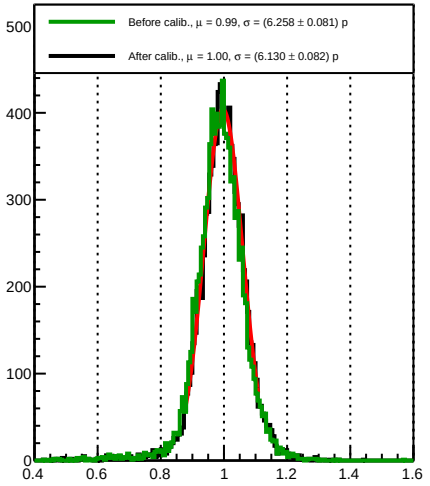
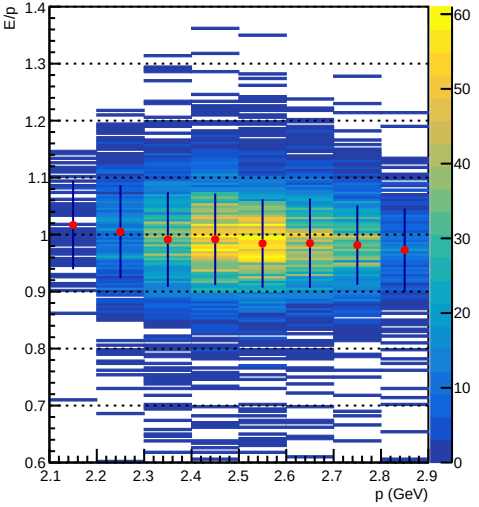
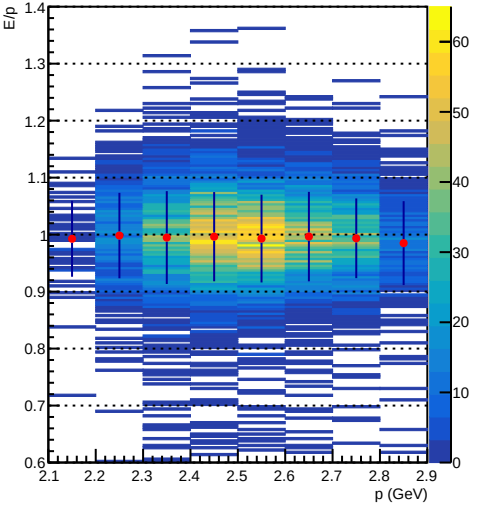
E/p (el. cut)



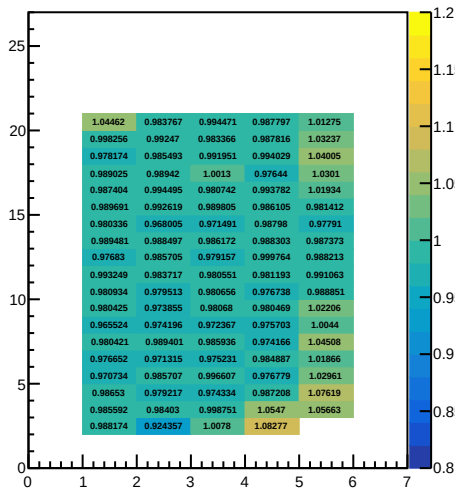
E/p vs p (el. cut)



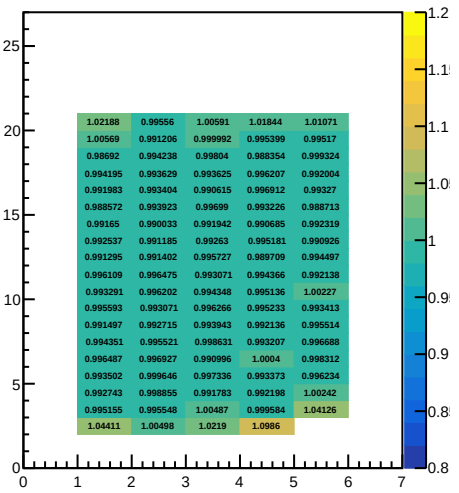
E/p vs p | After Calib. (el. cut)



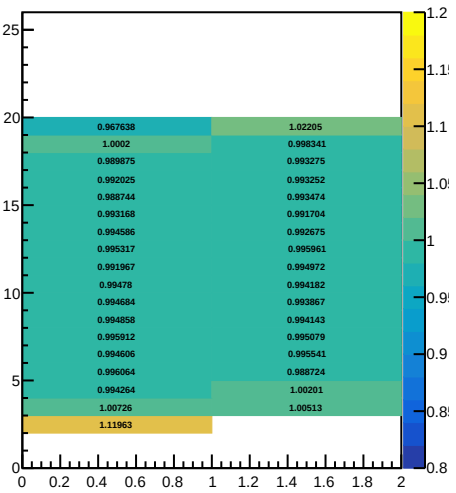
E/p per SH block (el. cut)



