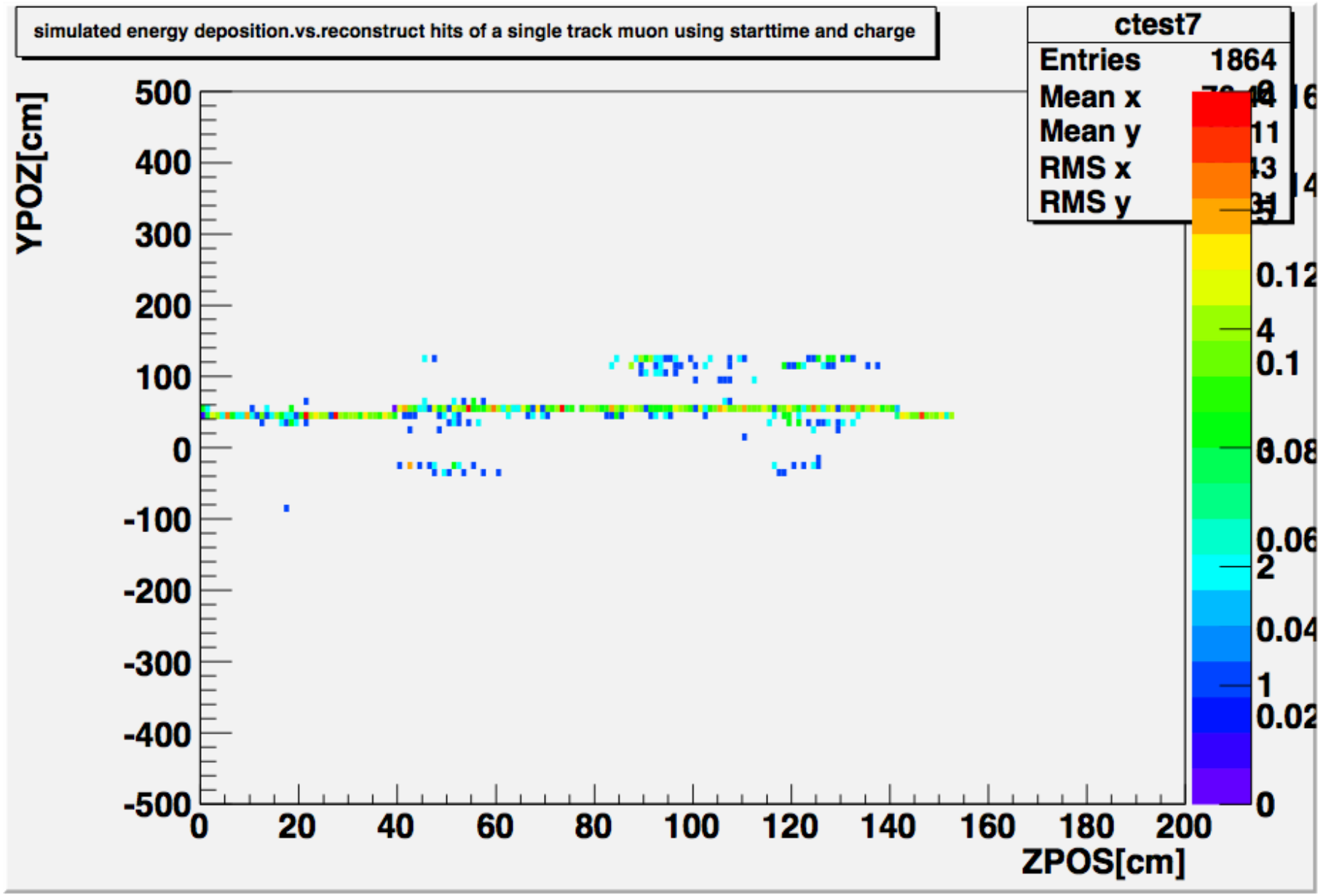
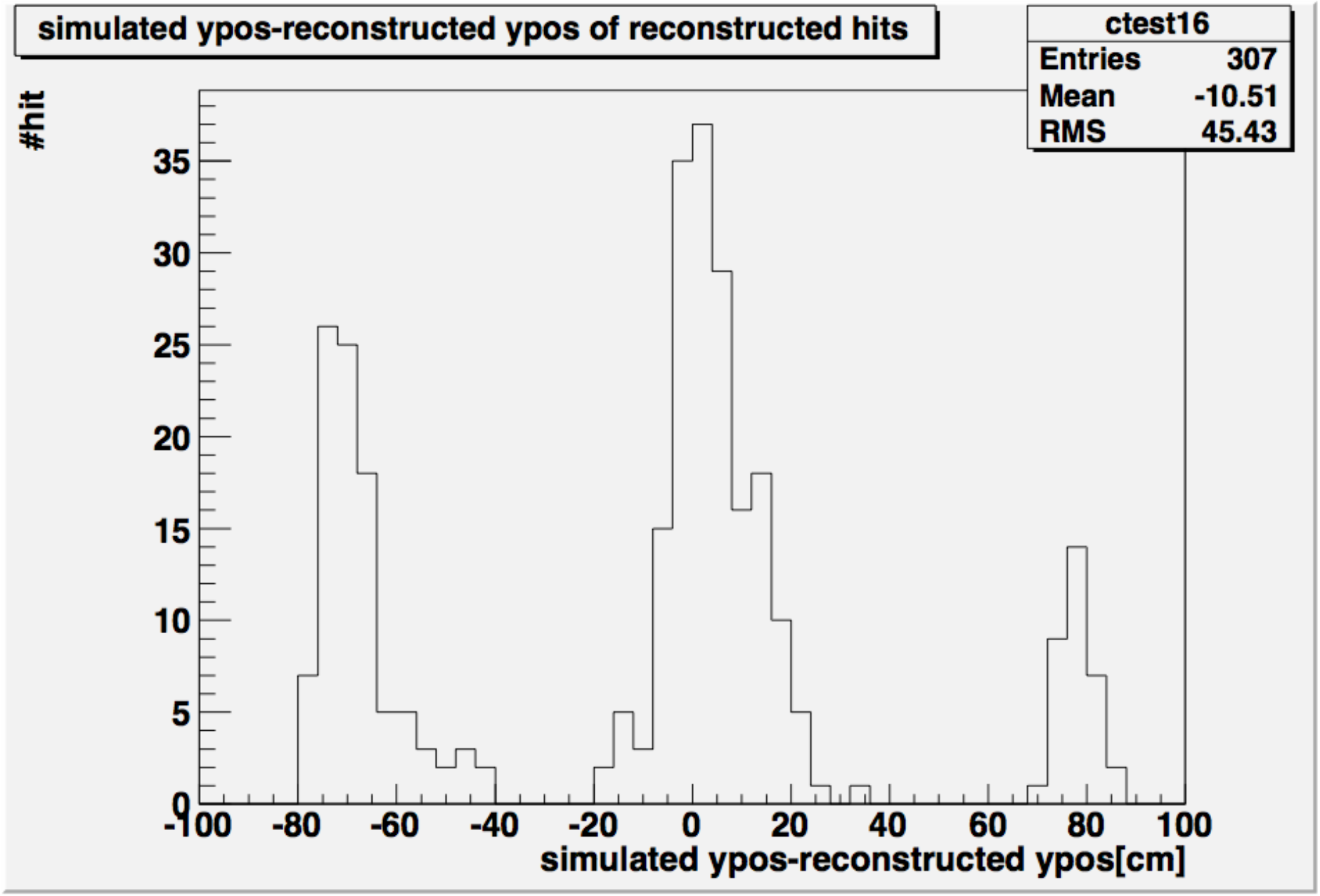
Status from Jae Kim

