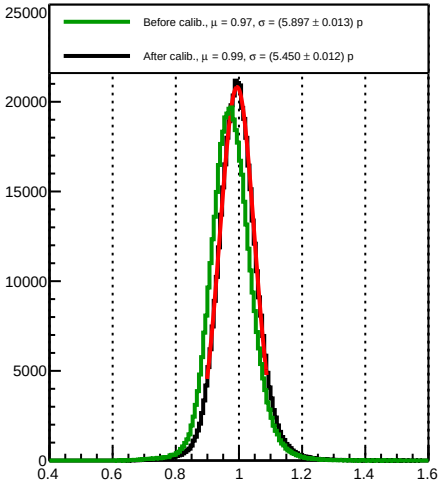
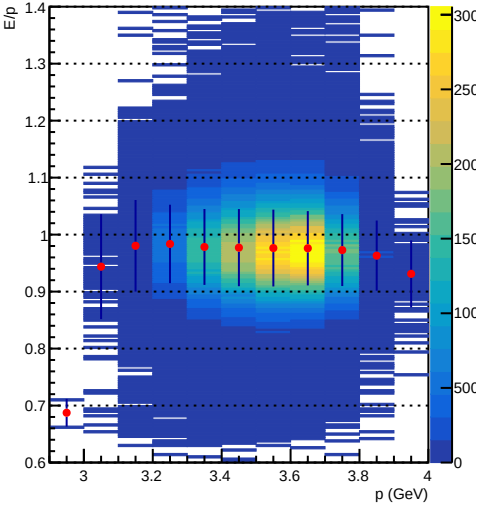
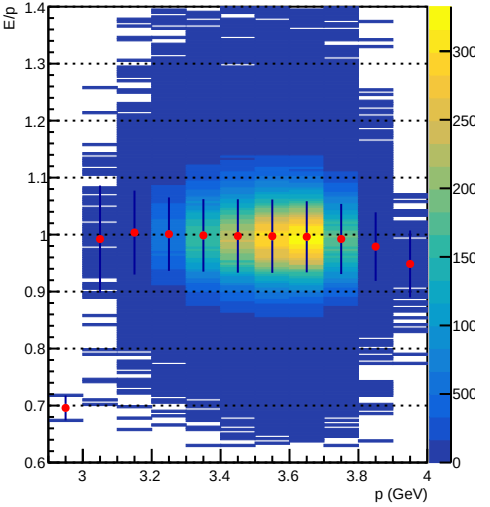
E/p (el. cut)



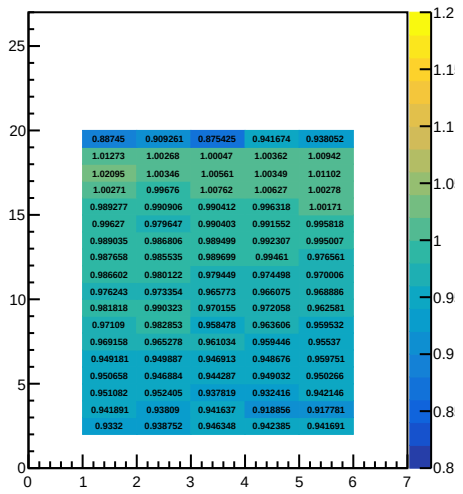
E/p vs p (el. cut)



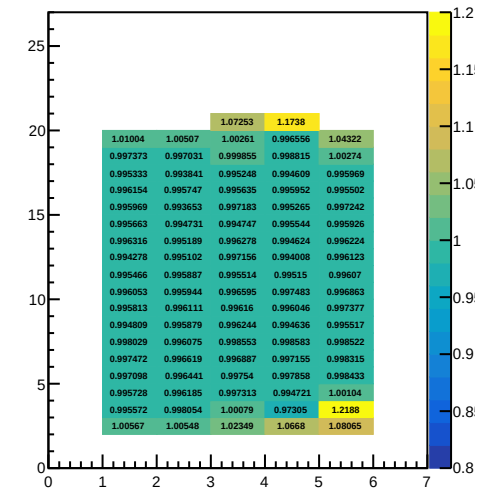
E/p vs p | After Calib. (el. cut)



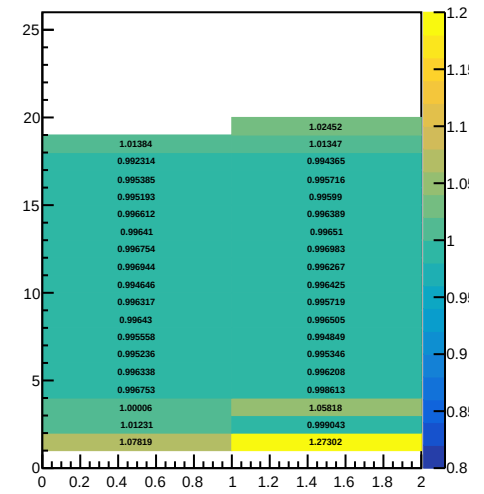
E/p per SH block (el. cut)