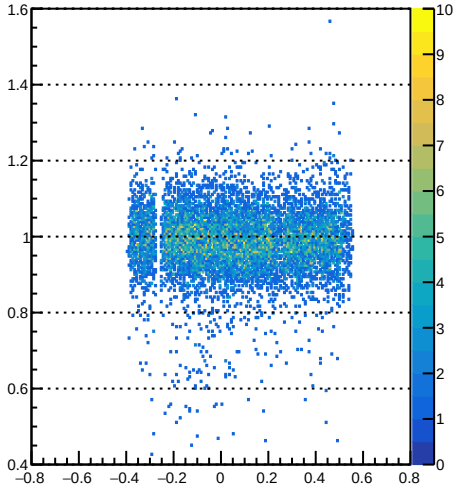
E/p per SH block | After Calib. (el. cut)



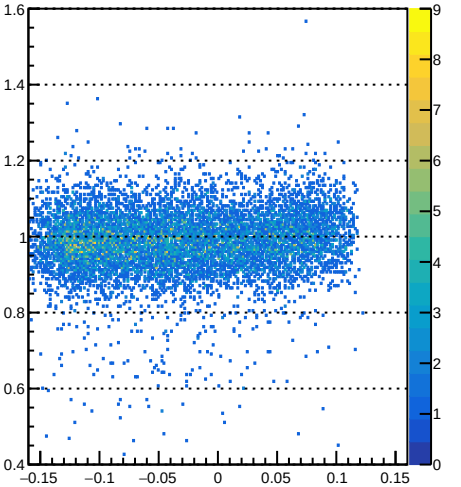
E/p per PS block | After Calib. (el. cut)



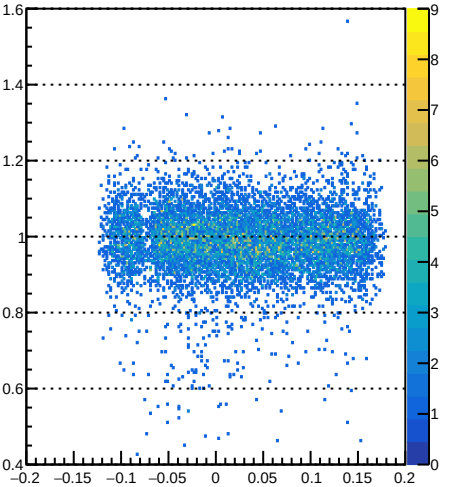
E/p vs Track x (el. cut)



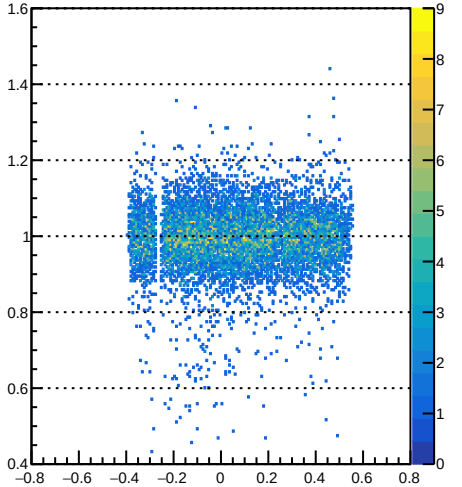
E/p vs Track y (el. cut)



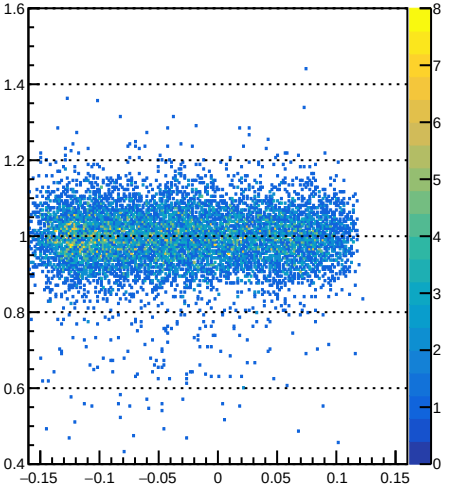
E/p vs Track theta (el. cut)



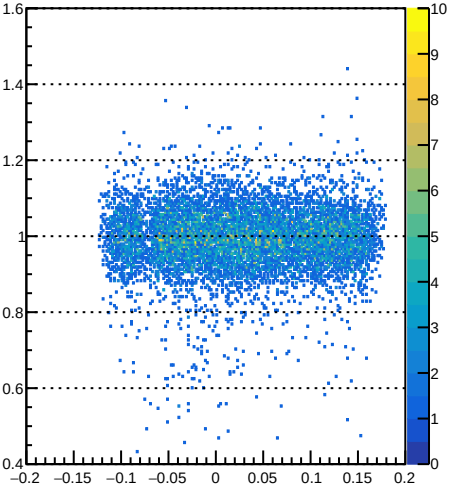
E/p vs Track x | After Calib. (el. cut)



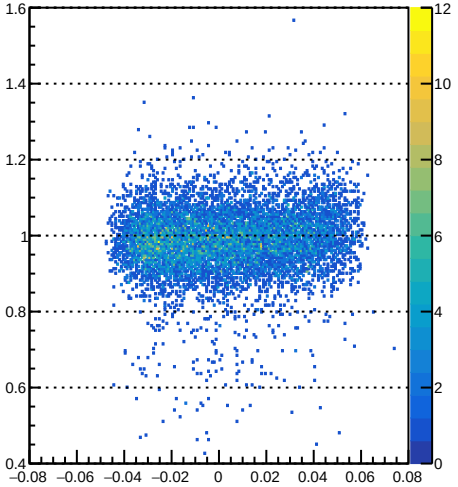
E/p vs Track y | After Calib. (el. cut)