e-mail of May 13

I used to find hits as long as channels associate with the hits are on a different plane, averaged the channel# and then use intersectionpoint function in geometry package to find the position of the hit on yz coordinate, but it is not a best way to find the position and Tyler was right in suggesting that finding a hit whose startime is closest is going to produce a better result, so I did

1. sort all hits on plane0 and plane1 by their starttime
2. loop over 50 nearby hits in terms of their starttime and chose one that has a cloest time to the hit that was looped and has channel on a different plane
3. find yz coordinate of the hits chosen in step2 using intersectionpoint function in geometry package
3. sort all hits on plane2
4. among hits on step3, chose one that has closest time to a hit chosen in step2
5. in step3, intersection points were found in each wire segment. For example, if there are three wire segments associated with a channel of the chosen hit, then three intersection points were calculated. among the three points, chose one that has minimum distance to the hit chosen in step4
6. assign wireid of the wire segment chosen in step5 as a final wireid


simulated energy deposition.vs.reconstruct hits of a single track muon using starttime and charge
ctest7
Entries 1864
Mean x
Mean y
RMS x
RMS y
YPOZ[cm]
ZPOS[cm]
500
400
300
200
100
0
-100
-200
-300
-400
-500
0
20
40
60
80
100
120
140
160
180
200
0.12
4
0.1
0.08
0.06
2
0.04
1
0.02
0

