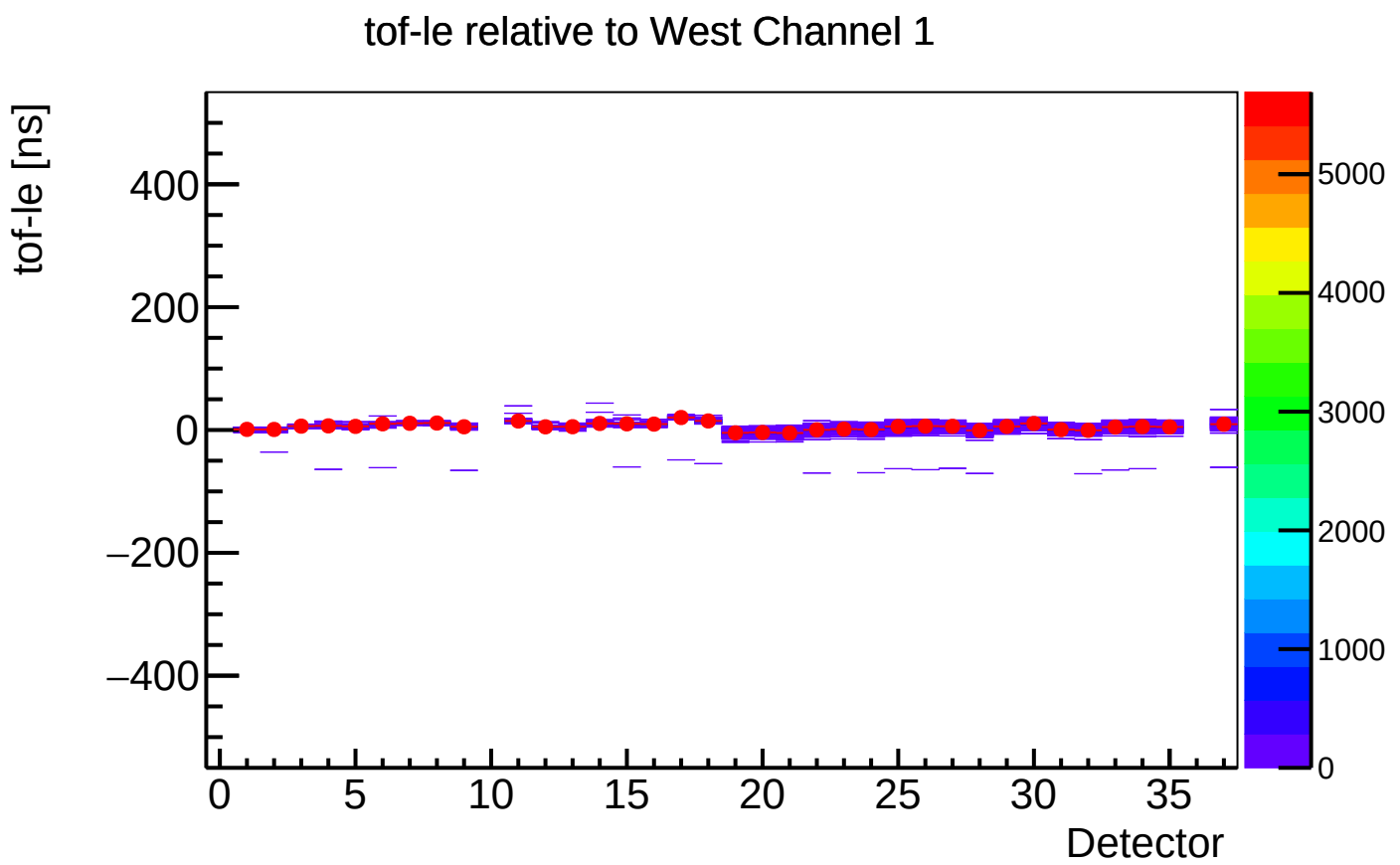
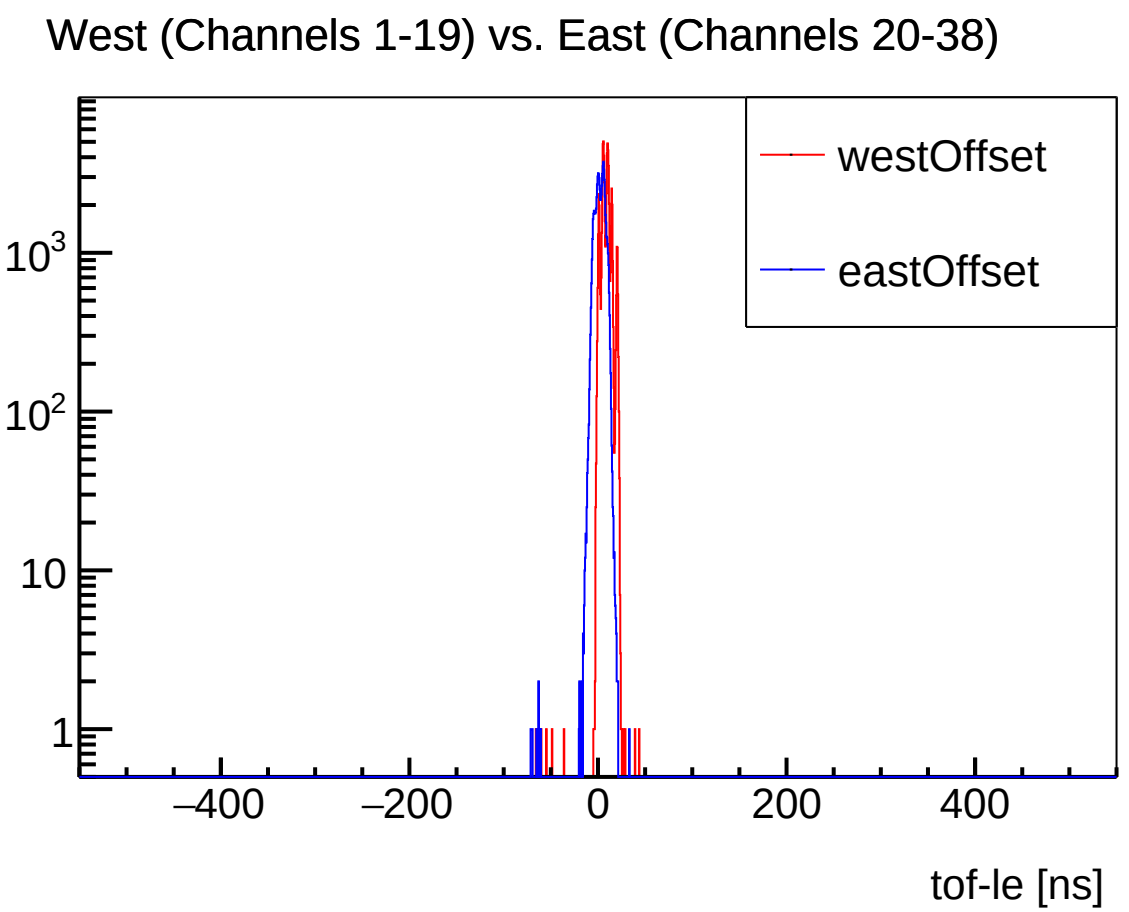
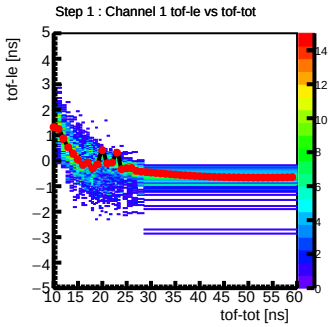
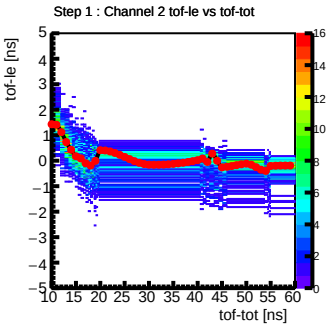
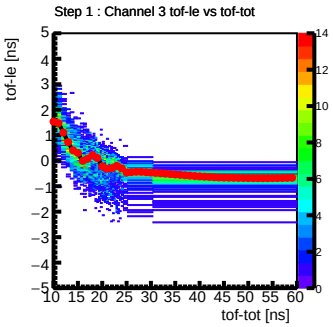
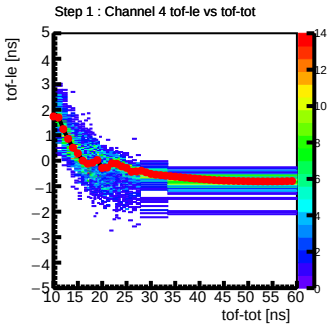

tof-le relative to West Channel 1
tof-le [ns]
400
200
0
–200
–400
0
5
10
15
20
25
30
35
Detector
5000
4000
3000
2000
1000
0

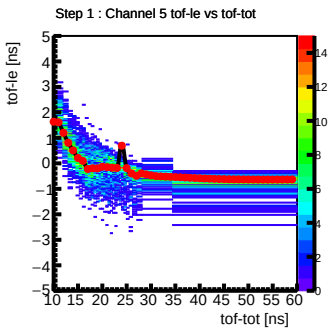

West (Channels 1-19) vs. East (Channels 20-38)
westOffset
eastOffset
10^3
10^2
10
1
–400
–200
0
200
400
tof-le [ns]