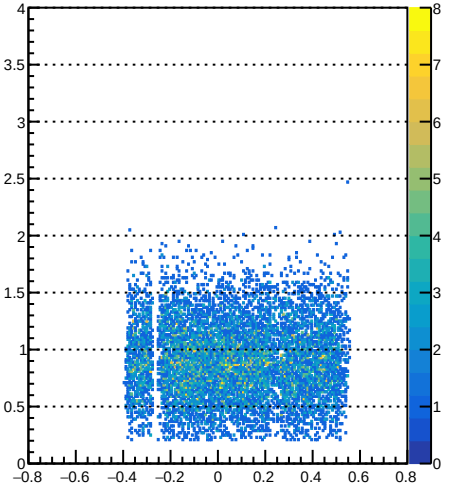
E/p vs Track theta | After Calib. (el. cut)



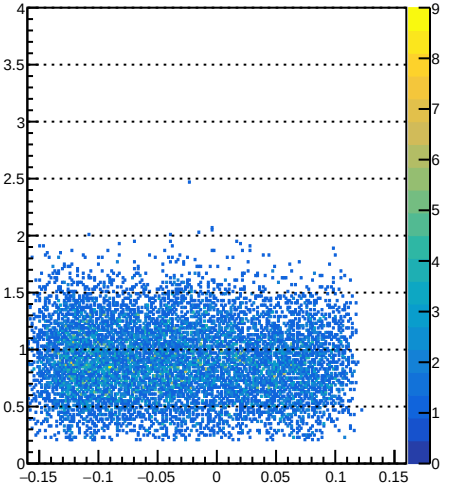
E/p vs Track phi (el. cut)



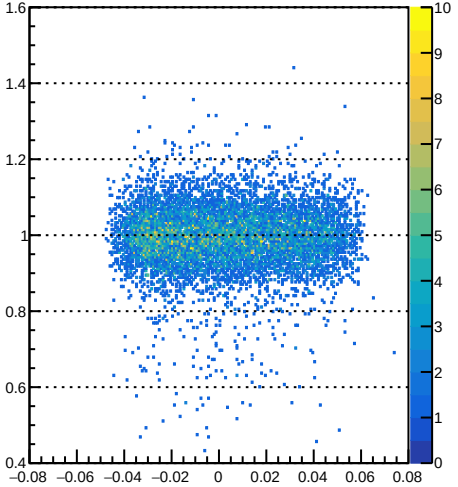
PS energy vs Track x (el. cut)



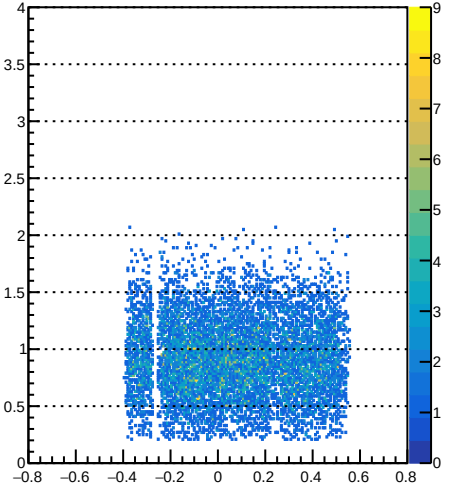
PS energy vs Track y (el. cut)



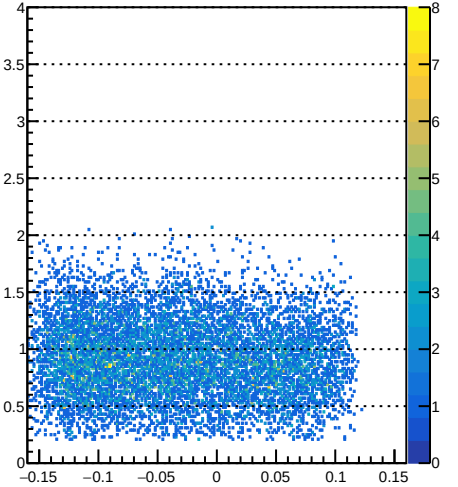
E/p vs Track phi | After Calib. (el. cut)