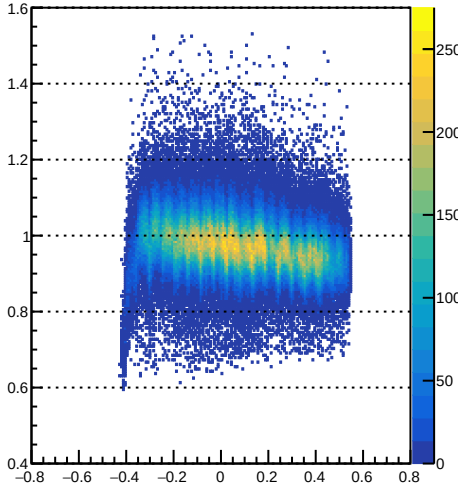
E/p per SH block | After Calib. (el. cut)



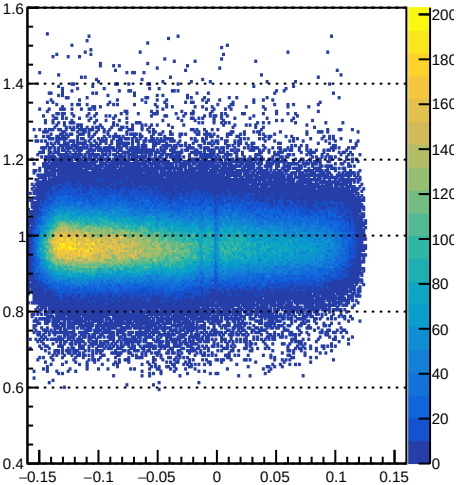
E/p per PS block | After Calib. (el. cut)



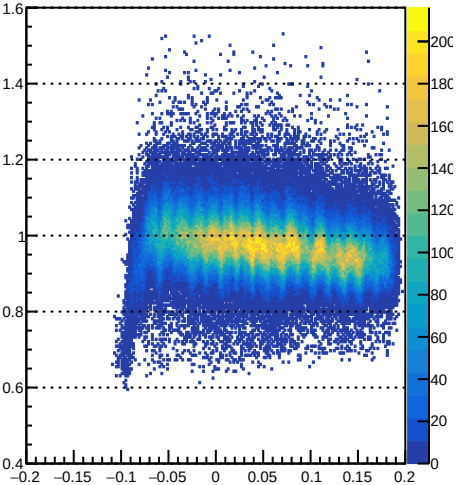
E/p vs Track x (el. cut)



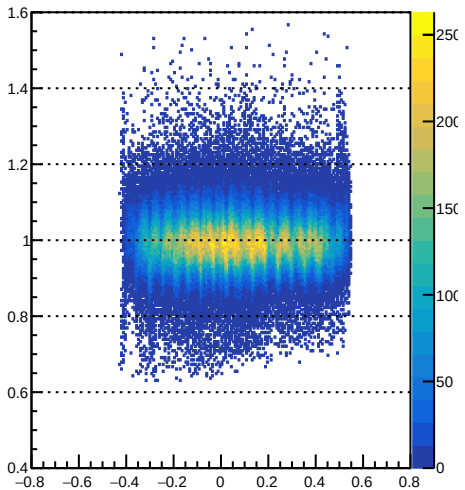
E/p vs Track y (el. cut)



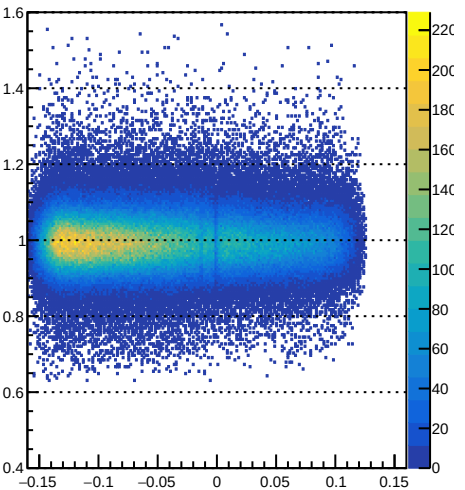
E/p vs Track theta (el. cut)



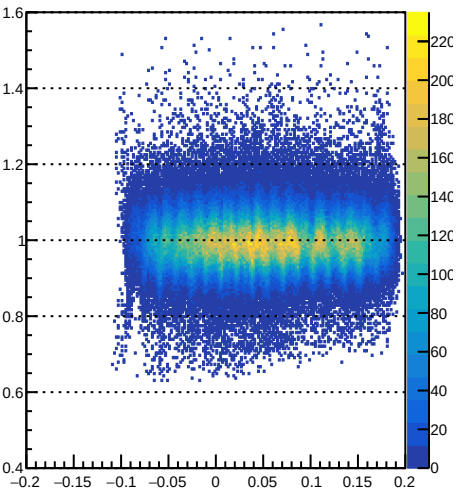
E/p vs Track x | After Calib. (el. cut)



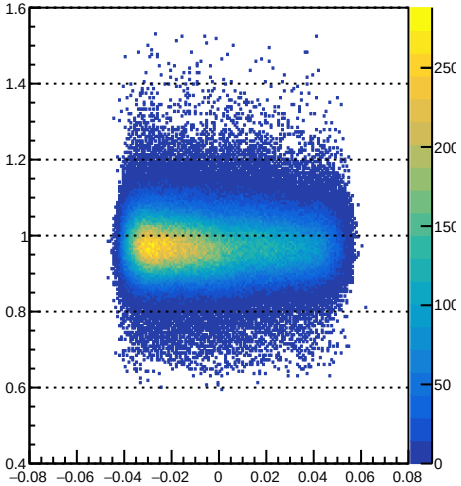
E/p vs Track y | After Calib. (el. cut)