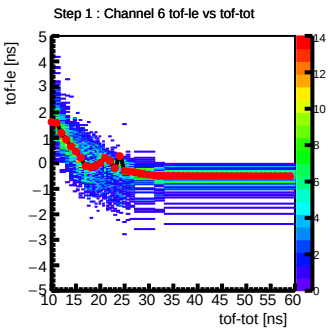

Step 1 : Channel 1 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

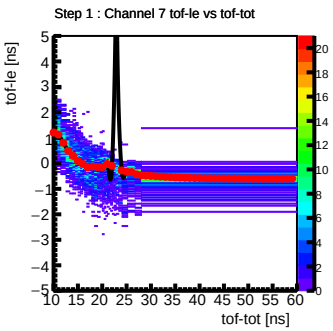

Step 1 : Channel 2 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

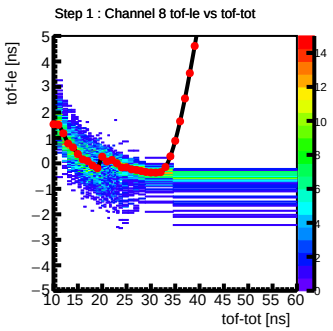

Step 1 : Channel 3 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

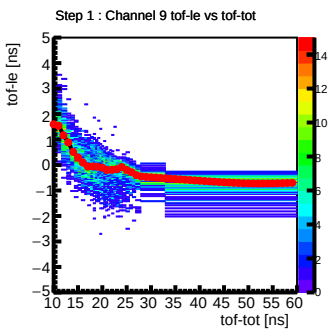

Step 1 : Channel 4 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

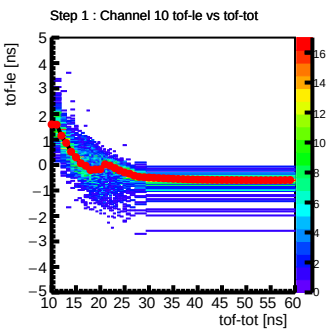

Step 1 : Channel 5 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

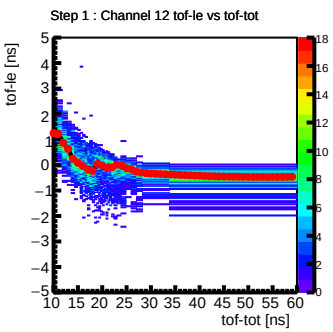

Step 1 : Channel 6 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

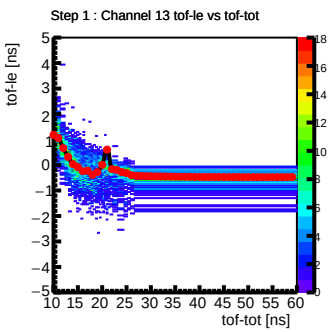

Step 1 : Channel 7 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

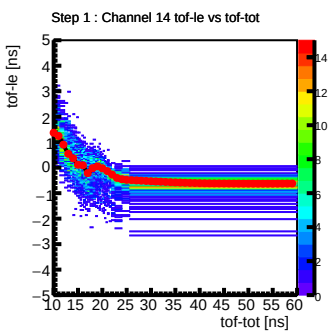

Step 1 : Channel 8 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

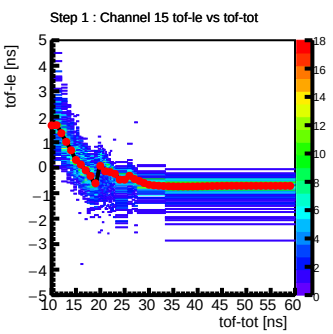

Step 1 : Channel 9 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

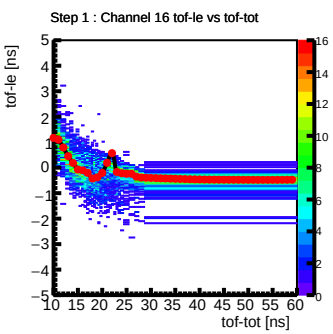

Step 1 : Channel 10 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

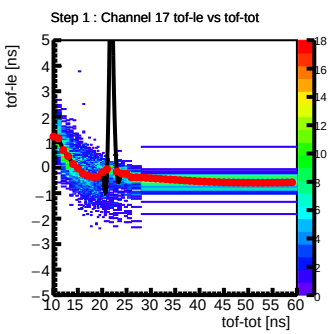

Step 1 : Channel 12 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

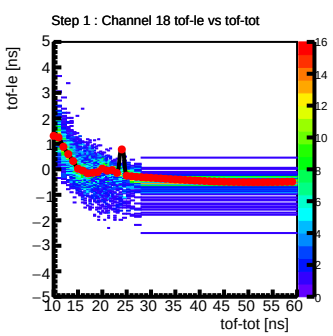

Step 1 : Channel 13 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

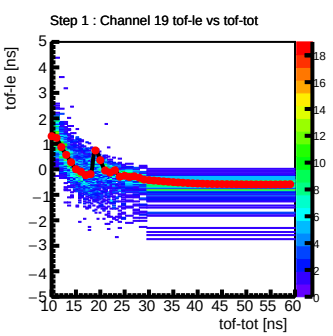

Step 1 : Channel 14 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

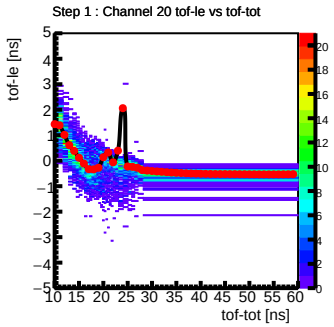

Step 1 : Channel 15 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