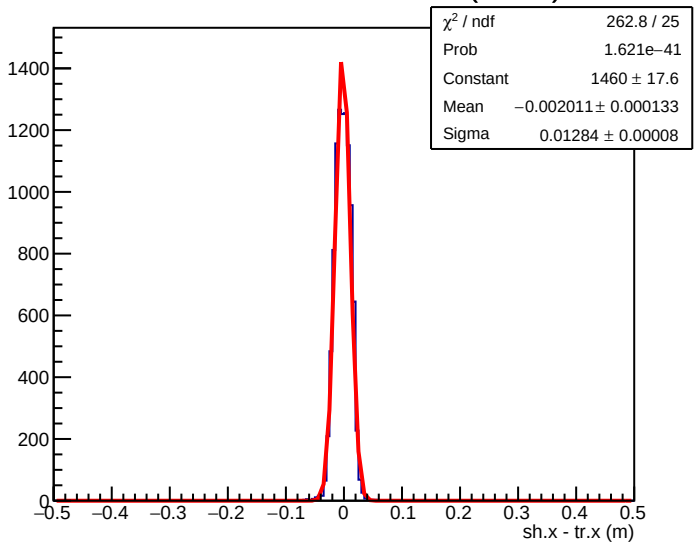


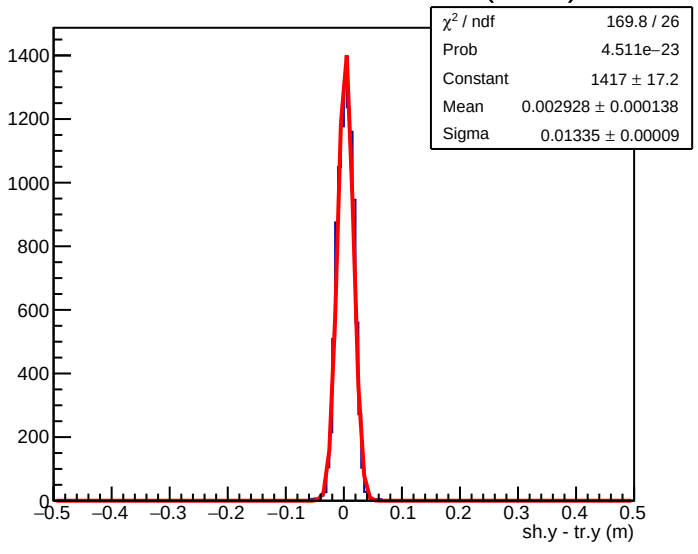
PS energy vs Track x | After Calib. (el. cut)

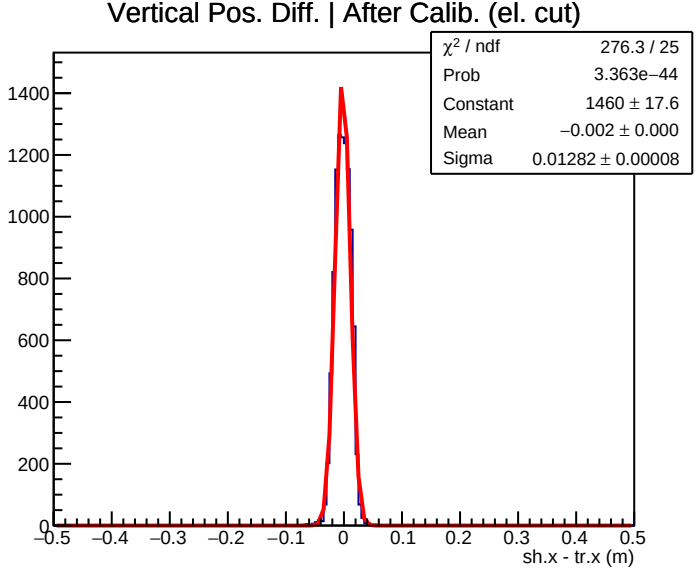


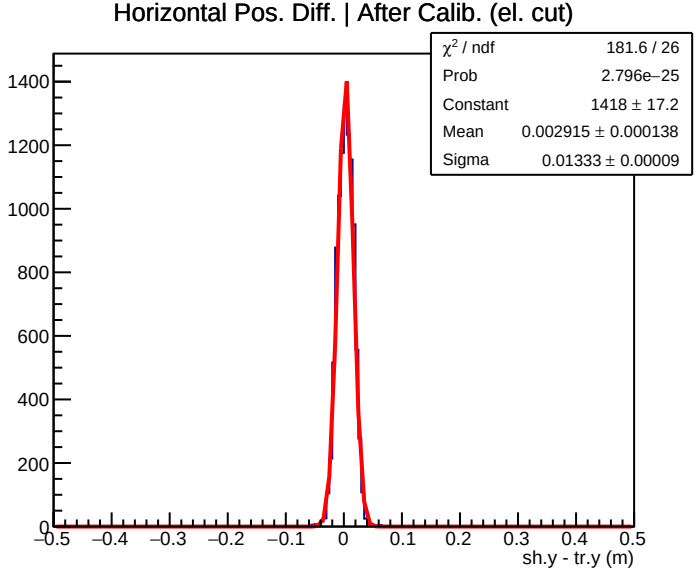
PS energy vs Track y | After Calib. (el. cut)