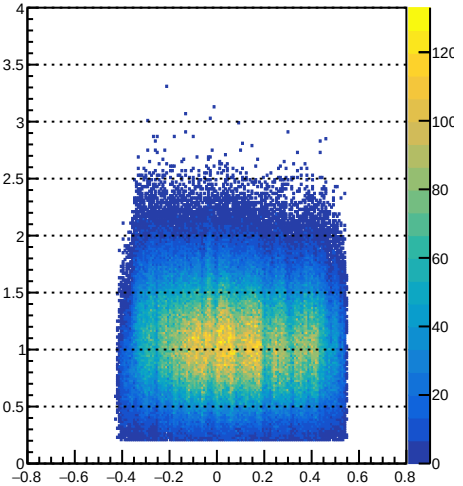
E/p vs Track theta | After Calib. (el. cut)



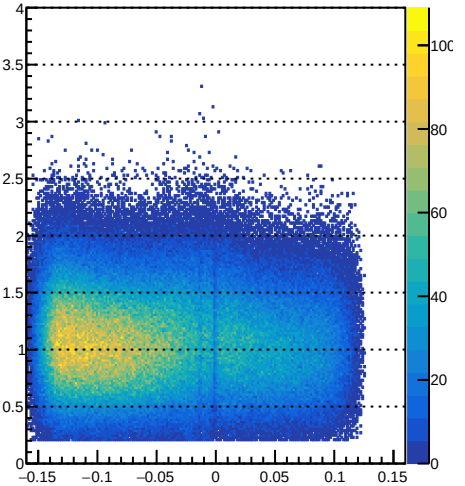
E/p vs Track phi (el. cut)



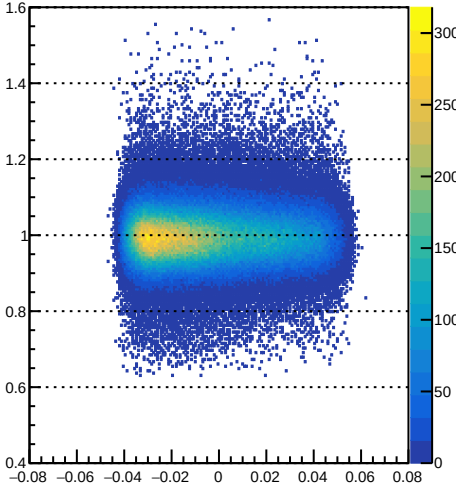
PS energy vs Track x (el. cut)



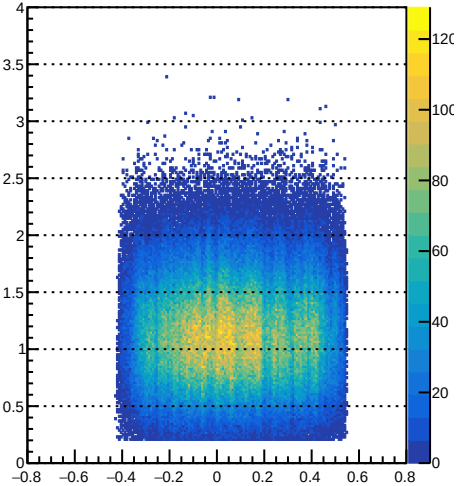
PS energy vs Track y (el. cut)



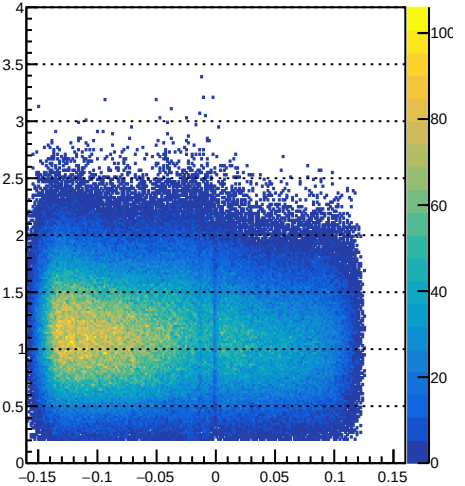
E/p vs Track phi | After Calib. (el. cut)

