More X- Rays using Gammas from Etas text file and Endcap SMD

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After the first try last week at X-raying the material in front of the Endcap using the text file of Photons from gammas (From Will and Pibero) I have made a little more progress.

1) Separate out sectors 9 and 3 which have the TPC supports, and sum over all other sectors for statistics.

2) Use the SMD points instead of Eta to get a Y (parallel to radial direction) map with less washing out due to vertex location.

3) Resolve my internal definition of phi relative to the STAR standard. Zero is in the middle of sector 3, not at any SMD sector edge.

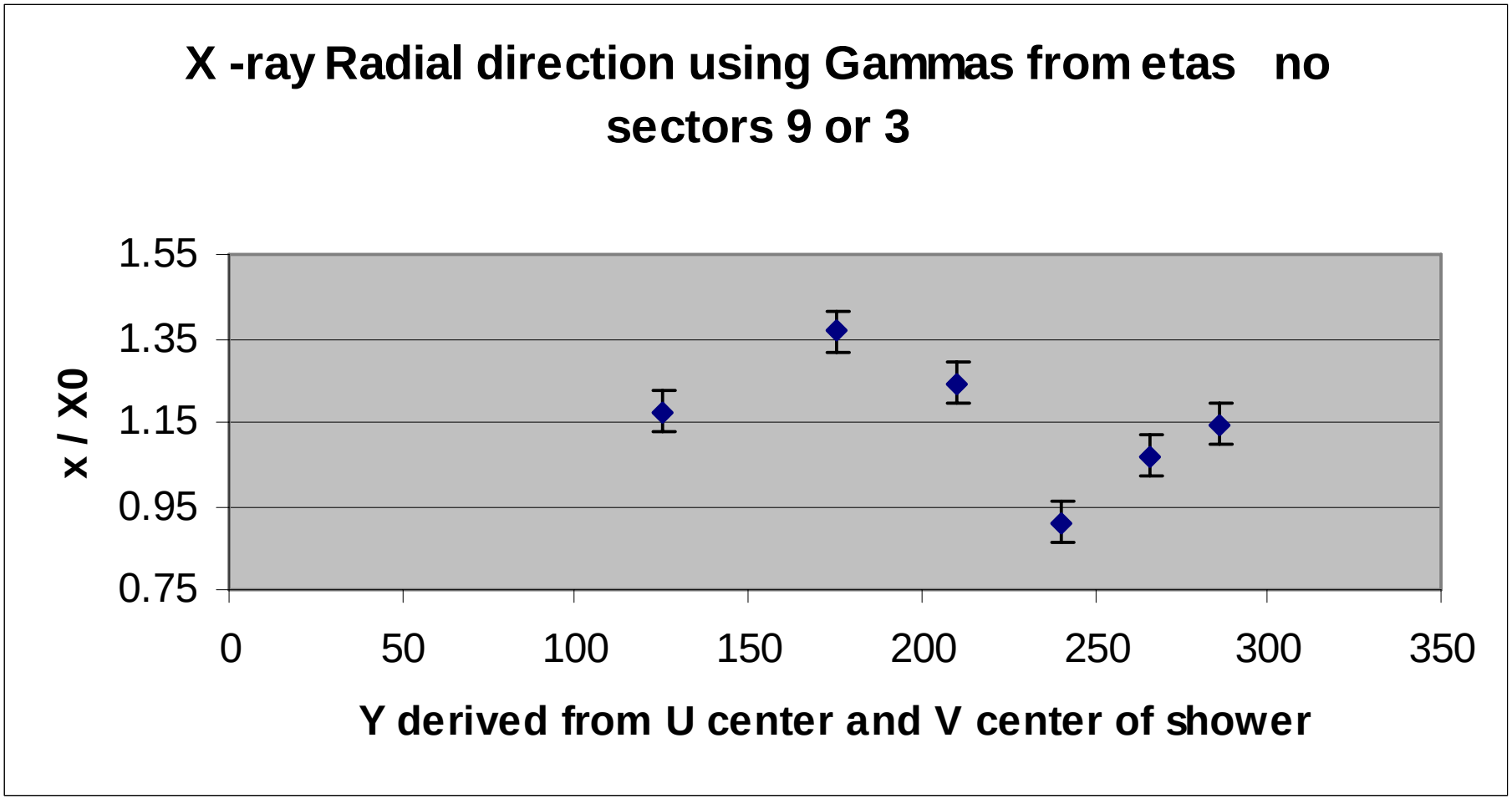
4) Calculate error bars on x / X0 at each point. (Excel doesn't plot them well)

