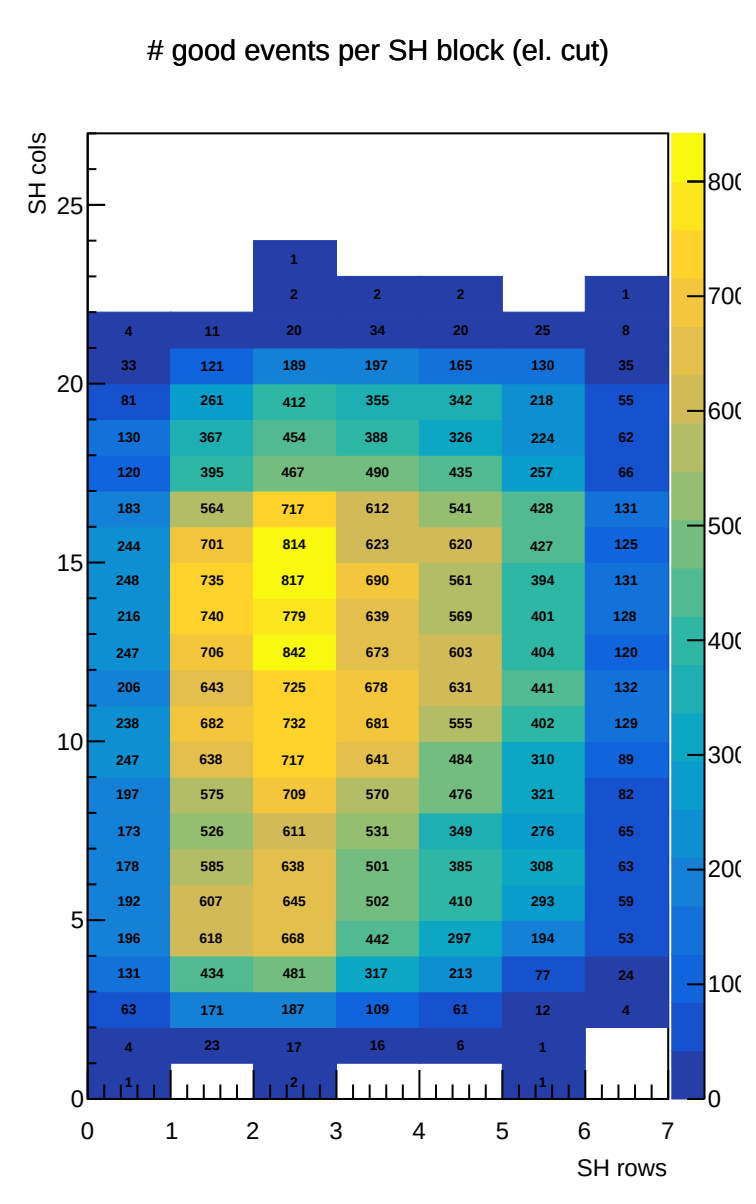
New ADC Gain Coefficients | PS

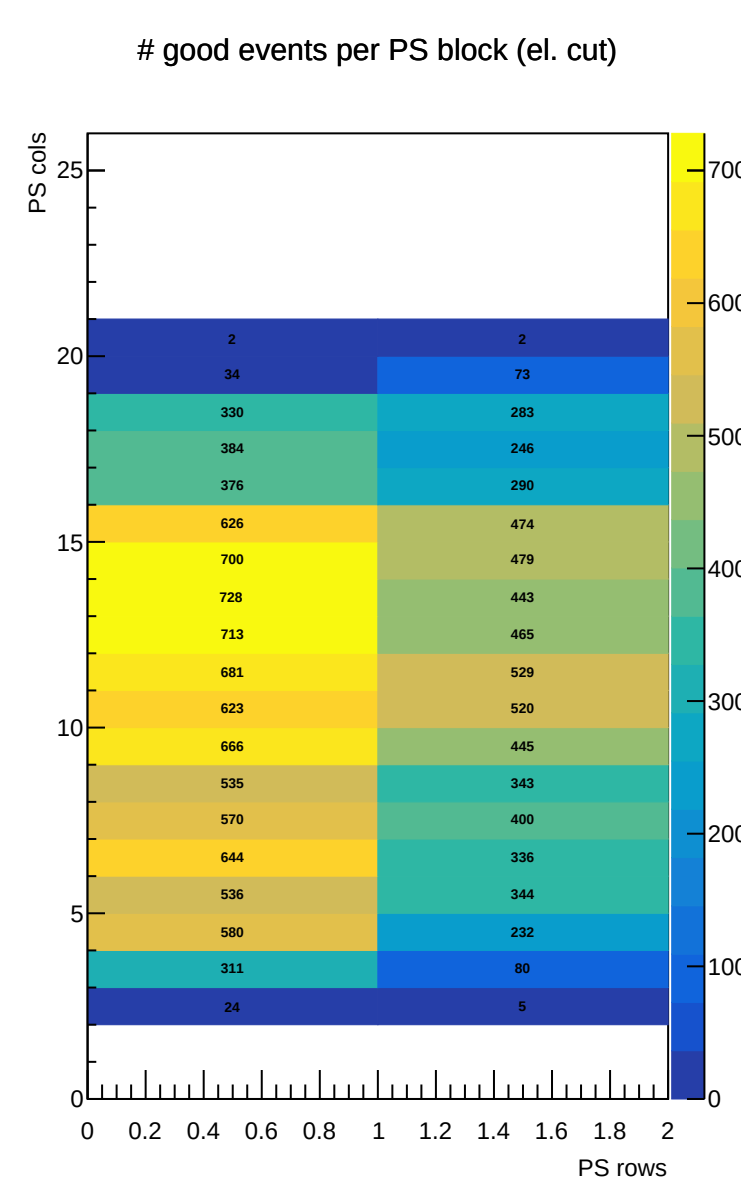



Blue: w/ p spot cut | Red: p/p_elastic(θ) cut region
5000
4000
3000
2000
1000
0
0.7
0.8
0.9
1
1.1
1.2
1.3
p/p_elastic(θ)

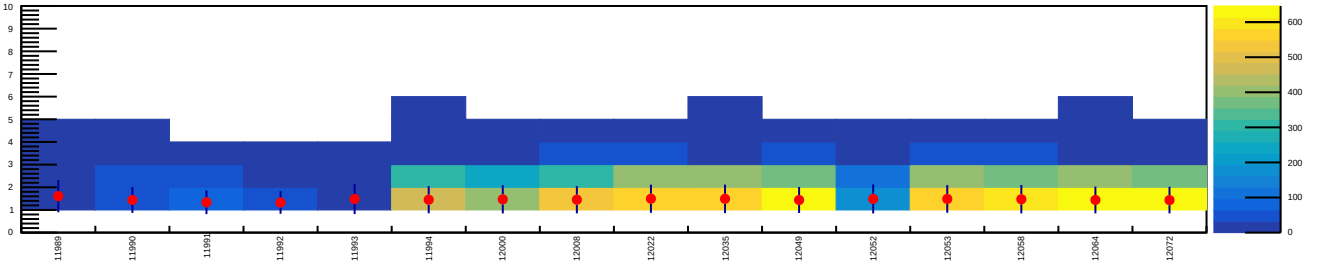

p Spot cut
Δx (m)
1
0.5
0
−0.5
−1
−1.5
−2
−2.5
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1
Δy (m)
60
50
40
30
20
10
0


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
11989
11990
11991
11992
11993
11994
12000
12008
12022
12035
12049
12052
12053
12058
12064
12072
50
40
30
20
10
0