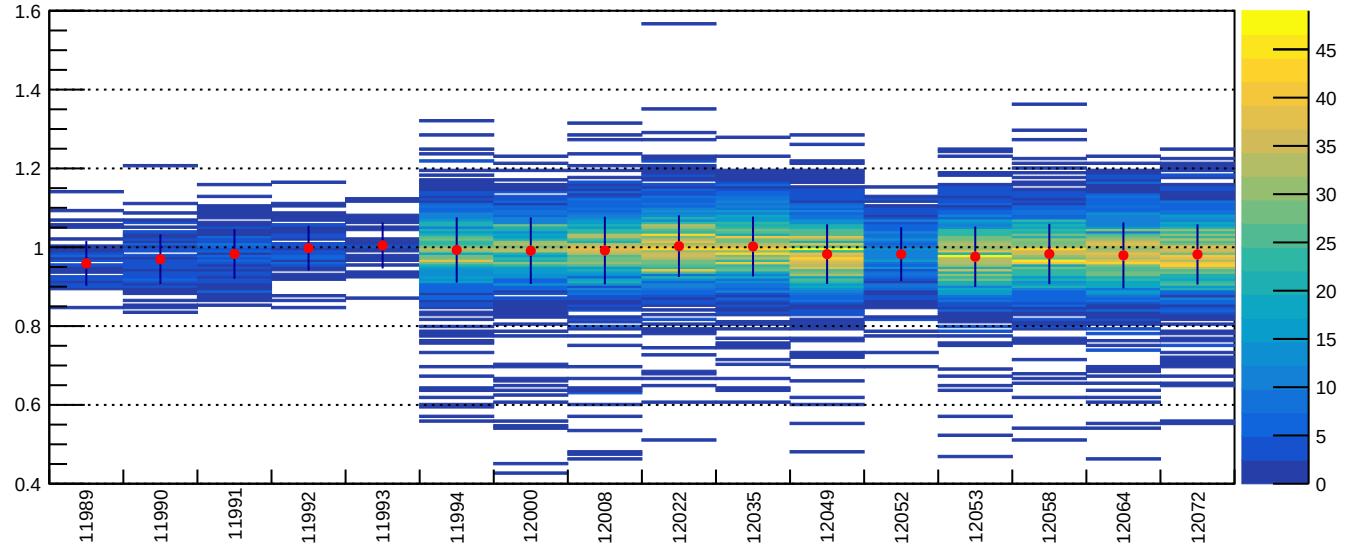


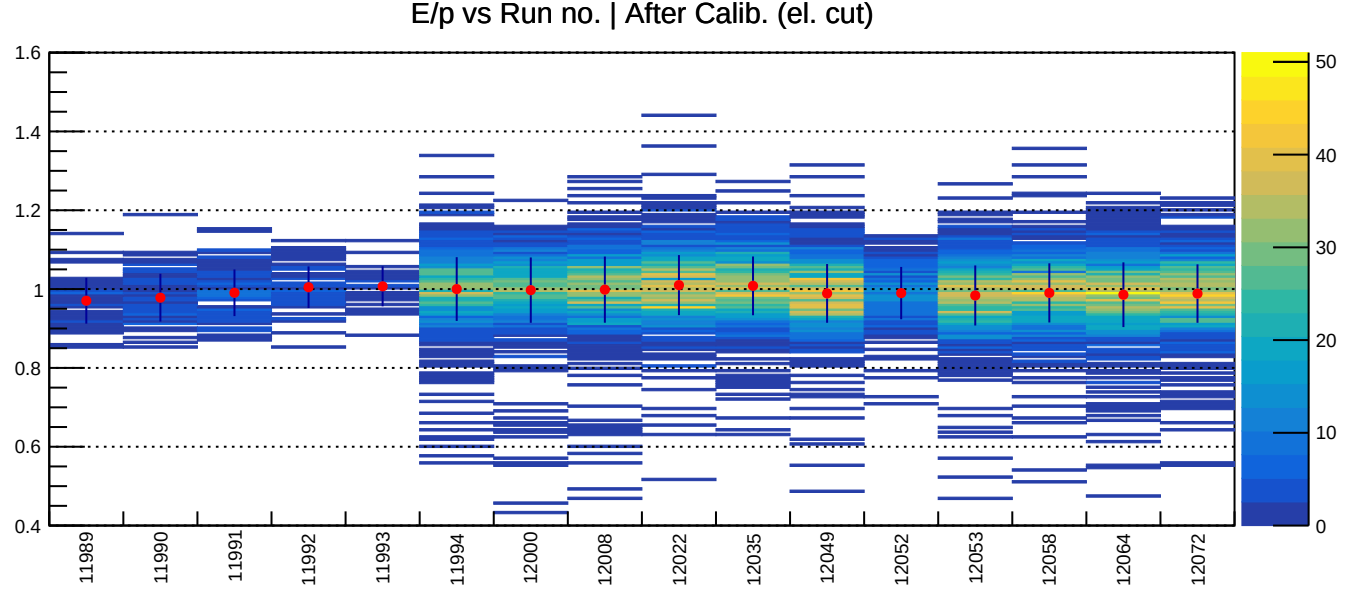

Vertical Position Difference (el. cut)
χ² / ndf 262.8 / 25
Prob 1.621e−41
Constant 1460 ± 17.6
Mean −0.002011 ± 0.000133
Sigma 0.01284 ± 0.00008
sh.x - tr.x (m)


Horizontal Position Difference (el. cut)
χ² / ndf 169.8 / 26
Prob 4.511e−23
Constant 1417 ± 17.2
Mean 0.002928 ± 0.000138
Sigma 0.01335 ± 0.00009
sh.y - tr.y (m)

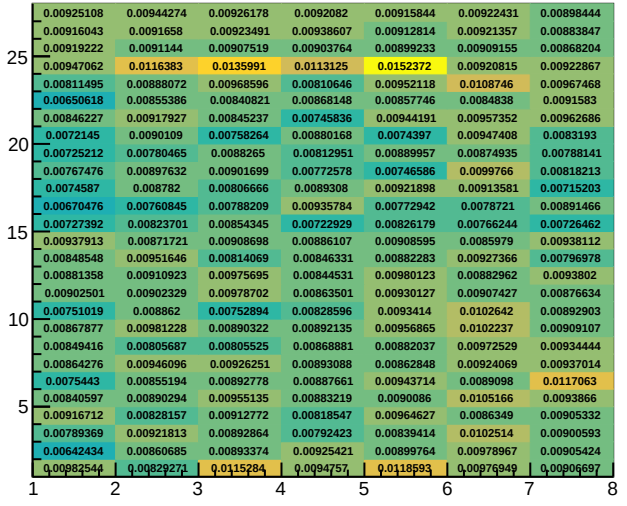

Vertical Pos. Diff. | After Calib. (el. cut)
χ² / ndf 276.3 / 25
Prob 3.363e−44
Constant 1460 ± 17.6
Mean −0.002 ± 0.000
Sigma 0.01282 ± 0.00008
sh.x - tr.x (m)