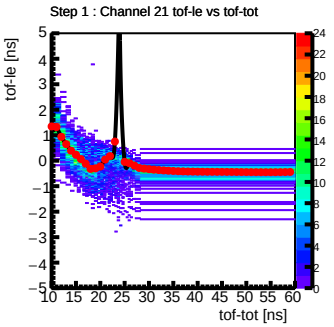

Step 1 : Channel 16 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

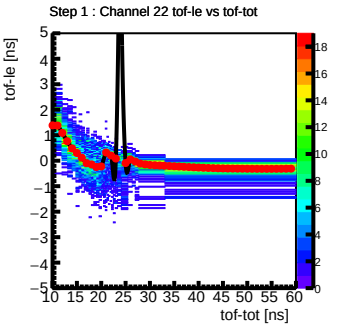

Step 1 : Channel 17 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

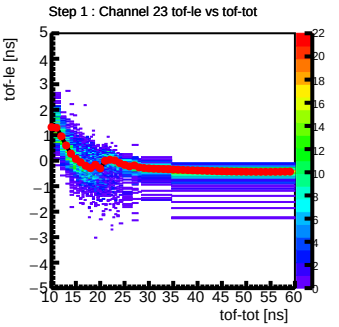

Step 1 : Channel 18 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

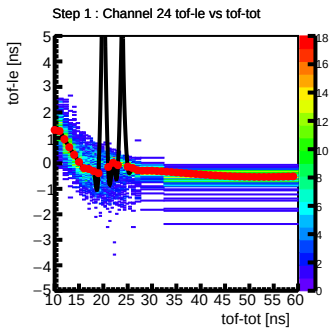

Step 1 : Channel 19 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

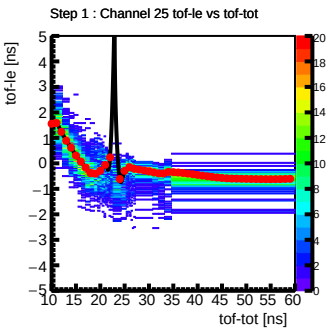

Step 1 : Channel 20 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

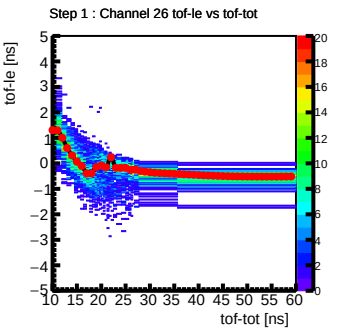

Step 1 : Channel 21 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

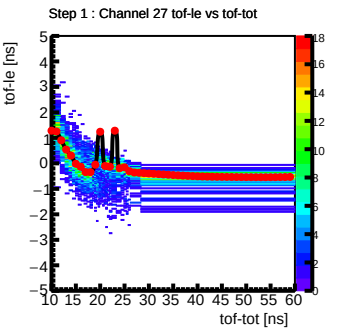

Step 1 : Channel 22 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

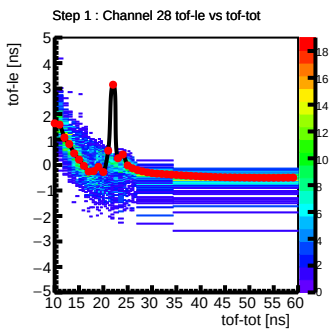

Step 1 : Channel 23 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

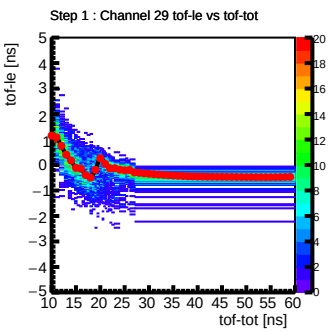

Step 1 : Channel 24 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

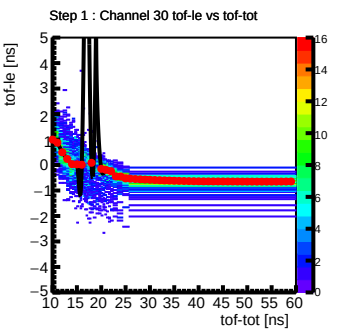

Step 1 : Channel 25 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

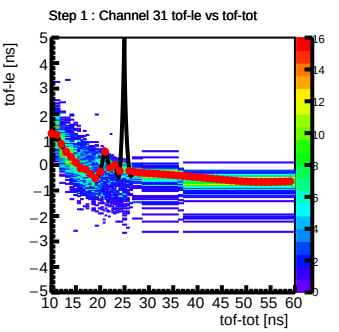

Step 1 : Channel 26 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

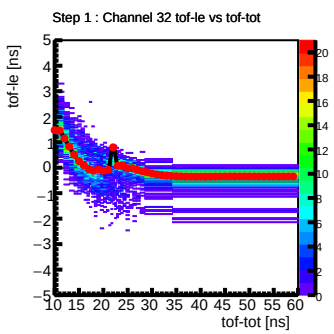

Step 1 : Channel 27 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

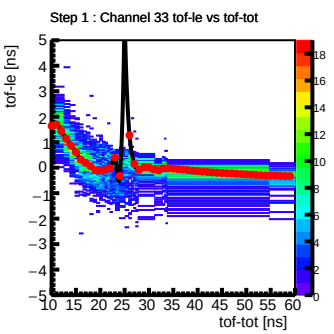

Step 1 : Channel 28 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

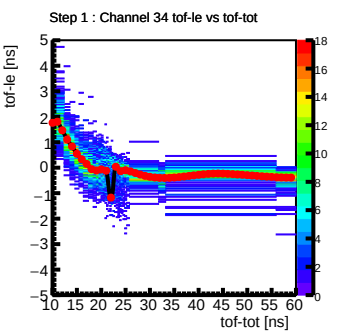

Step 1 : Channel 29 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