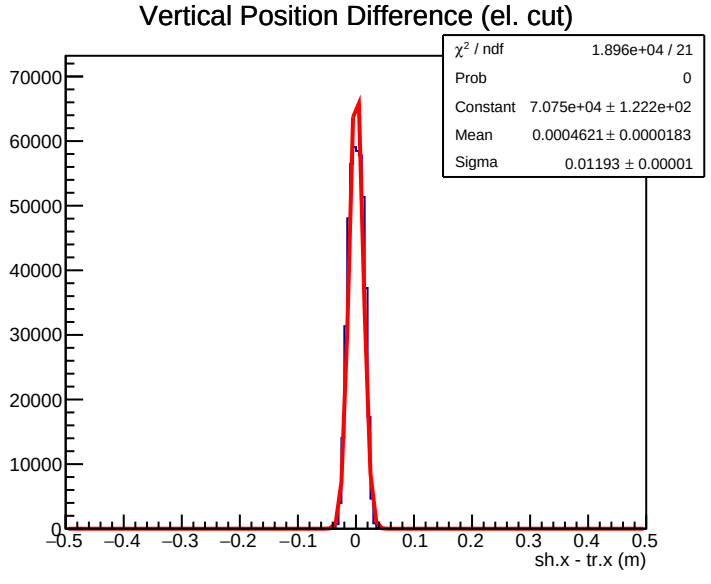


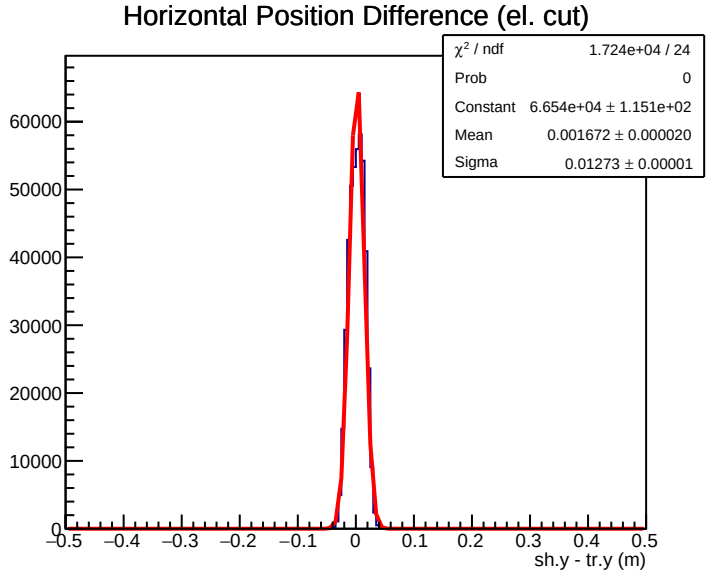
PS energy vs Track x | After Calib. (el. cut)

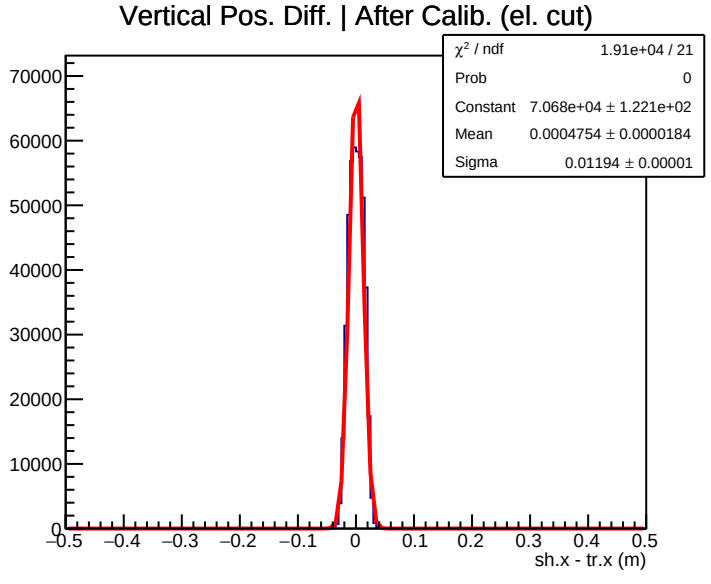


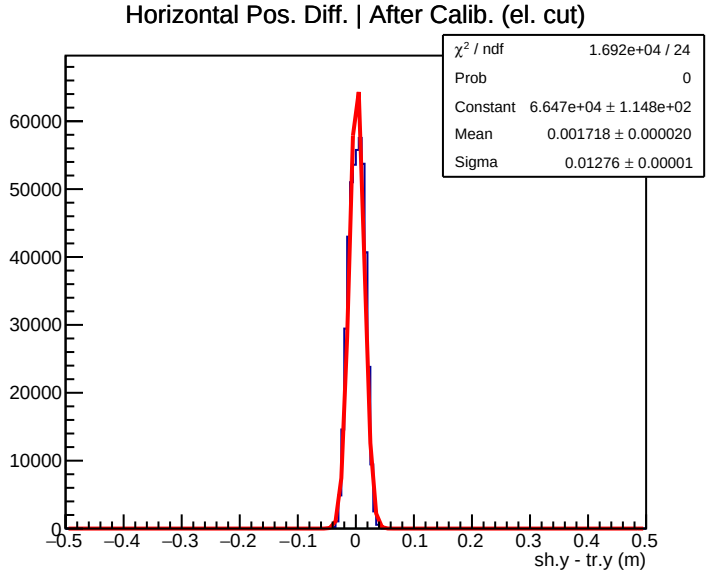
PS energy vs Track y | After Calib. (el. cut)