Horizontal Pos. Diff. | After Calib. (el. cut)
χ² / ndf 181.6 / 26
Prob 2.796e−25
Constant 1418 ± 17.2
Mean 0.002915 ± 0.000138
Sigma 0.01333 ± 0.00009
sh.y - tr.y (m)

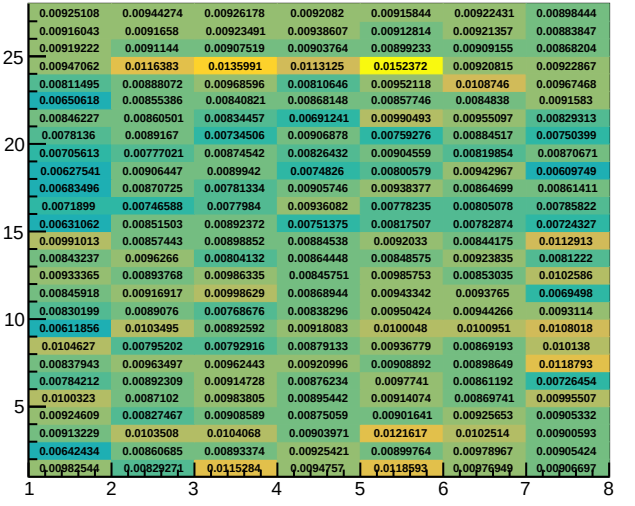

E/p vs Run no. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
11989
11990
11991
11992
11993
11994
12000
12008
12022
12035
12049
12052
12053
12058
12064
12072
45
40
35
30
25
20
15
10
5
0