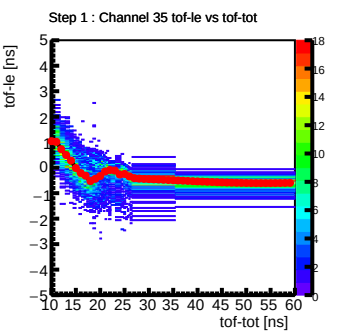

Step 1 : Channel 30 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

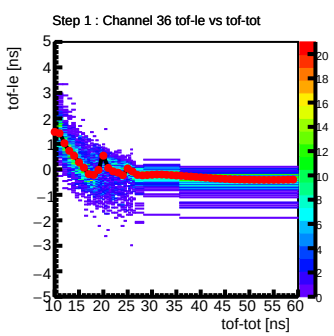

Step 1 : Channel 31 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

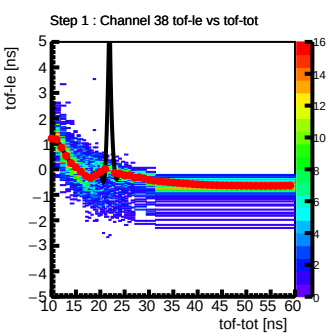

Step 1 : Channel 32 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

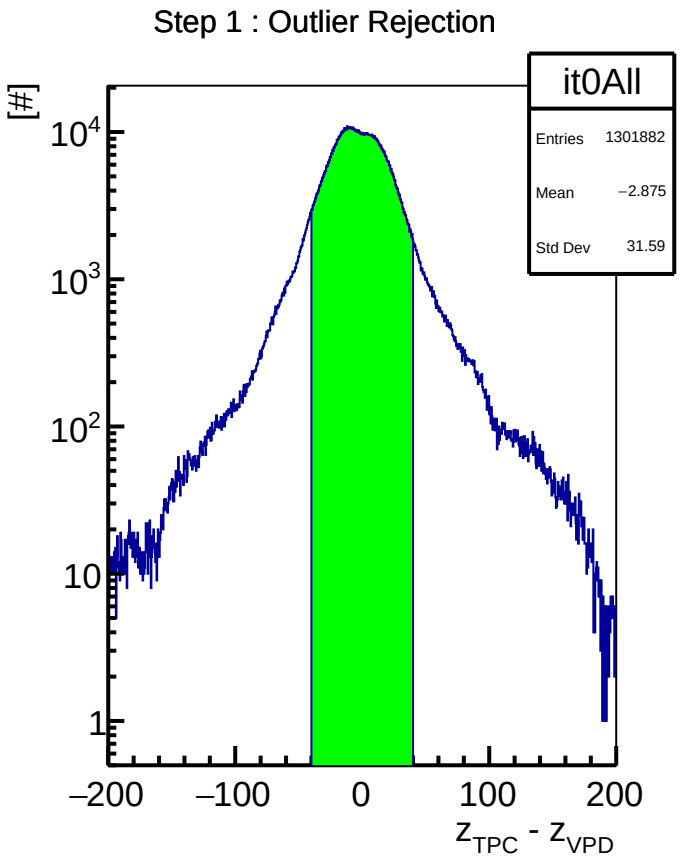

Step 1 : Channel 33 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

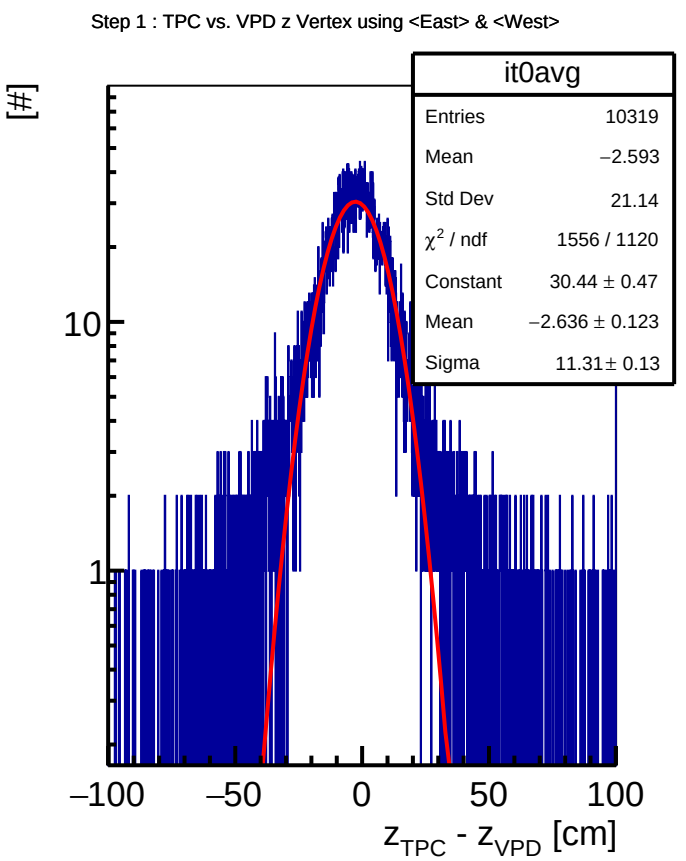

Step 1 : Channel 34 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

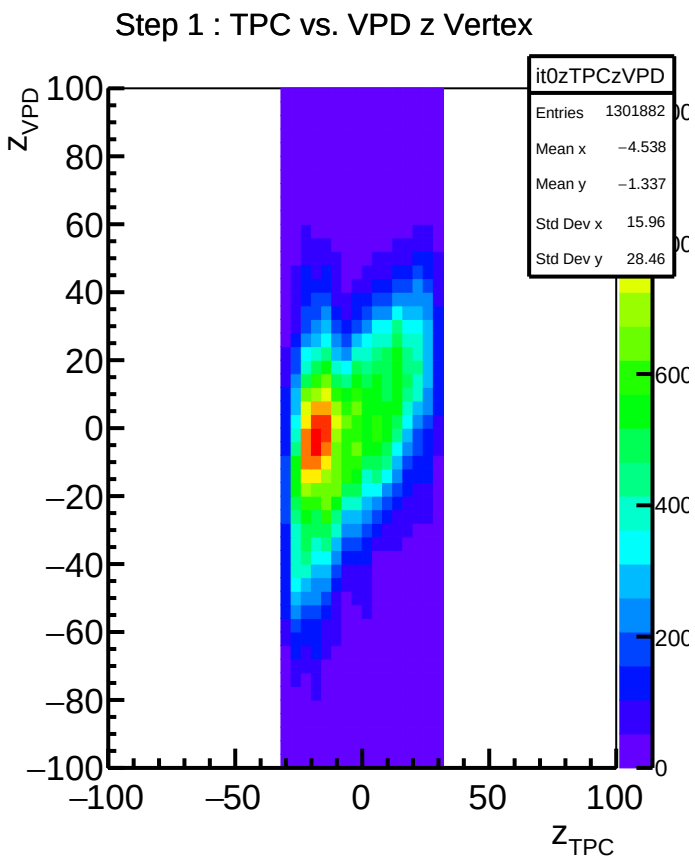

Step 1 : Channel 35 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

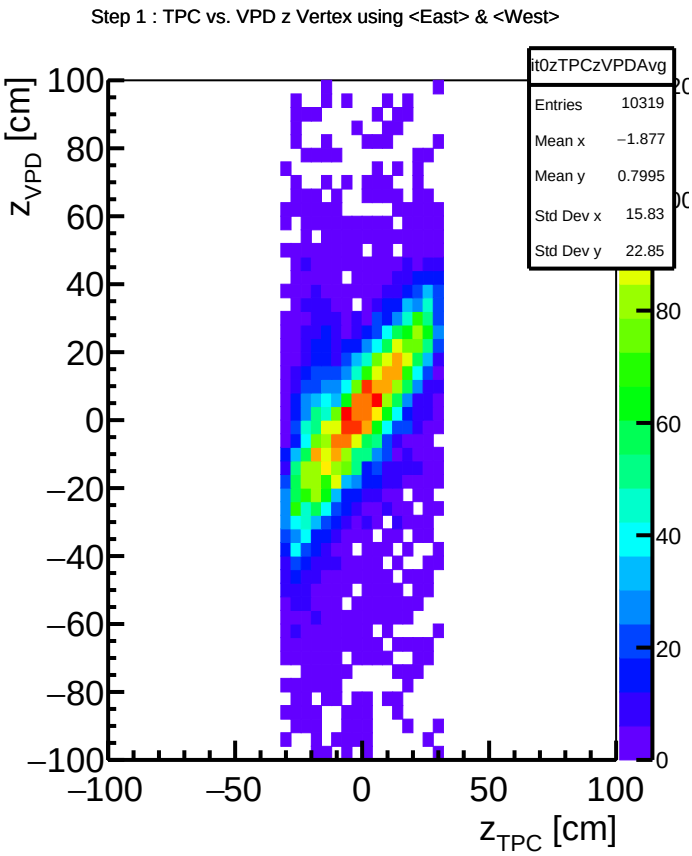

Step 1 : Channel 36 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

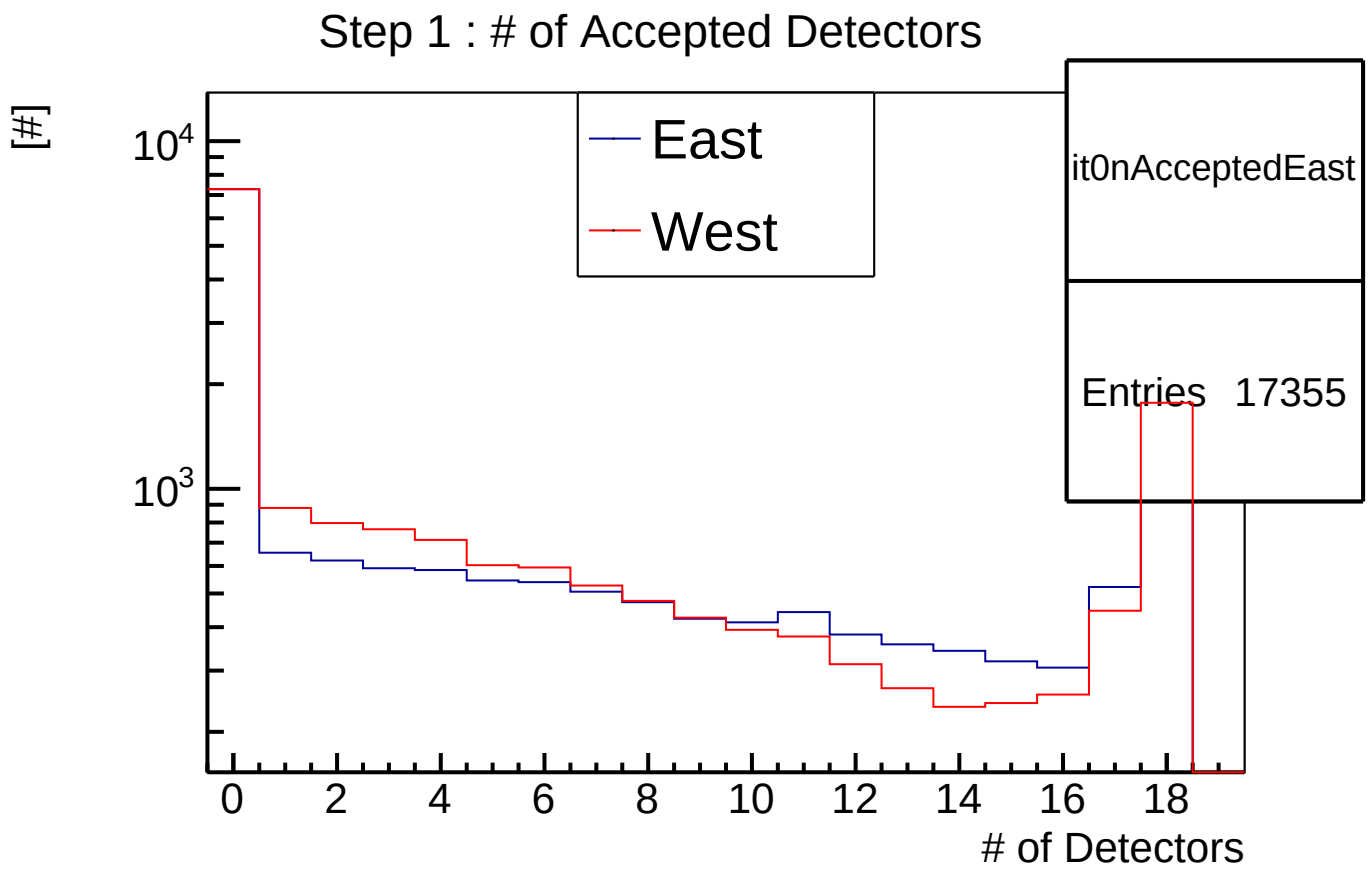

Step 1 : Channel 38 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

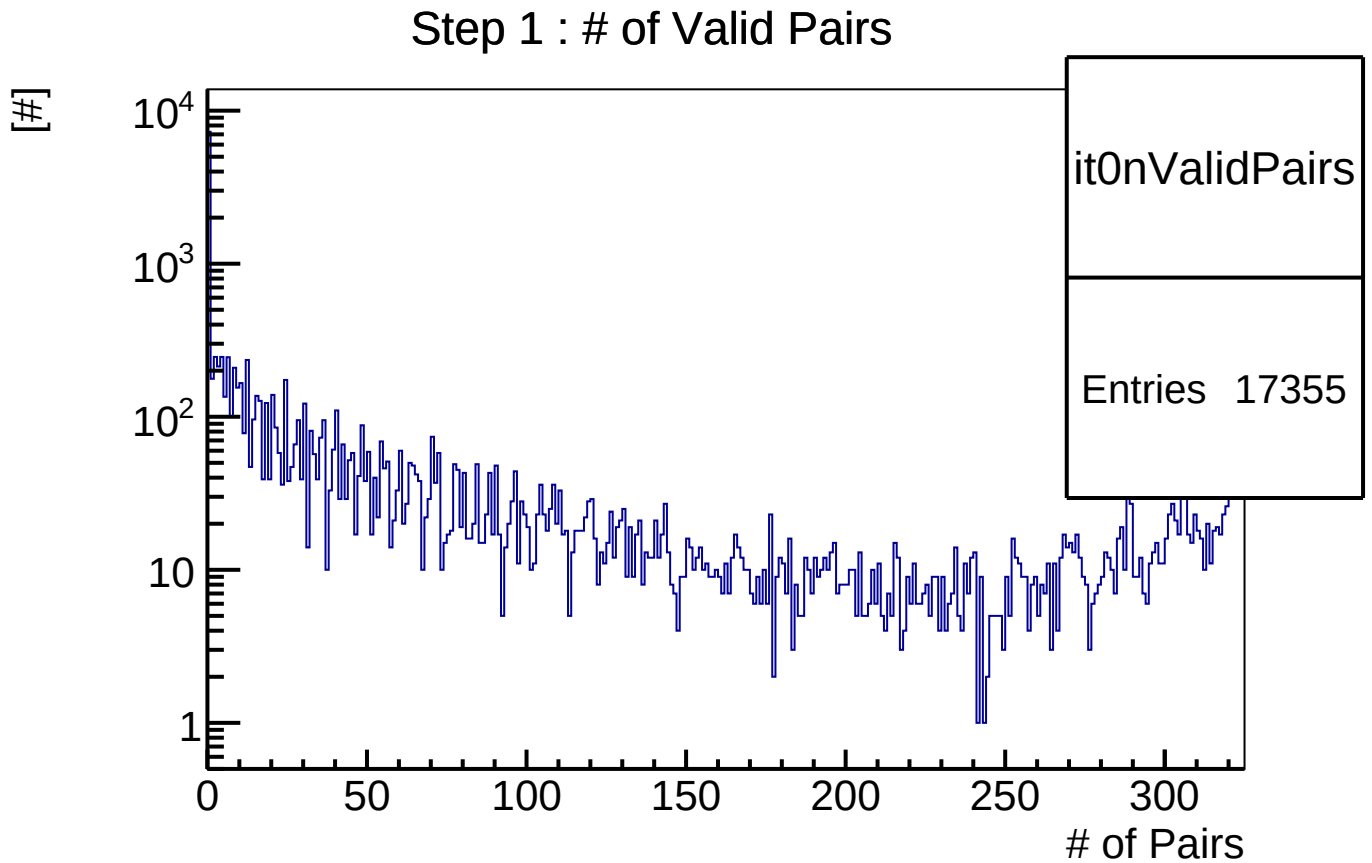

Step 1 : Outlier Rejection
it0All
Entries 1301882
Mean −2.875
Std Dev 31.59
[#]
10^4
10^3
10^2
10
1
−200 −100 0 100 200
z_{TPC} - z_{VPD}

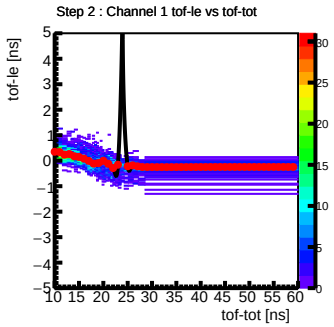

Step 1 : TPC vs. VPD z Vertex using <East> & <West>
it0avg
Entries 10319
Mean −2.593
Std Dev 21.14
χ^2 / ndf 1556 / 1120
Constant 30.44 ± 0.47
Mean −2.636 ± 0.123
Sigma 11.31± 0.13
[#]
10
1
−100 −50 0 50 100
z_{TPC} - z_{VPD} [cm]

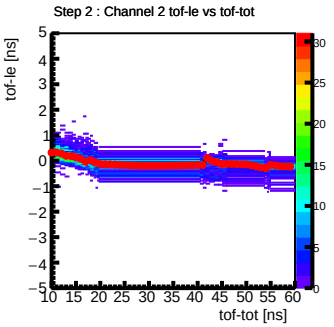

Step 1 : TPC vs. VPD z Vertex
it0zTPCzVPD
Entries 1301882
Mean x −4.538
Mean y −1.337
Std Dev x 15.96
Std Dev y 28.46
z_{VPD}
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100 −50 0 50 100
z_{TPC}