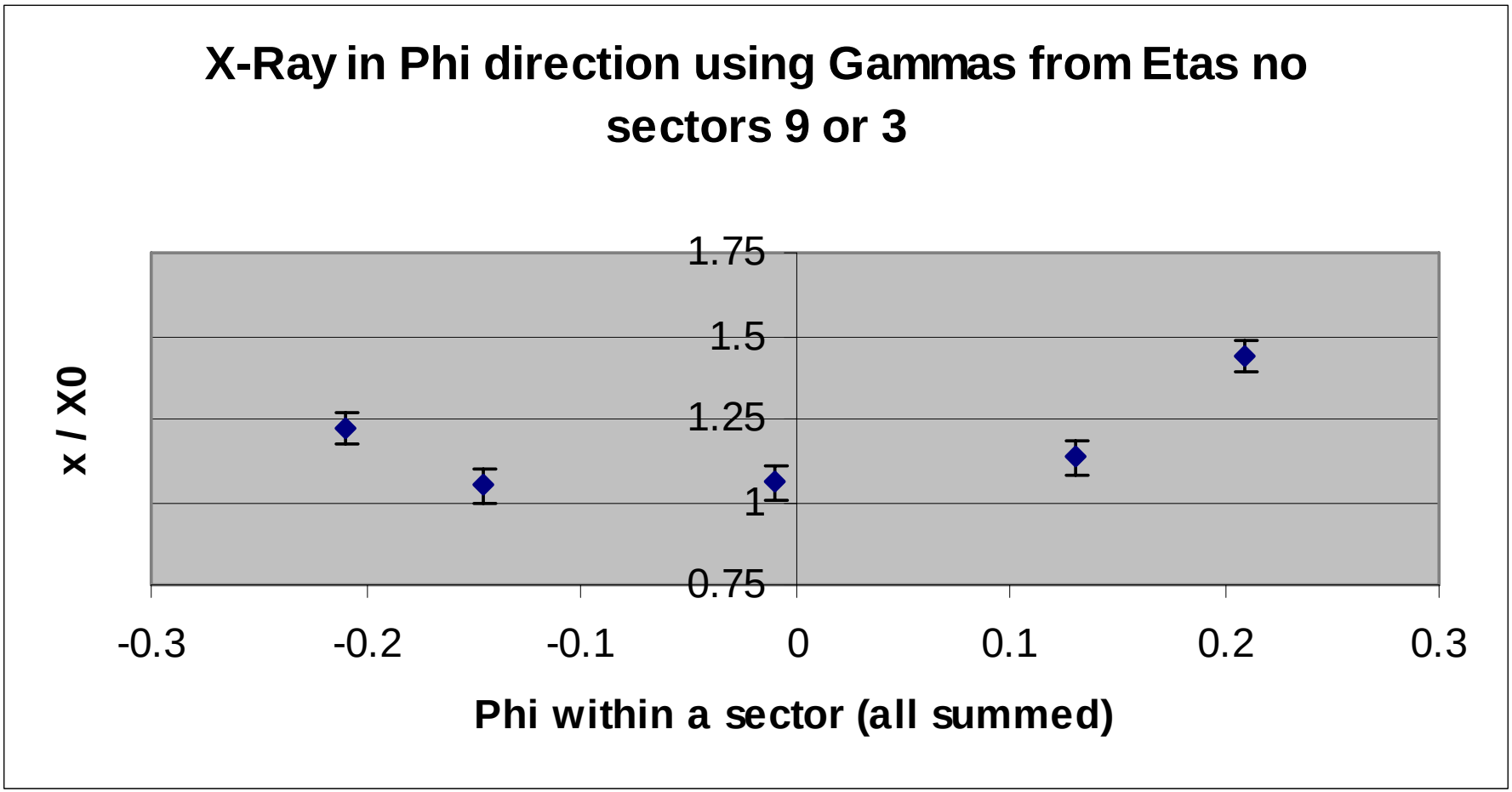
5) I am using the number of gammas which convert before the first preshower layer in the Endcap.