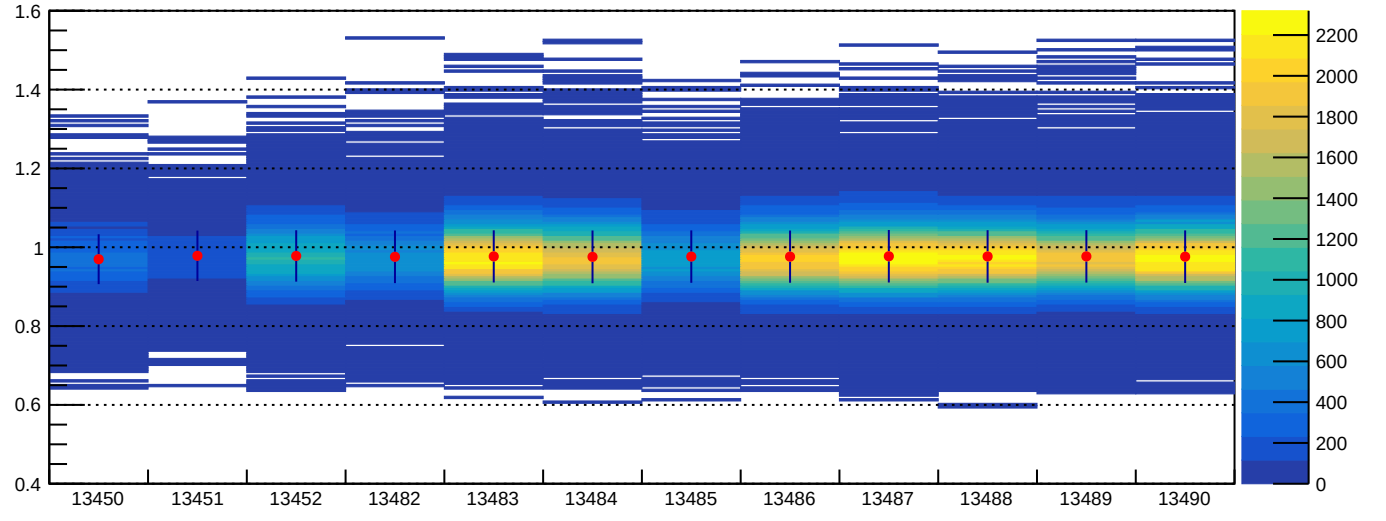


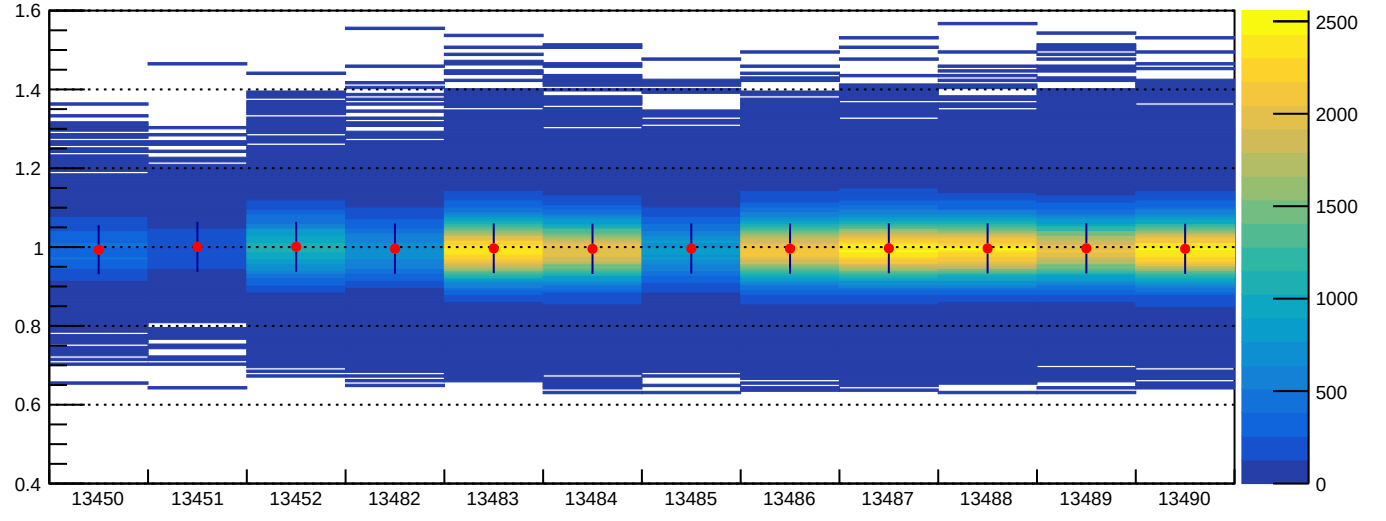

Vertical Position Difference (el. cut)
χ² / ndf 1.896e+04 / 21
Prob 0
Constant 7.075e+04 ± 1.222e+02
Mean 0.0004621 ± 0.0000183
Sigma 0.01193 ± 0.00001
sh.x - tr.x (m)


Horizontal Position Difference (el. cut)
χ² / ndf 1.724e+04 / 24
Prob 0
Constant 6.654e+04 ± 1.151e+02
Mean 0.001672 ± 0.000020
Sigma 0.01273 ± 0.00001
sh.y - tr.y (m)

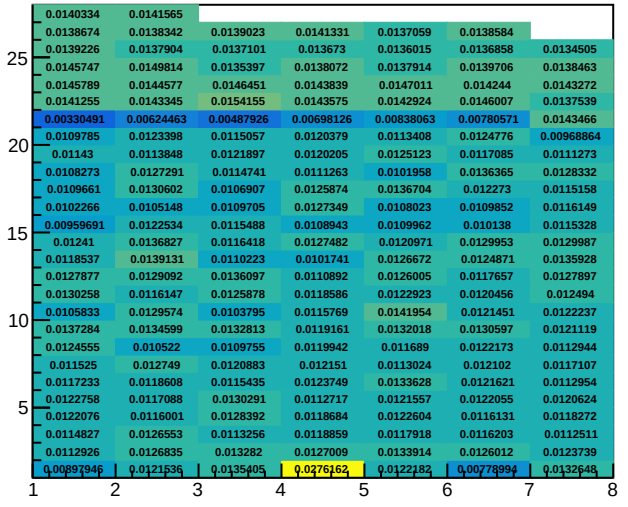

Vertical Pos. Diff. | After Calib. (el. cut)
χ² / ndf 1.91e+04 / 21
Prob 0
Constant 7.068e+04 ± 1.221e+02
Mean 0.0004754 ± 0.0000184
Sigma 0.01194 ± 0.00001
sh.x - tr.x (m)