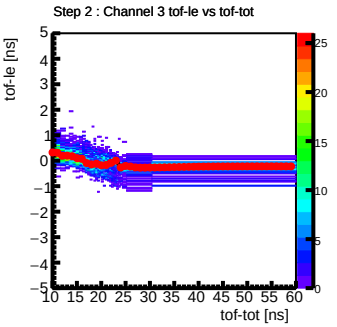

Step 1 : TPC vs. VPD z Vertex using <East> & <West>
it0zTPCzVPDAvg
Entries 10319
Mean x −1.877
Mean y 0.7995
Std Dev x 15.83
Std Dev y 22.85
z_{VPD} [cm]
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100 −50 0 50 100
z_{TPC} [cm]

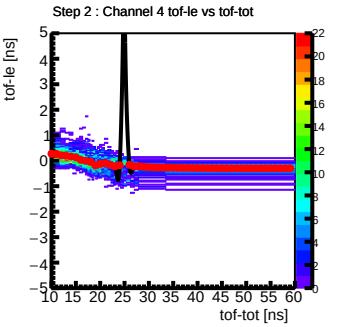

Step 1 : # of Accepted Detectors
[#]
East
West
it0nAcceptedEast
Entries 17355
# of Detectors

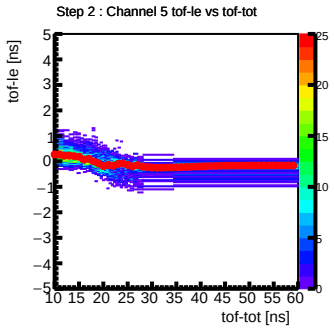

Step 1 : # of Valid Pairs
[#]
it0nValidPairs
Entries 17355
# of Pairs

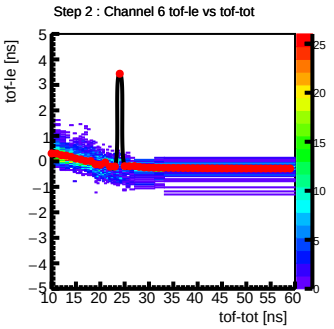

Step 2 : Channel 1 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

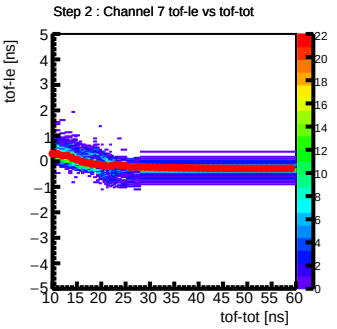

Step 2 : Channel 2 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

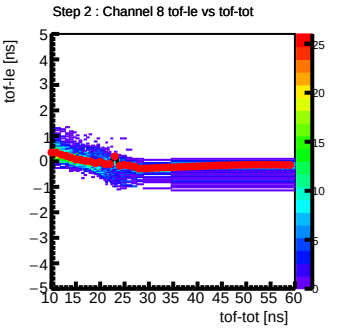

Step 2 : Channel 3 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

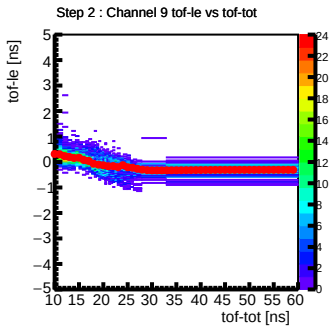

Step 2 : Channel 4 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

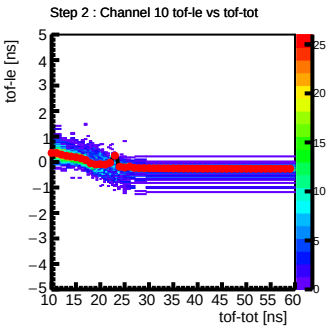

Step 2 : Channel 5 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

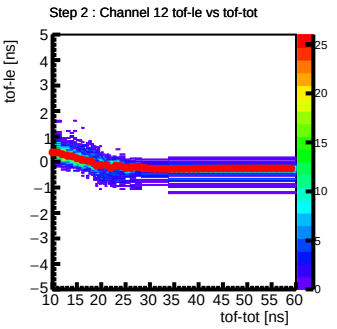

Step 2 : Channel 6 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

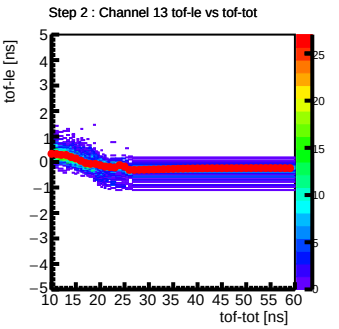

Step 2 : Channel 7 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

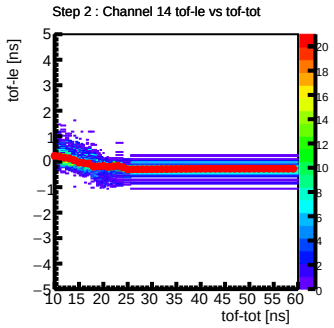

Step 2 : Channel 8 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

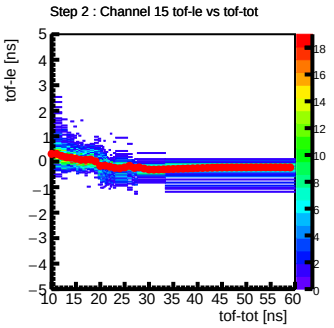

Step 2 : Channel 9 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

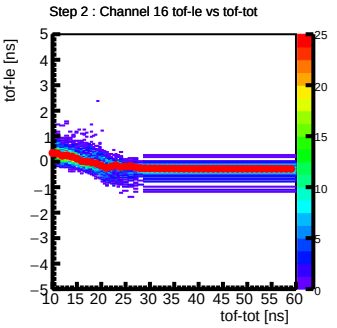