N(ps1=0) / [N(ps1=0) +N(ps1!=0)) at a location] = exp- (x / (9/7)X0)

This ignores the acceptance for Etas.

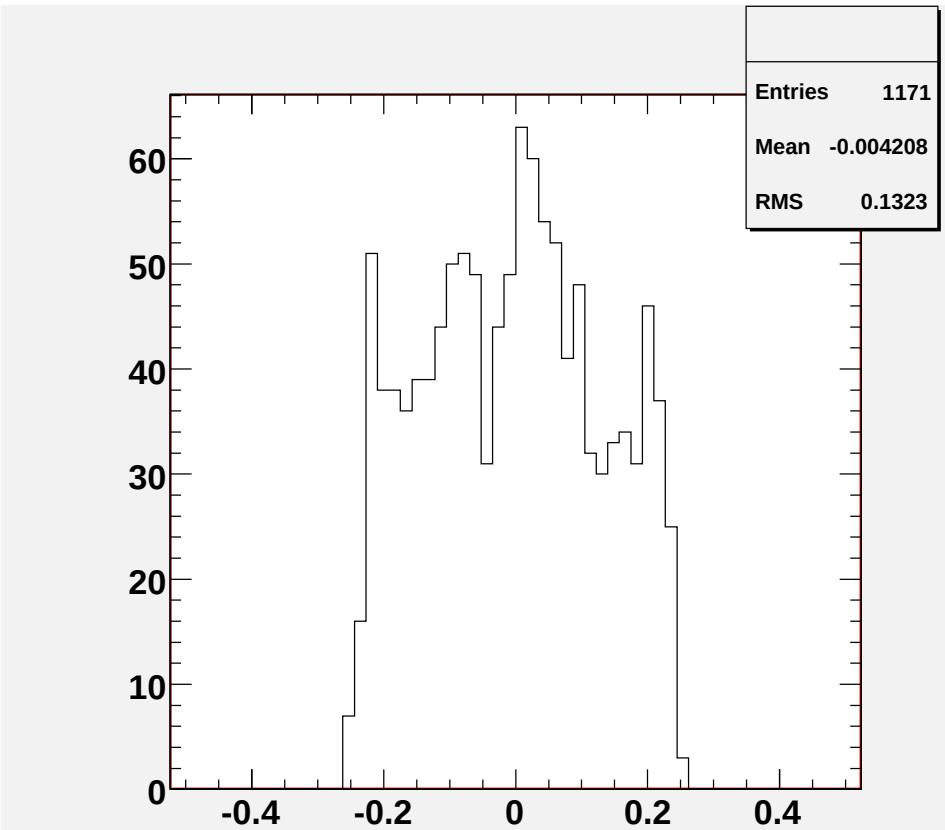
As Scott has pointed out, this method is less sensitive to gamma conversions near the vertex than to conversions near the TPC end, due to the magnetic field separating the e+e- from a conversion.


X -ray Radial direction using Gammas from etas no sectors 9 or 3
1.55
1.35
1.15
0.95
0.75
x / X0
0
50
100
150
200
250
300
350
Y derived from U center and V center of shower