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

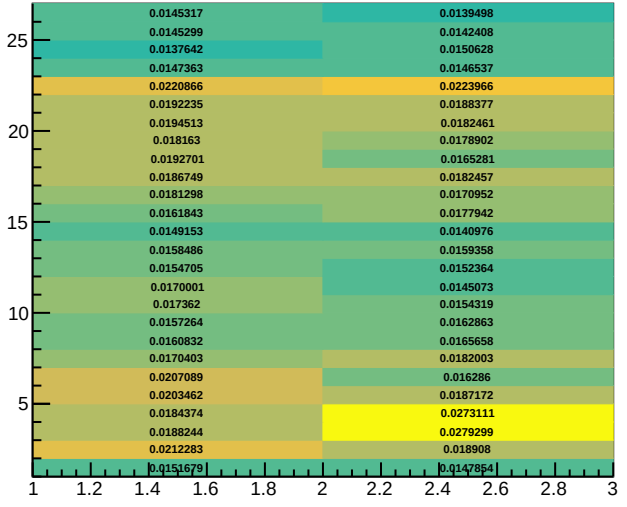
Old ADC Gain Coefficients | SH



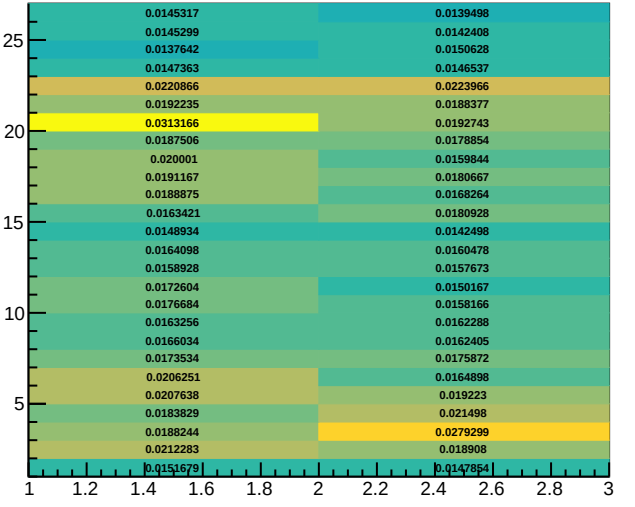
New ADC Gain Coefficients | SH

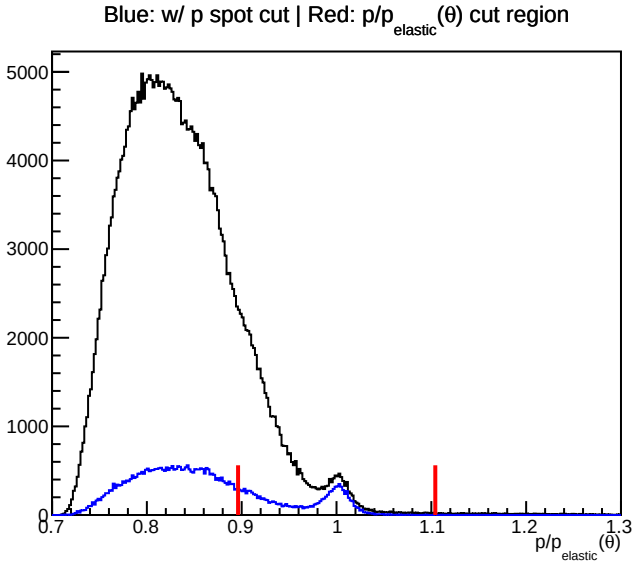


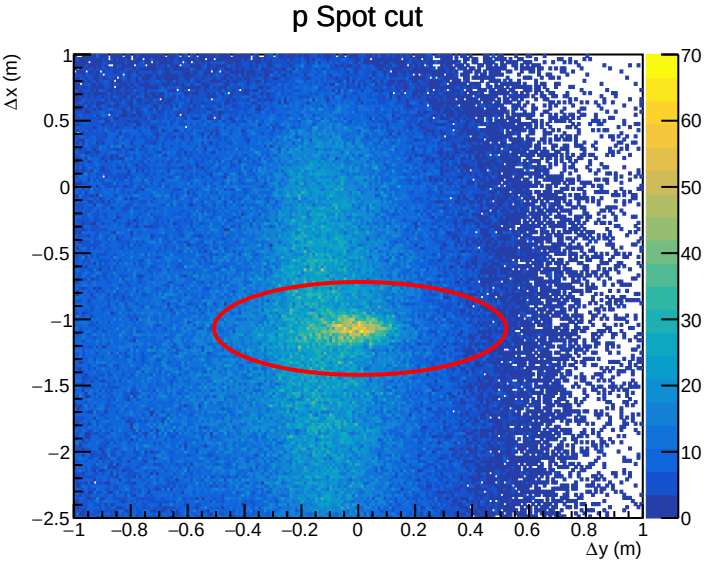
Old ADC Gain Coefficients | PS

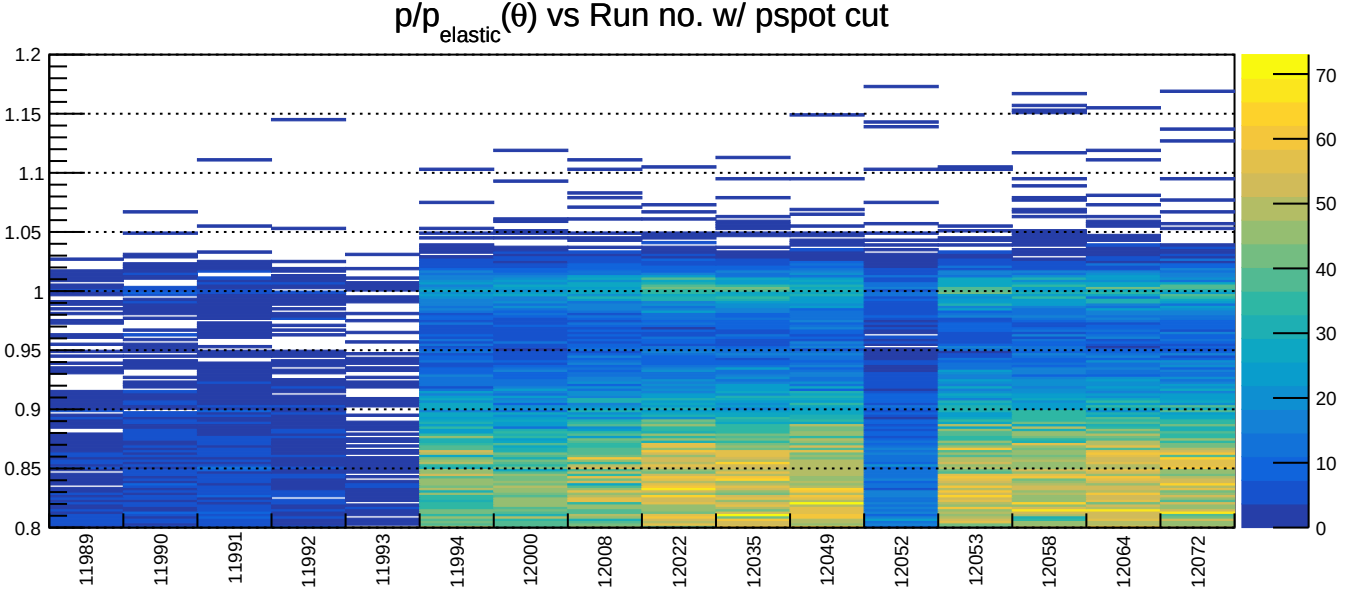


New ADC Gain Coefficients | PS

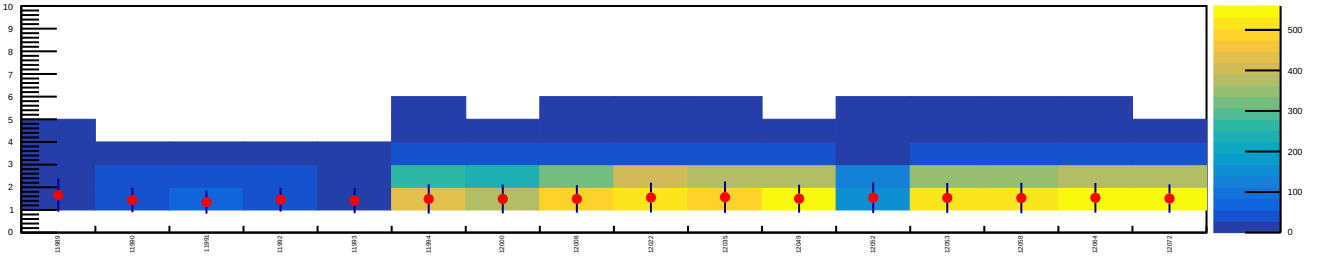



Blue: w/ p spot cut | Red: p/p_elastic(θ) cut region
5000
4000
3000
2000
1000
0
0.7
0.8
0.9
1
1.1
1.2
1.3
p/p_elastic(θ)