Horizontal Pos. Diff. | After Calib. (el. cut)
χ² / ndf 1.692e+04 / 24
Prob 0
Constant 6.647e+04 ± 1.148e+02
Mean 0.001718 ± 0.000020
Sigma 0.01276 ± 0.00001
sh.y - tr.y (m)

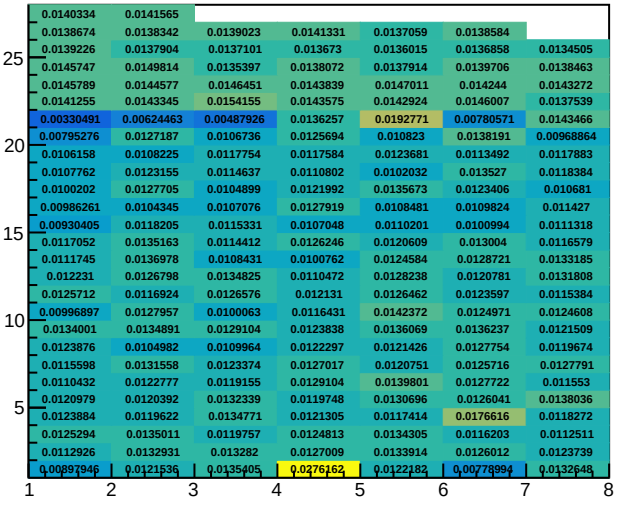

E/p vs Run no. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
13450
13451
13452
13482
13483
13484
13485
13486
13487
13488
13489
13490
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0


E/p vs Run no. | After Calib. (el. cut)
1.6
1.4
1.2
1
0.8
0.6
0.4
13450
13451
13452
13482
13483
13484
13485
13486
13487
13488
13489
13490
2500
2000
1500
1000
500
0