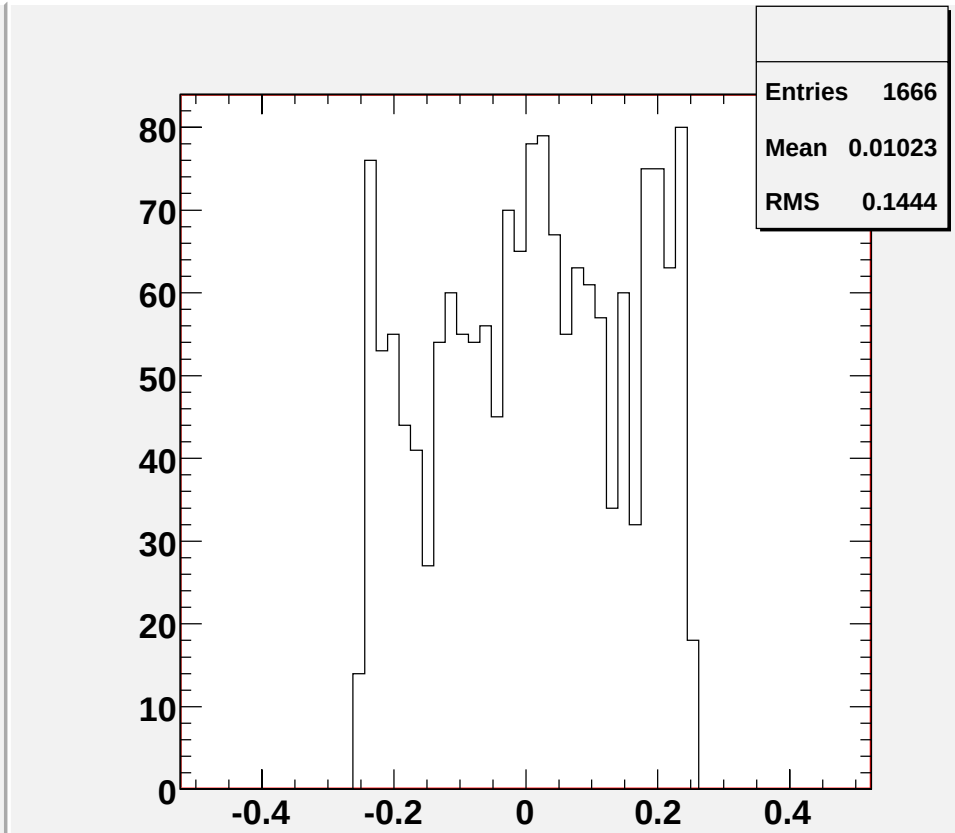

X-Ray in Phi direction using Gammas from Etas no sectors 9 or 3
x / X0
1.75
1.5
1.25
1
0.75
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
Phi within a sector (all summed)

Phi distributions with Preshower 1 = 0 and non-0,

all sectors except 9,3.