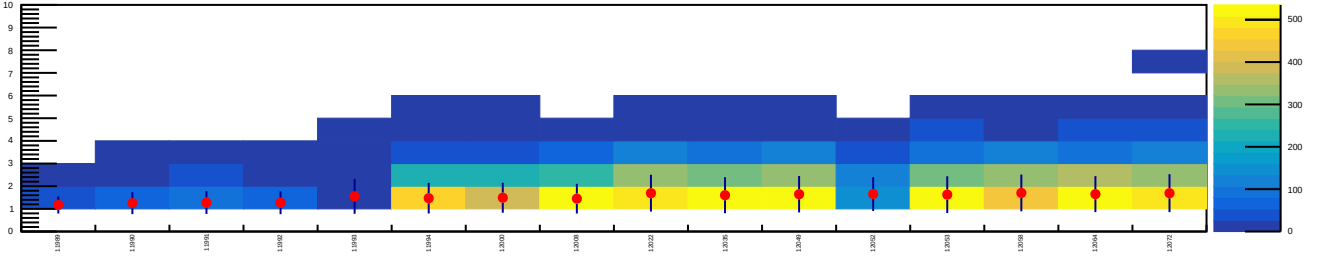

p Spot cut
Δx (m)
1
0.5
0
−0.5
−1
−1.5
−2
−2.5
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1
Δy (m)
70
60
50
40
30
20
10
0


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
70
60
50
40
30
20
10
0

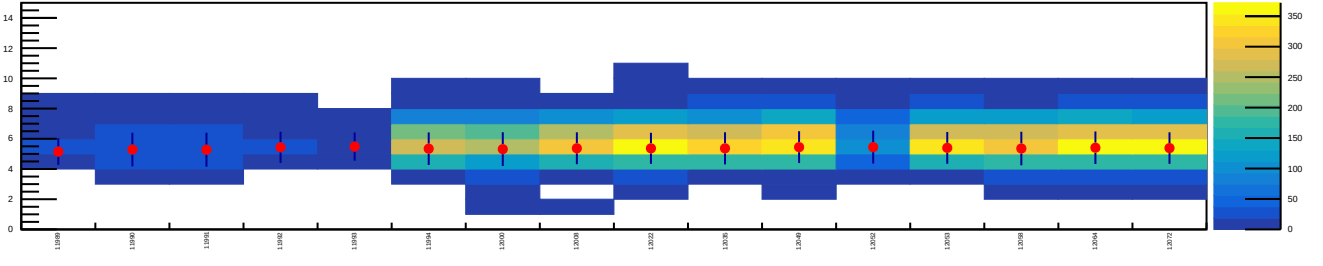
PS (best) cluster size vs Run no. (el. cut)



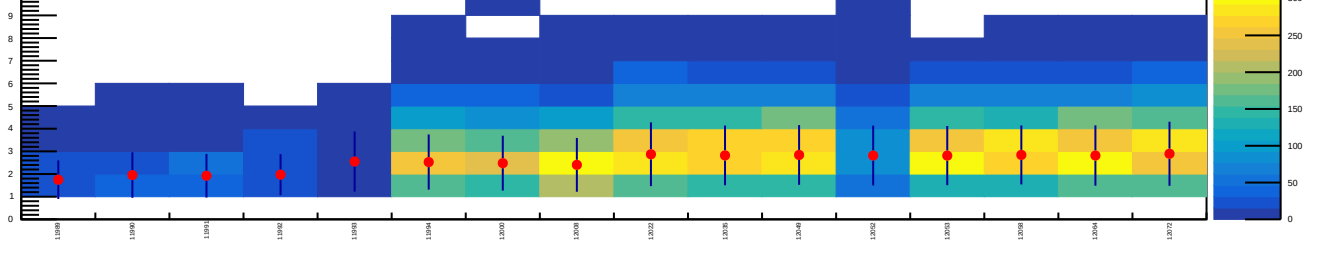
PS cluster multiplicity vs Run no. (el. cut)



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



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



Date of creation: 8/18/2023

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

Total # events analyzed: 6298021, Preparing for replay pass: 2

E/p (before calib.) | μ = 0.99, σ = (6.258 $\pm$ 0.081) p

E/p (after calib.) | μ = 1.00, σ = (6.130 $\pm$ 0.082) 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: 367716

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: 11694

Other cuts:

Minimum # events per block: 30, (Cluster) hit threshold: 0.02 GeV

Various offsets:

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

Momentum calibration factors: A = 0.277770030, B = 0.915135981, C = 0.0, θ^{GEM}_{pitch} = 10.0^{o}, d_{BB} = 1.8490 m

Macro processing time: CPU 466.6s | Real 1038.0s