Step 2 : Channel 10 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

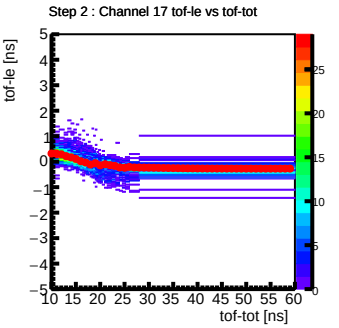

Step 2 : Channel 12 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

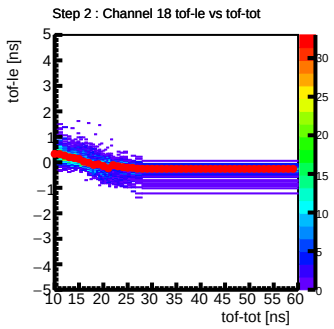

Step 2 : Channel 13 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

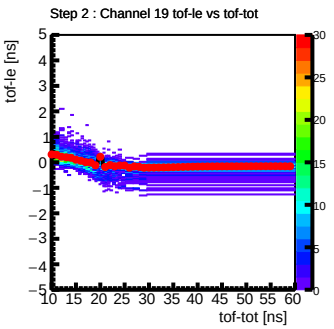

Step 2 : Channel 14 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

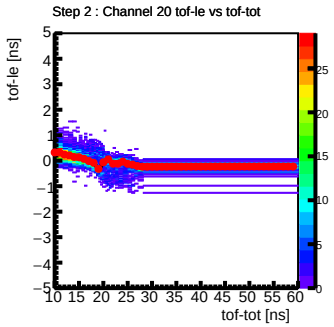

Step 2 : Channel 15 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

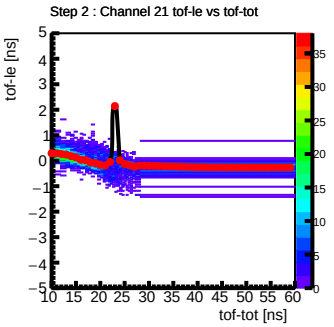

Step 2 : Channel 16 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

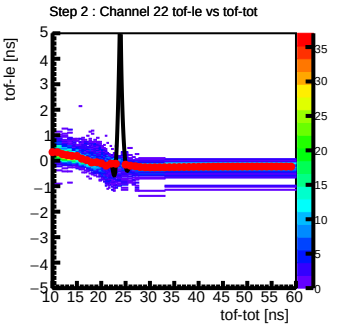

Step 2 : Channel 17 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

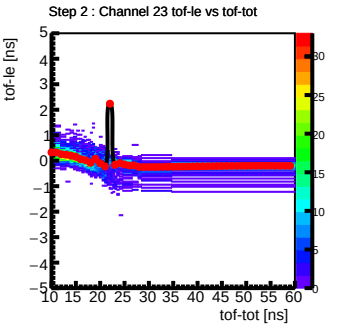

Step 2 : Channel 18 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

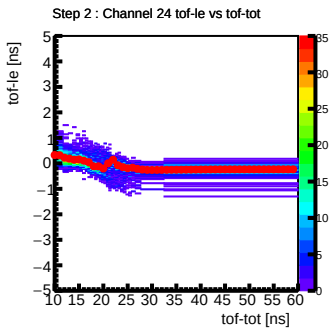

Step 2 : Channel 19 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

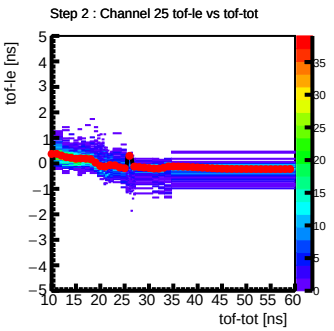

Step 2 : Channel 20 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

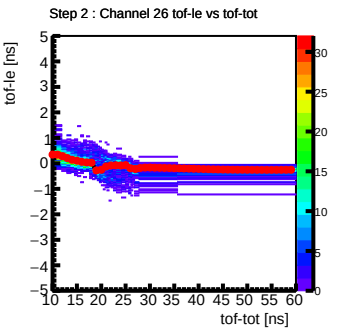

Step 2 : Channel 21 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

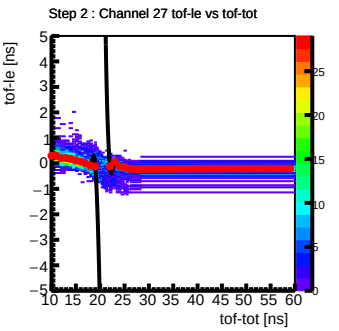

Step 2 : Channel 22 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

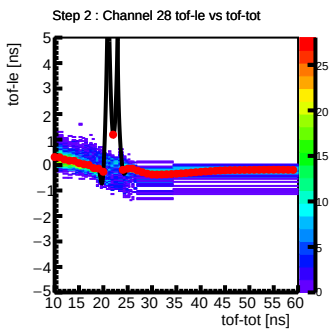

Step 2 : Channel 23 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

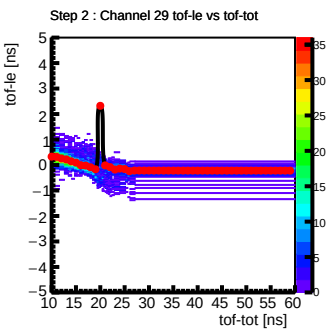

Step 2 : Channel 24 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

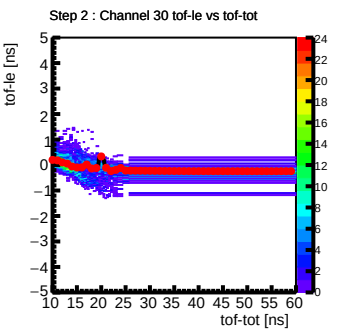