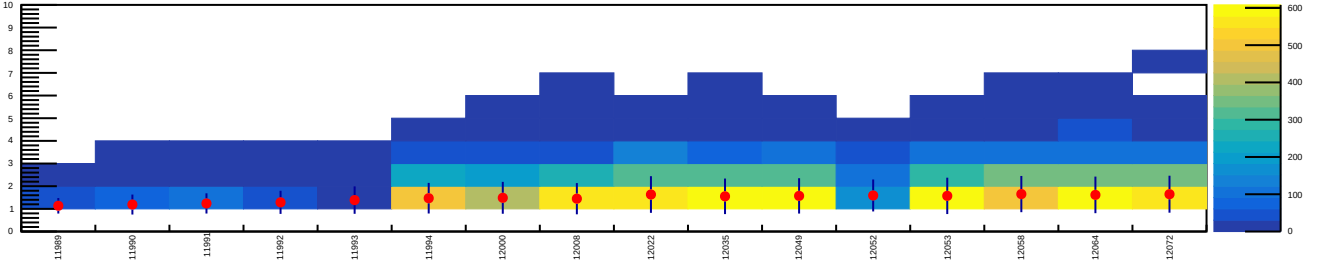

good events per SH block (el. cut)
SH cols
SH rows
0
5
10
15
20
25
0
1
2
3
4
5
6
7
1 2 2 2 1
4 11 20 34 20 25 8
33 121 189 197 165 130 35
81 261 412 355 342 218 55
130 367 454 388 326 224 62
120 395 467 490 435 257 66
183 564 717 612 541 428 131
244 701 814 623 620 427 125
248 735 817 690 561 394 131
216 740 779 639 569 401 128
247 706 842 673 603 404 120
206 643 725 678 631 441 132
238 682 732 681 555 402 129
247 638 717 641 484 310 89
197 575 709 570 476 321 82
173 526 611 531 349 276 65
178 585 638 501 385 308 63
192 607 645 502 410 293 59
196 618 668 442 297 194 53
131 434 481 317 213 77 24
63 171 187 109 61 12 4
4 23 17 16 6 1
1 2 1
0
100
200
300
400
500
600
700
800


good events per PS block (el. cut)
PS cols
PS rows
0
5
10
15
20
25
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
2 2
34 73
330 283
384 246
376 290
626 474
700 479
728 443
713 465
681 529
623 520
666 445
535 343
570 400
644 336
536 344
580 232
311 80
24 5
0
100
200
300
400
500
600
700

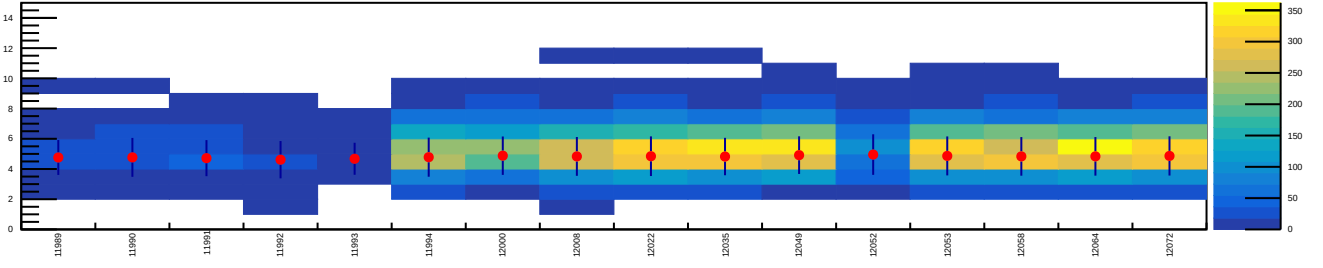
PS (best) cluster size vs Run no. (el. cut)



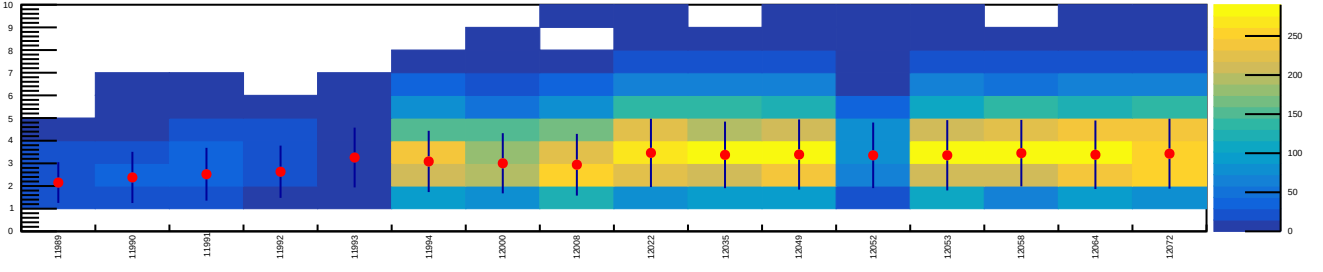
PS cluster multiplicity vs Run no. (el. cut)



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



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



Date of creation: 12/10/2023

Configfile: BBCal_replay/macros/Combined_macros/cfg/sbs7-sbs85p.cfg

Total # events analyzed: 6167217, Preparing for replay pass: 2

E/p (before calib.) | μ = 0.99, σ = (5.755 $\pm$ 0.074) p

E/p (after calib.) | μ = 1.00, σ = (5.776 $\pm$ 0.073) 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]-0.005)<0.33,
PS cluster energy > 0.2 GeV
p_recon > 2.1 GeV/c

events passed global cuts: 366131

Elastic cuts:

$|p/p_{el}(\theta) - 1.000| \leq 8.0*0.013$

proton spot cut ranges:

Δx (m): Mean = -1.0686, 5.0σ = 0.0702
Δy (m): Mean = 0.0066, 6.0σ = 0.0856

events passed global & elastic cuts: 12605

Other cuts:

Minimum # events per block: 30 | 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 441.6s | Real 728.0s