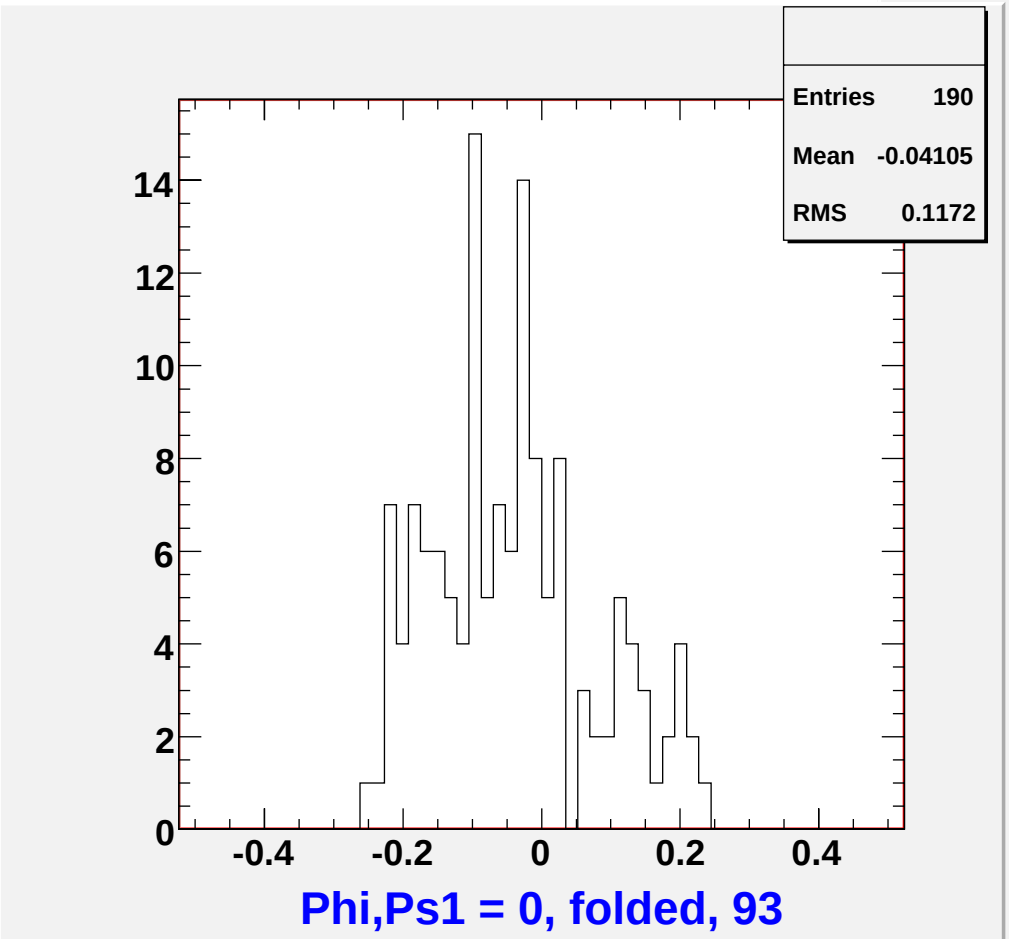


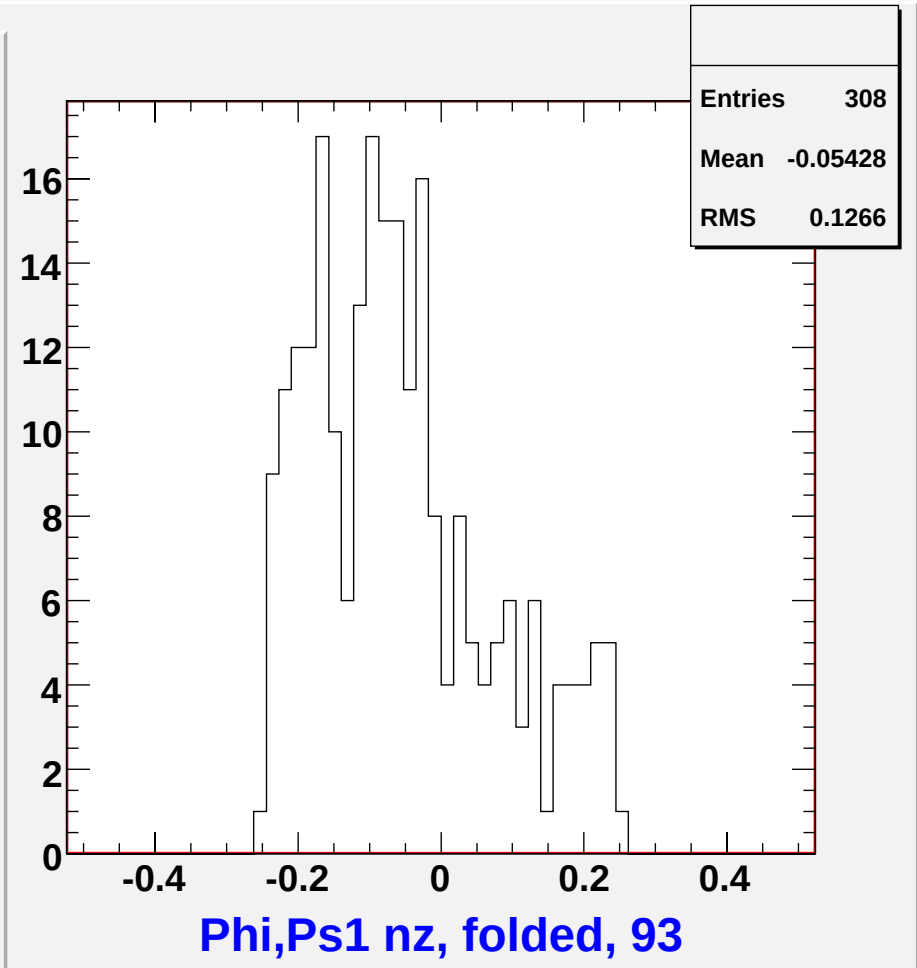
Phi,Ps1 = 0, folded,no93

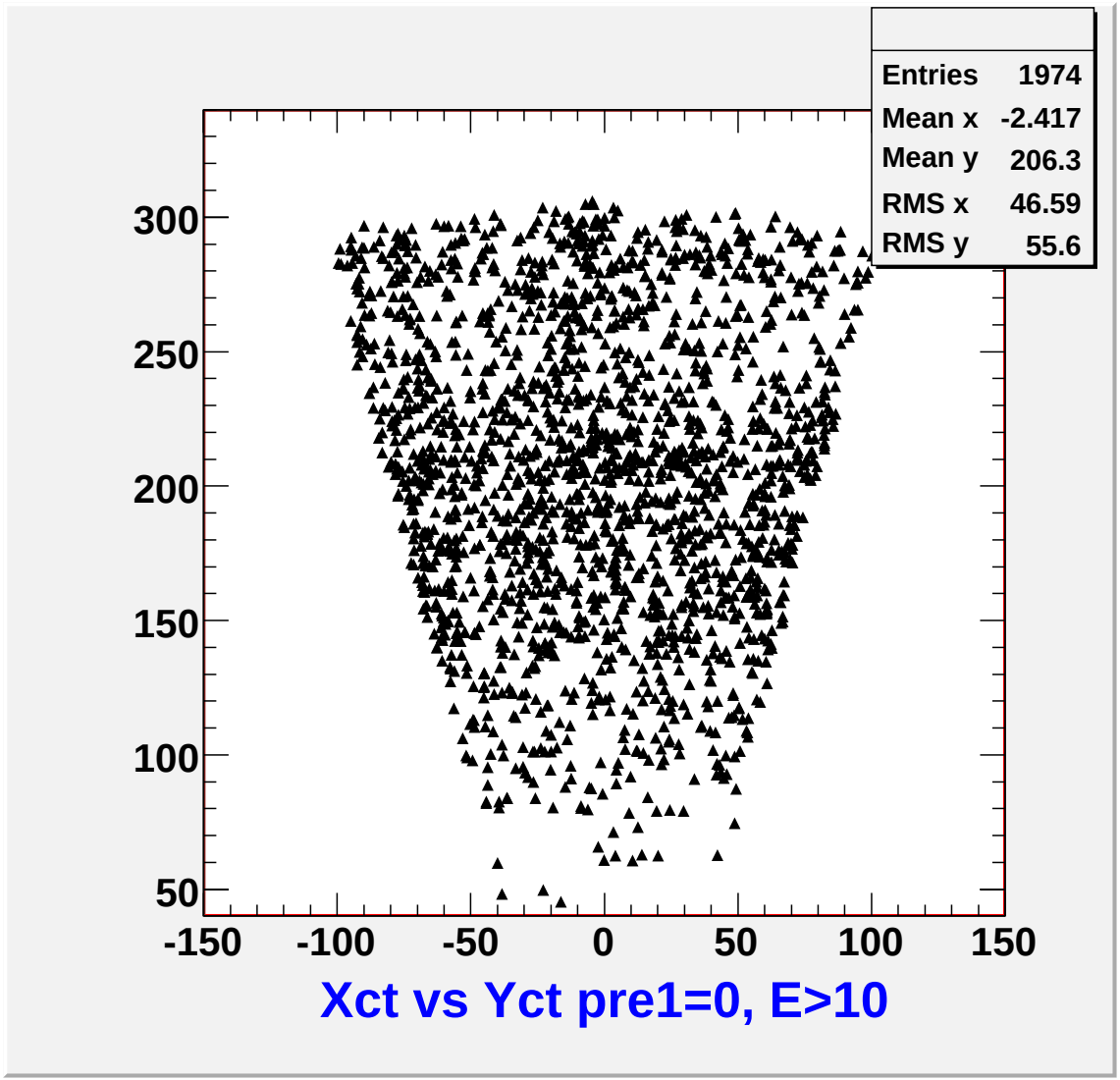


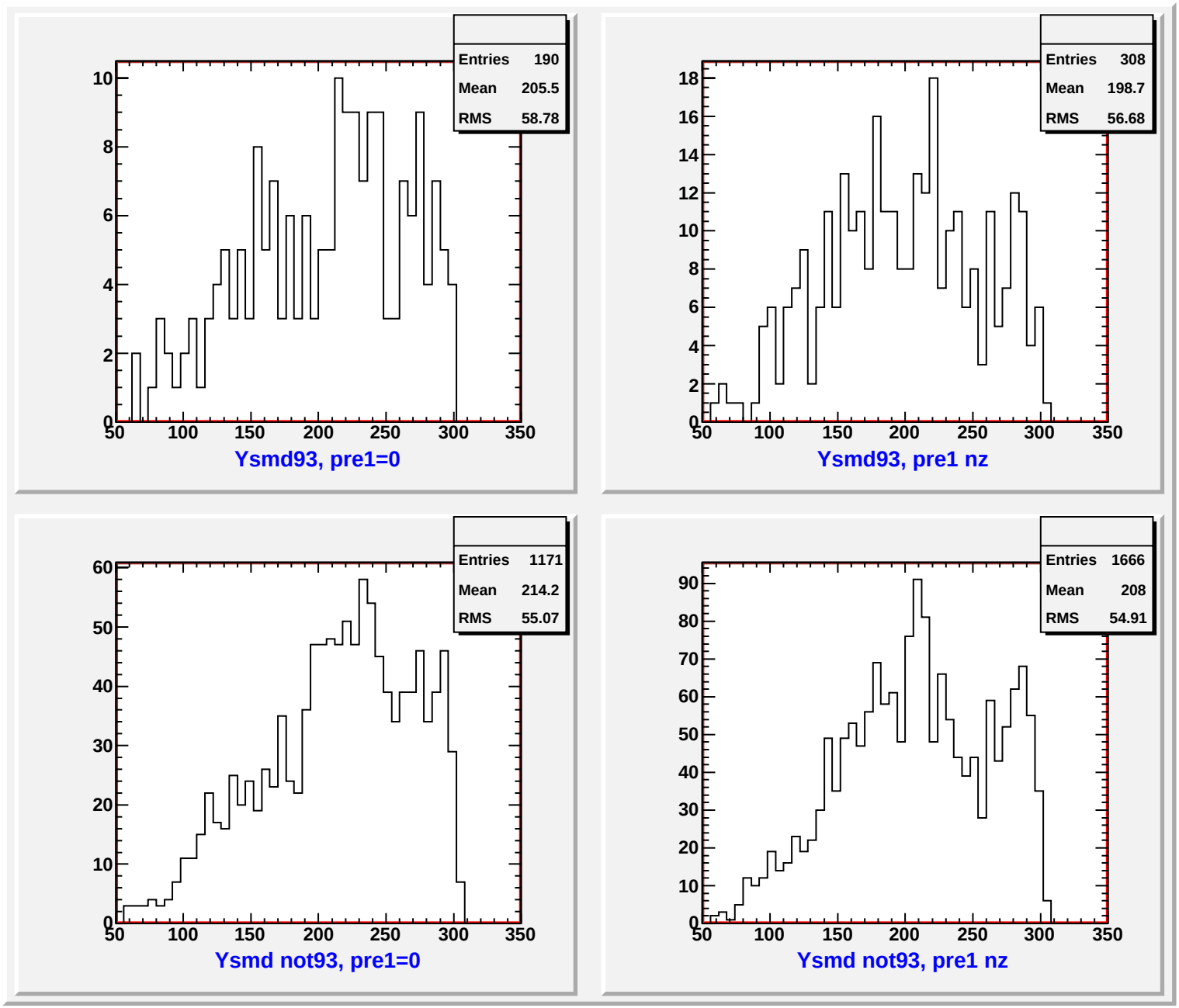
Phi,Ps1 nz, folded,no93

Phi distributions for sectors 9 and 3 which have the TPC support material






Entries 1974
Mean x -2.417
Mean y 206.3
RMS x 46.59
RMS y 55.6
300
250
200
150
100
50
-150
-100
-50
0
50
100
150
Xct vs Yct pre1=0, E>10


Entries 190
Mean 205.5
RMS 58.78
Ysmd93, pre1=0
Entries 308
Mean 198.7
RMS 56.68
Ysmd93, pre1 nz
Entries 1171
Mean 214.2
RMS 55.07
Ysmd not93, pre1=0
Entries 1666
Mean 208
RMS 54.91
Ysmd not93, pre1 nz