Step 2 : Channel 25 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

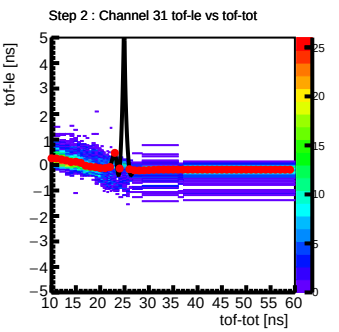

Step 2 : Channel 26 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

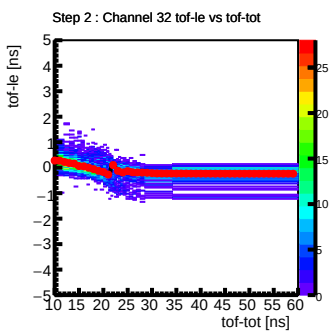

Step 2 : Channel 27 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

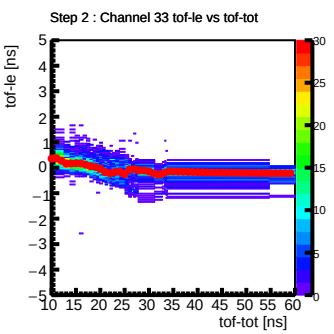

Step 2 : Channel 28 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

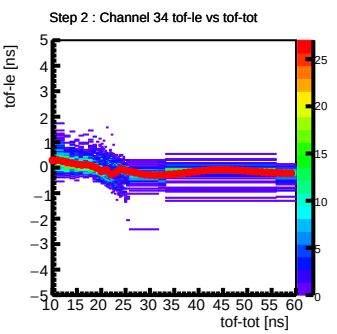

Step 2 : Channel 29 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

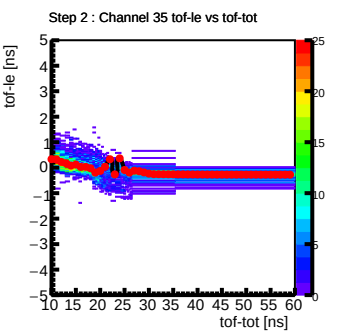

Step 2 : Channel 30 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

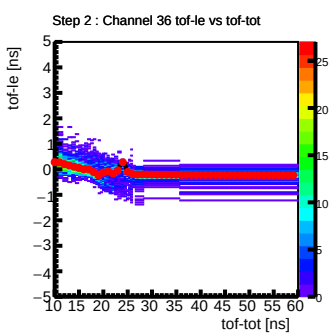

Step 2 : Channel 31 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

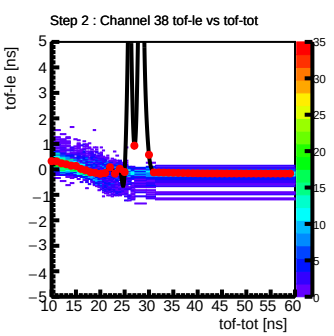

Step 2 : Channel 32 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

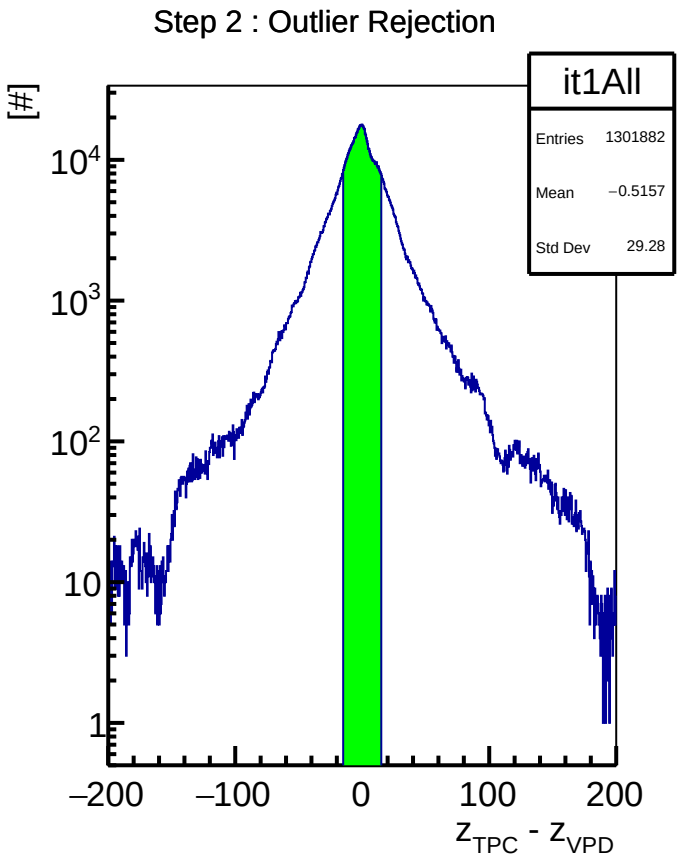

Step 2 : Channel 33 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

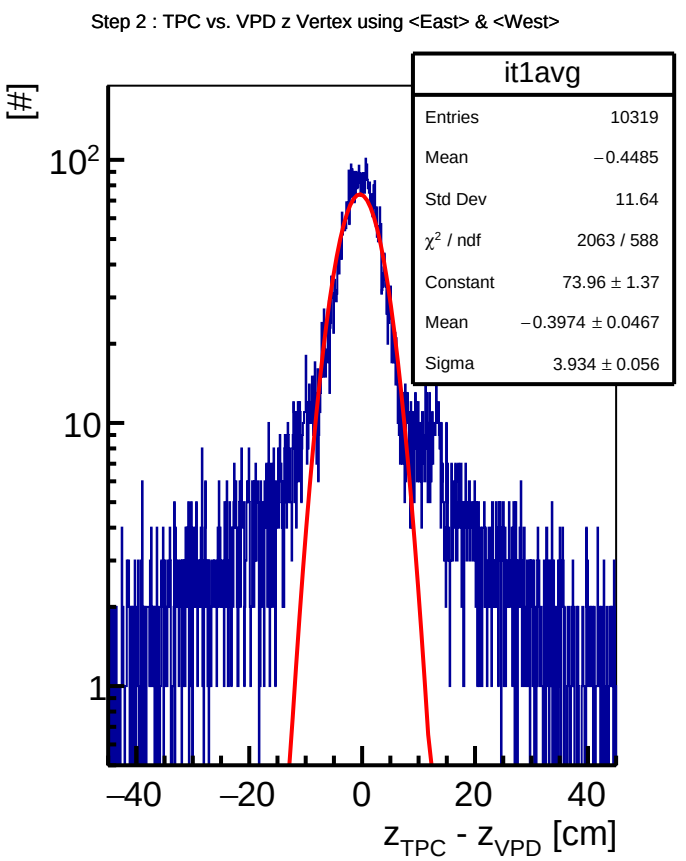

Step 2 : Channel 34 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

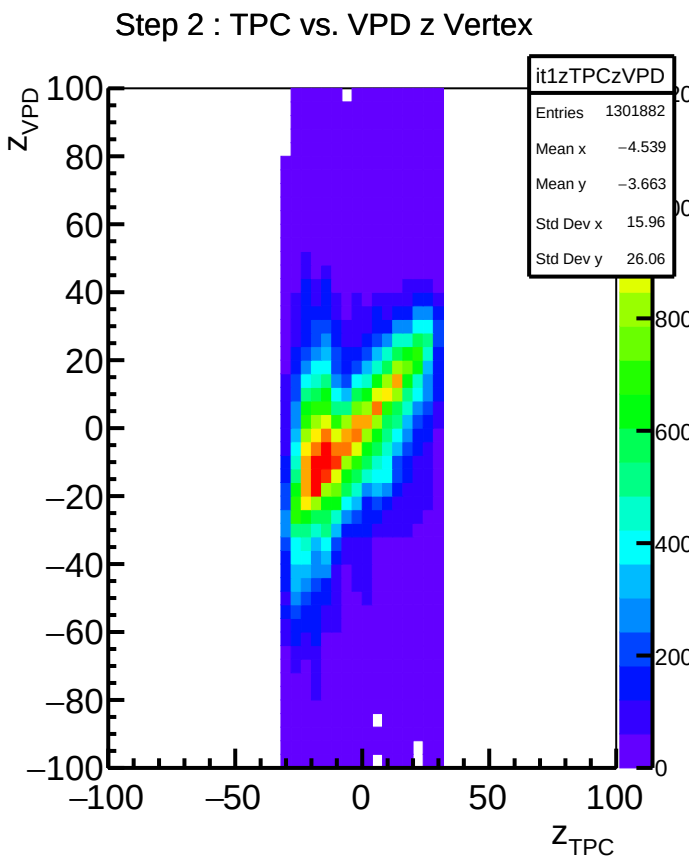

Step 2 : Channel 35 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

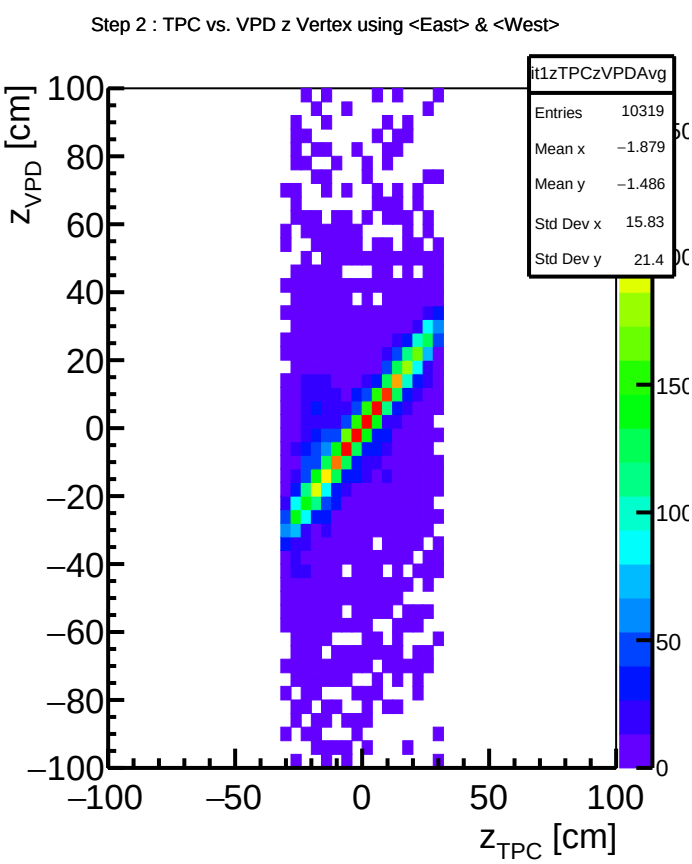

Step 2 : Channel 36 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

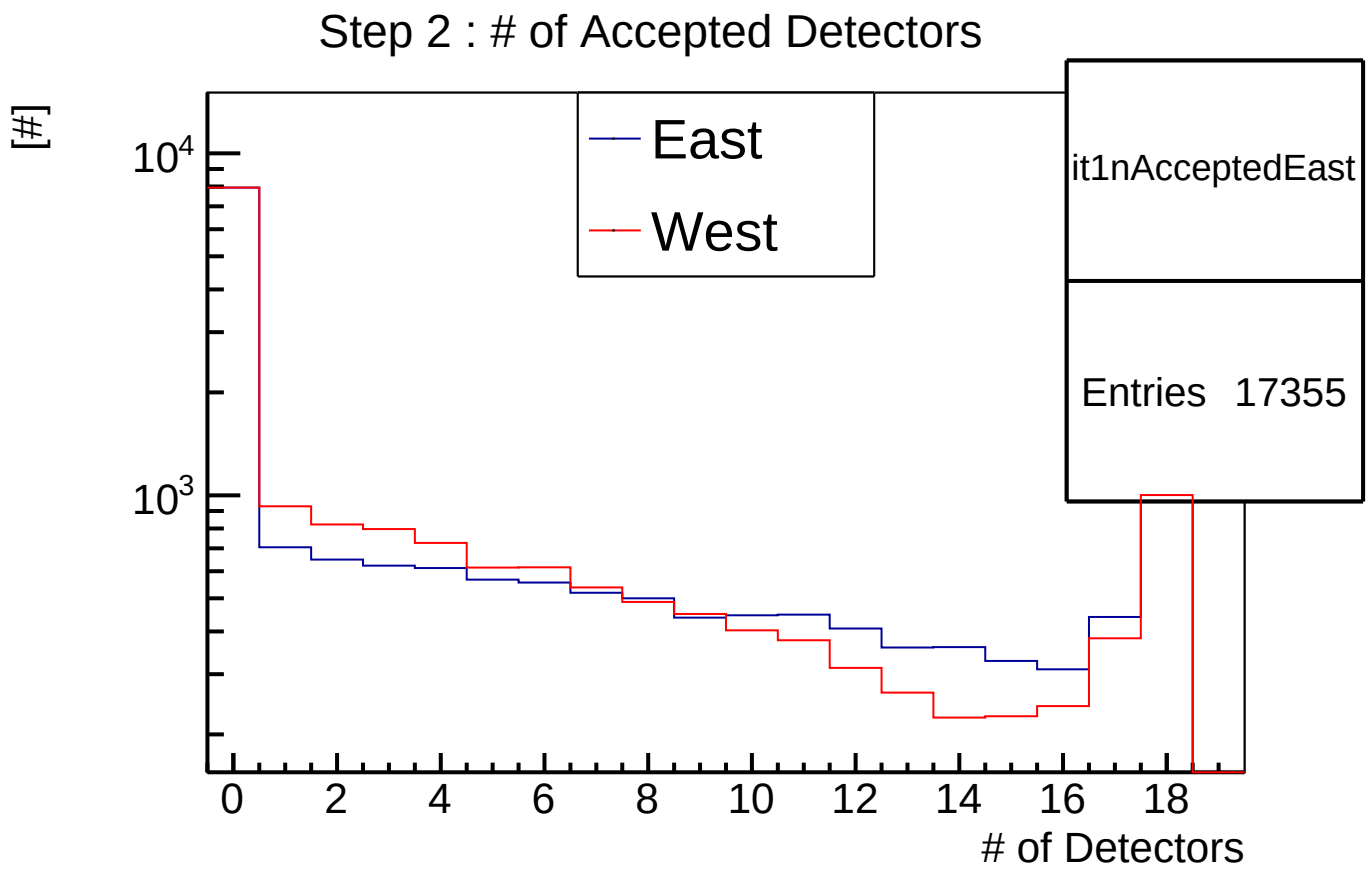

Step 2 : Channel 38 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

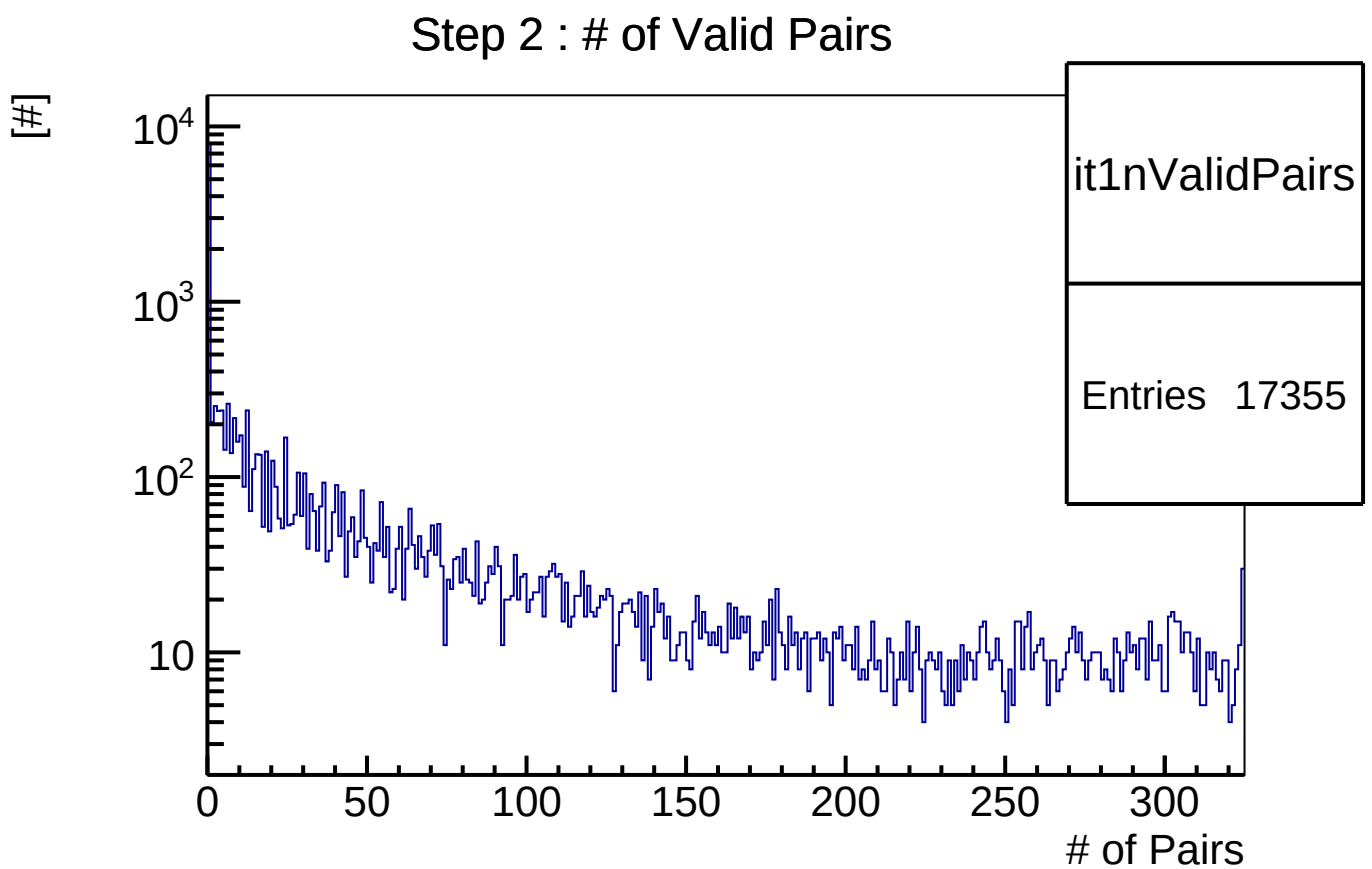

Step 2 : Outlier Rejection
it1All
Entries 1301882
Mean −0.5157
Std Dev 29.28
[#]
10^4
10^3
10^2
10
1
−200
−100
0
100
200
z_{TPC} - z_{VPD}