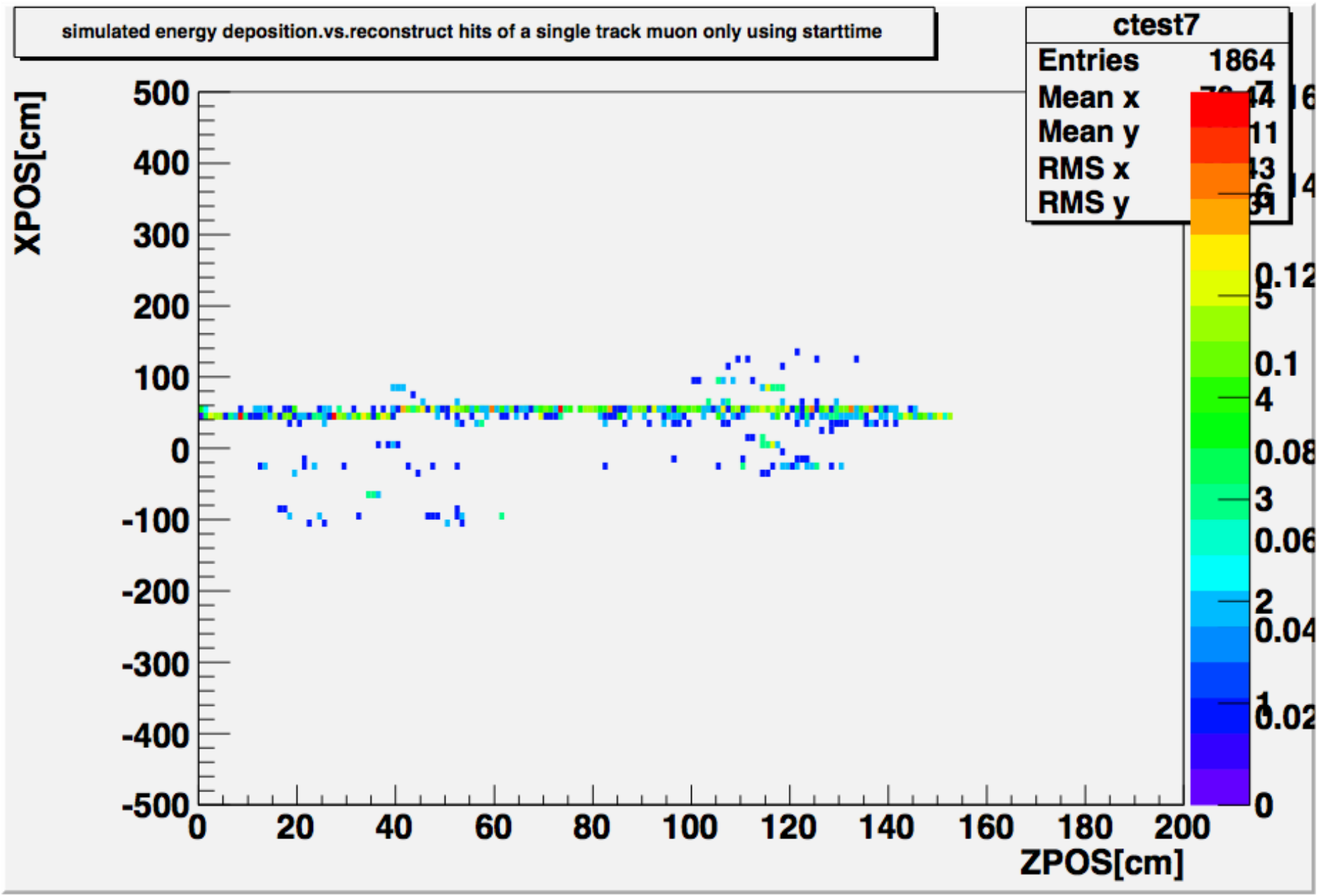

simulated ypos-reconstructed ypos of reconstructed hits
ctest16
Entries 307
Mean -10.51
RMS 45.43
#hit
0
5
10
15
20
25
30
35
-100
-80
-60
-40
-20
0
20
40
60
80
100
simulated ypos-reconstructed ypos[cm]