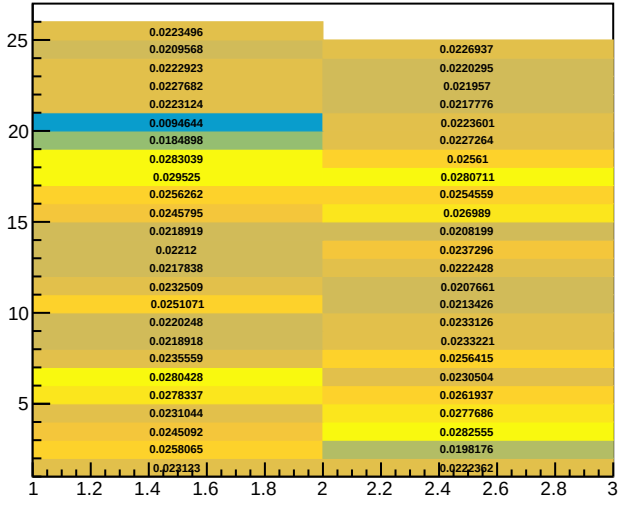
Old ADC Gain Coefficients | SH



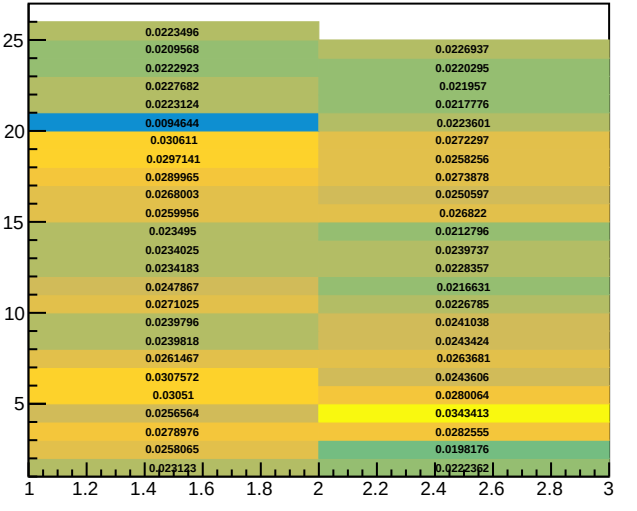
New ADC Gain Coefficients | SH

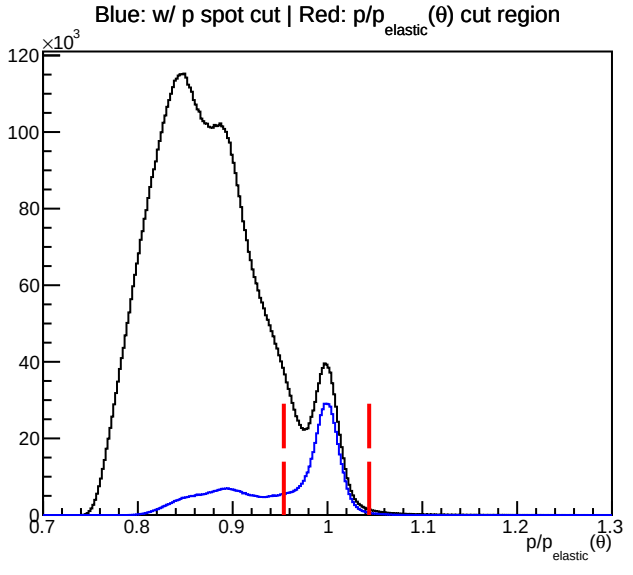


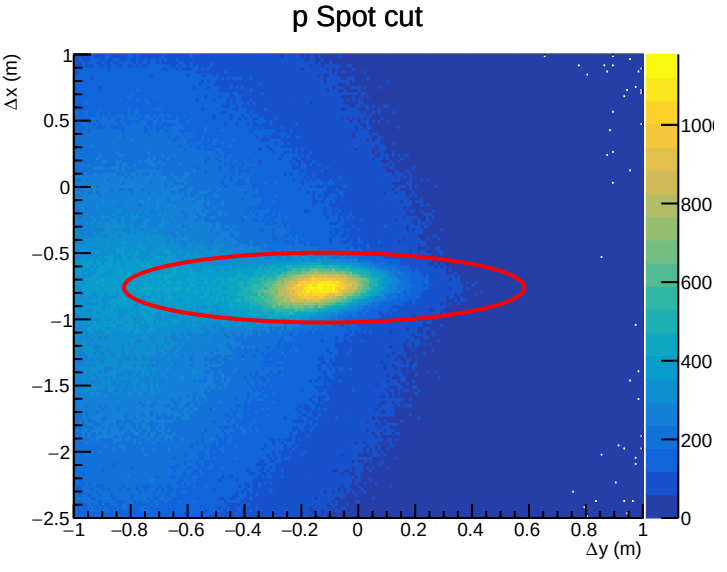
Old ADC Gain Coefficients | PS

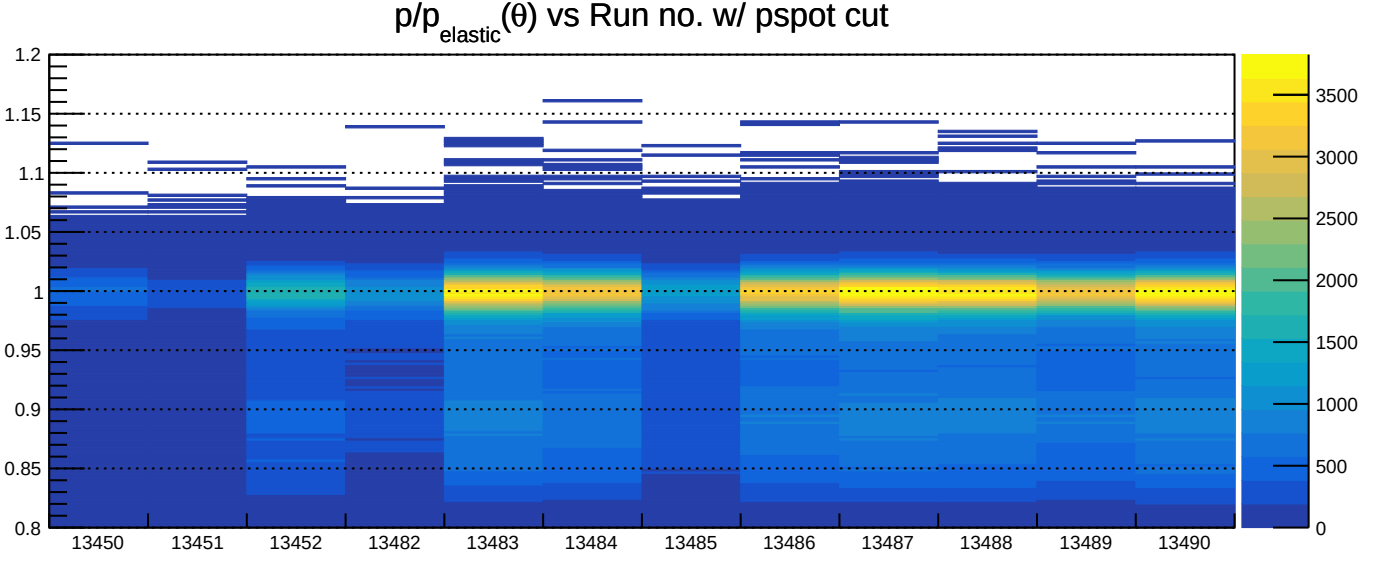


New ADC Gain Coefficients | PS

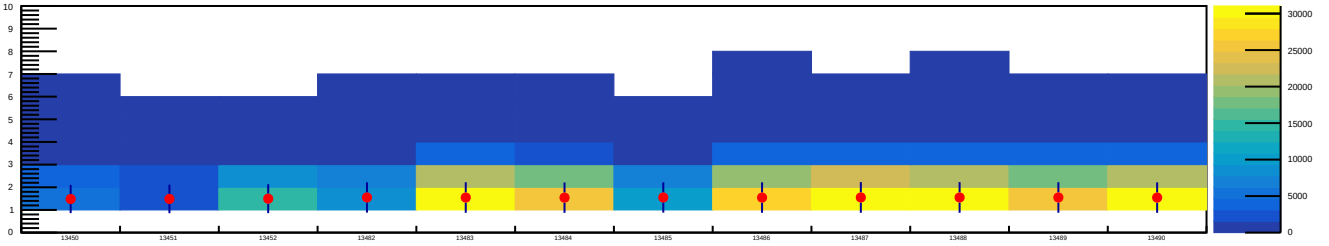



Blue: w/ p spot cut | Red: p/p_elastic(θ) cut region
×10^3
120
100
80
60
40
20
0
0.7
0.8
0.9
1
1.1
1.2
1.3
p/p_elastic(θ)