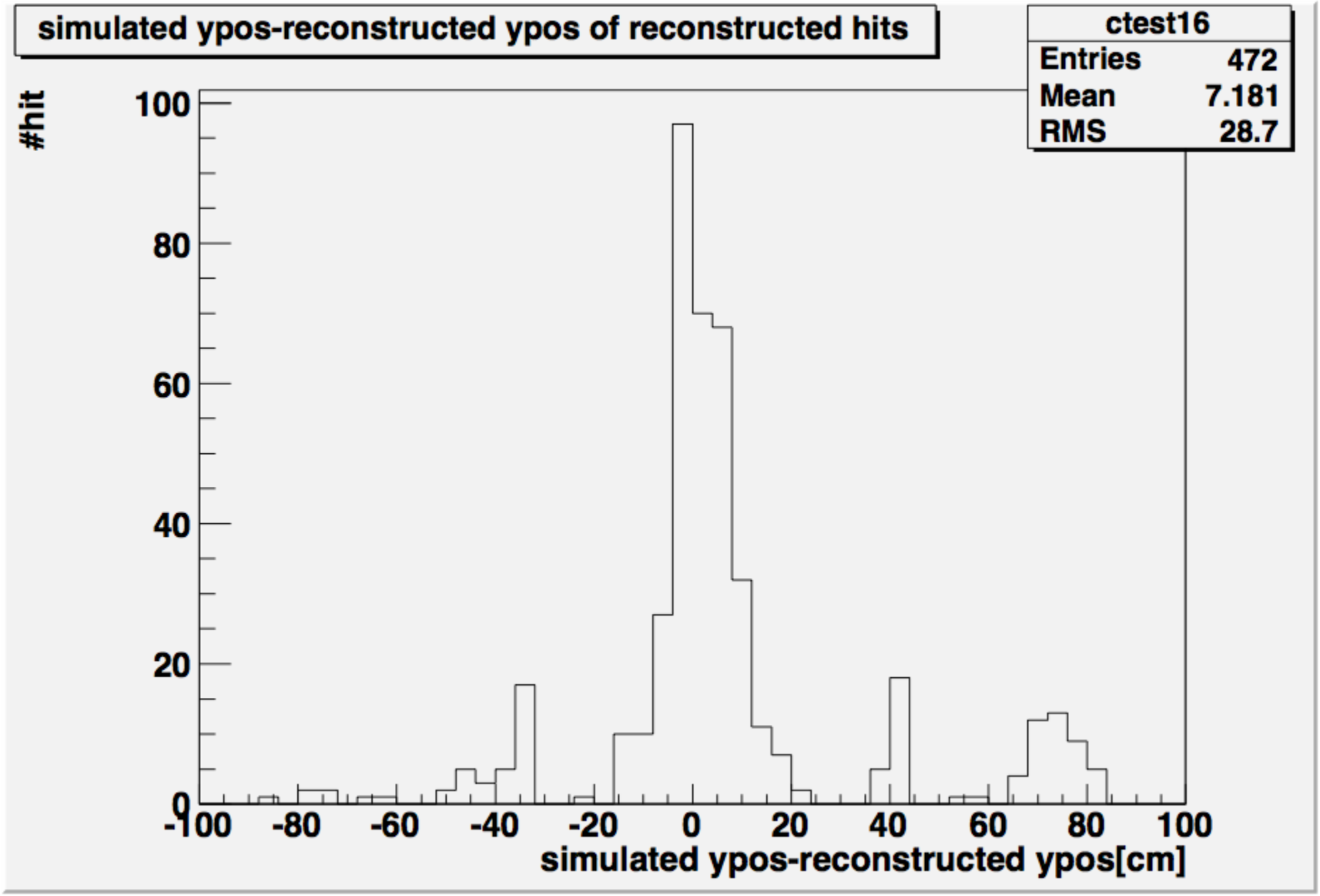
e-mail of May 22

Here is a brief report on time-based hit disambiguation work.

Instead of looping over nearby 30 hits, I looped over all hits since there are not that many hits for a single track muon, and because I was not sorting hits on the collection plane by their starttime, I sorted them.

With these changes, all 470 hits on induction planes were identified with an wireid and about 70 percent of hits were found with right wireid. I attach the pdf file as before. Page1 is the simulated energy deposition and reconstructed hits on yz space coordinate and page2 is the difference of simulated and reconstructed hit position.


simulated energy deposition.vs.reconstruct hits of a single track muon only using starttime
ctest7
Entries 1864
Mean x
Mean y
RMS x
RMS y
XPOS[cm]
ZPOS[cm]
500
400
300
200
100
0
-100
-200
-300
-400
-500
0
20
40
60
80
100
120
140
160
180
200
0.12
0.1
0.08
0.06
0.04
0.02
0


simulated ypos-reconstructed ypos of reconstructed hits
ctest16
Entries 472
Mean 7.181
RMS 28.7
#hit
100
80
60
40
20
0
-100
-80
-60
-40
-20
0
20
40
60
80
100
simulated ypos-reconstructed ypos[cm]