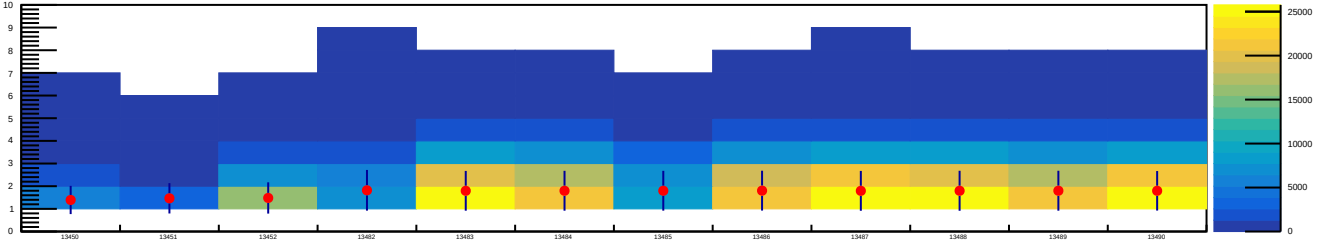

p Spot cut
Δx (m)
1
0.5
0
−0.5
−1
−1.5
−2
−2.5
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1
Δy (m)
1000
800
600
400
200
0


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
13450
13451
13452
13482
13483
13484
13485
13486
13487
13488
13489
13490
3500
3000
2500
2000
1500
1000
500
0

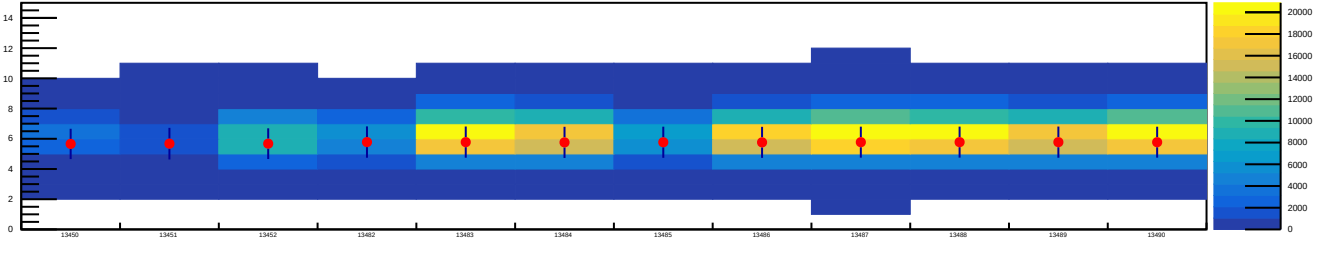
PS (best) cluster size vs Run no. (el. cut)



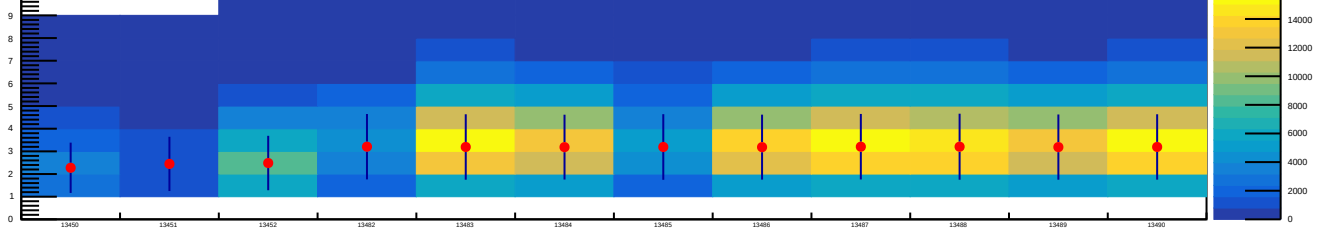
PS cluster multiplicity vs Run no. (el. cut)



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



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



Date of creation: 8/16/2023

Configfile: BBCal_replay/macros/Combined_macros/cfg/sbs8-sbs70p-set1.cfg

Total # events analyzed: 20930832, Preparing for replay pass: 2

E/p (before calib.) | μ = 0.97, σ = (5.897 $\pm$ 0.013) p

E/p (after calib.) | μ = 0.99, σ = (5.450 $\pm$ 0.012) 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)<0.345,
PS cluster energy > 0.2 GeV
p_recon > 2.9 GeV/c

 # events passed global cuts: 8449406

Elastic cuts:

$|p/p_{el}(\theta) - 0.999| \leq 3.0*0.015$

proton spot cut ranges:

Δx (m): Mean = -0.7600, 2.0σ = 0.1320
Δy (m): Mean = -0.1200, 4.0σ = 0.1760

 # events passed global & elastic cuts: 542056

Other cuts:

Minimum # events per block: 1200, (Cluster) hit threshold: 0.02 GeV

Various offsets:

Momentum fudge factor: 1.00, BBCAL cluster energy scale factor: 1.00
Momentum calibration factors: A = 0.292476240, B = 1.032896400, C = 0.0, θ_{pitch}^{GEM} = 10.0^{o}, d_{BB} = 1.9747 m

Macro processing time: CPU 1414.4s | Real 1468.4s