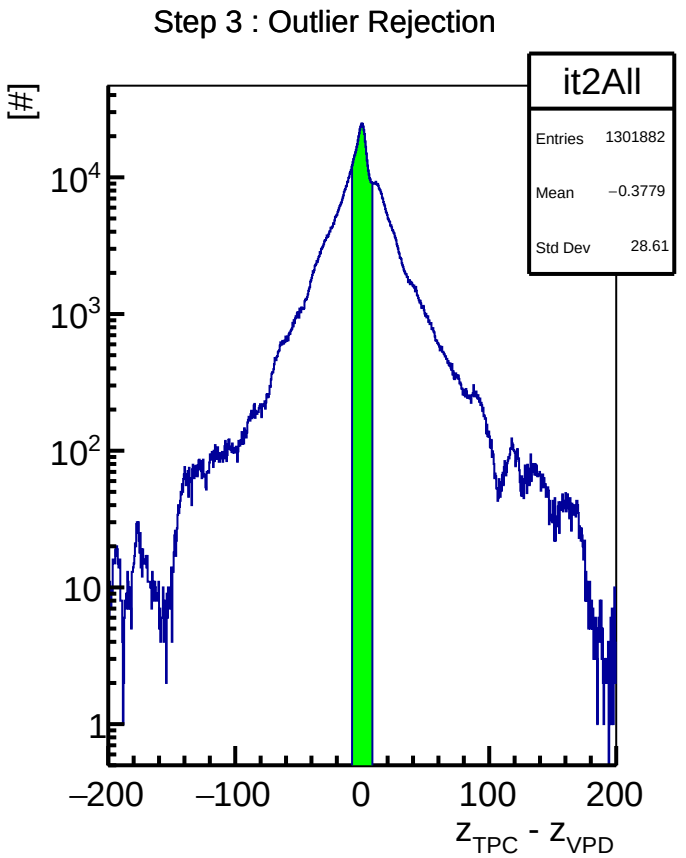

Step 2 : TPC vs. VPD z Vertex using <East> & <West>
it1avg
Entries 10319
Mean −0.4485
Std Dev 11.64
χ^2 / ndf 2063 / 588
Constant 73.96 ± 1.37
Mean −0.3974 ± 0.0467
Sigma 3.934 ± 0.056
[#]
10^2
10
1
−40
−20
0
20
40
z_{TPC} - z_{VPD} [cm]

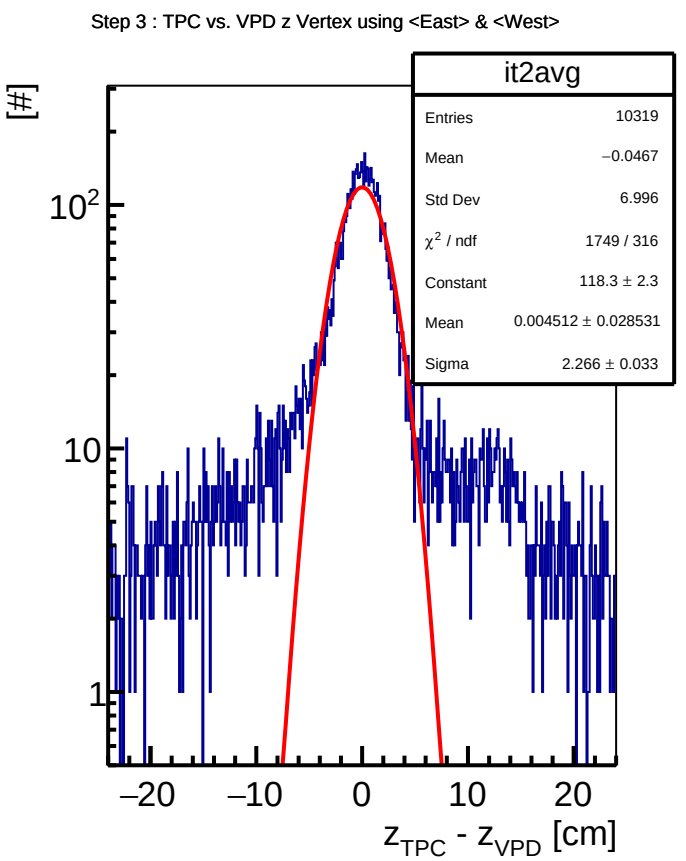

Step 2 : TPC vs. VPD z Vertex
it1zTPCzVPD
Entries 1301882
Mean x −4.539
Mean y −3.663
Std Dev x 15.96
Std Dev y 26.06
z_{VPD}
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC}

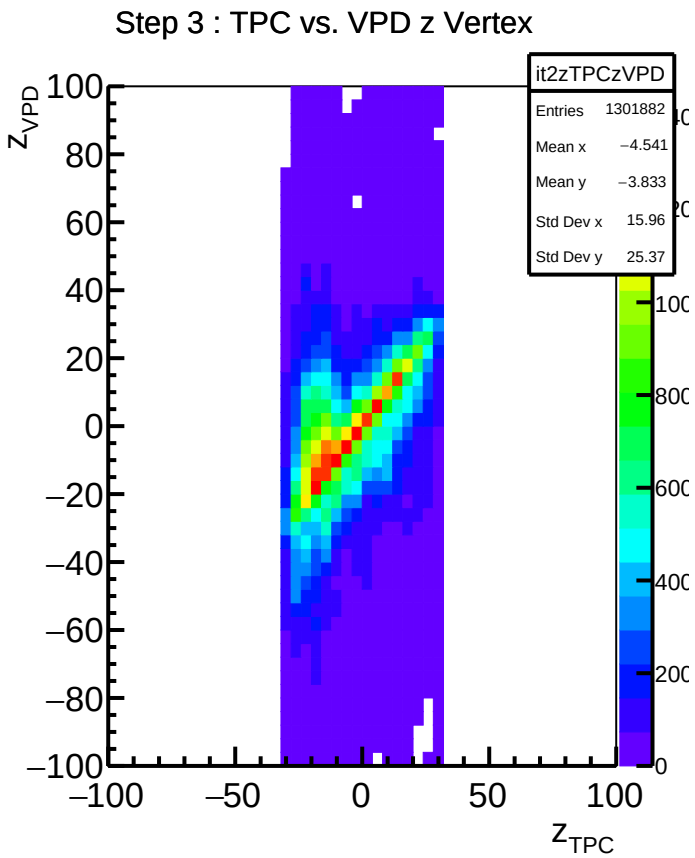

Step 2 : TPC vs. VPD z Vertex using <East> & <West>
it1zTPCzVPDAvg
Entries 10319
Mean x −1.879
Mean y −1.486
Std Dev x 15.83
Std Dev y 21.4
z_{VPD} [cm]
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC} [cm]

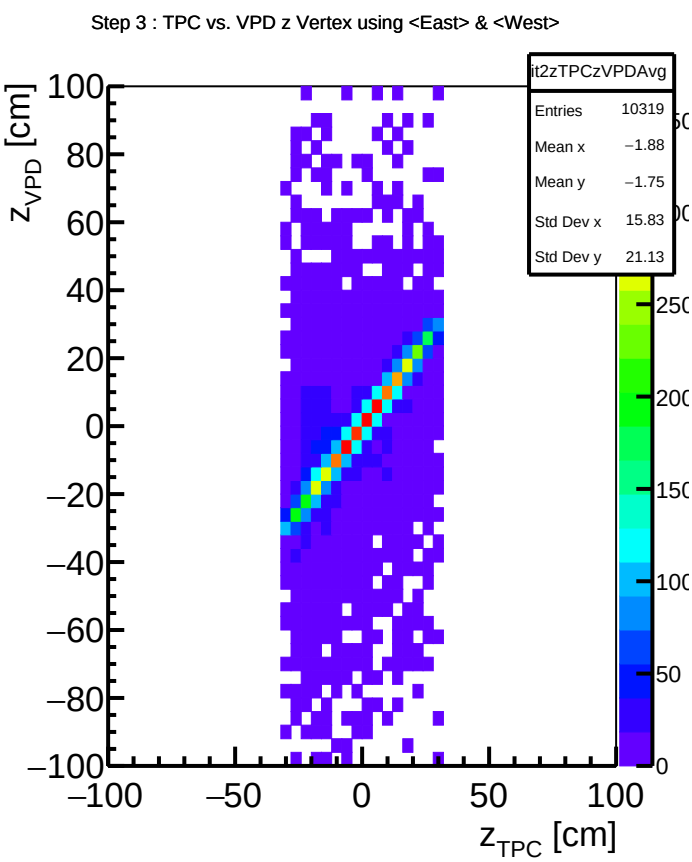

Step 2 : # of Accepted Detectors
[#]
East
West
it1nAcceptedEast
Entries 17355
10^4
10^3
0 2 4 6 8 10 12 14 16 18
# of Detectors

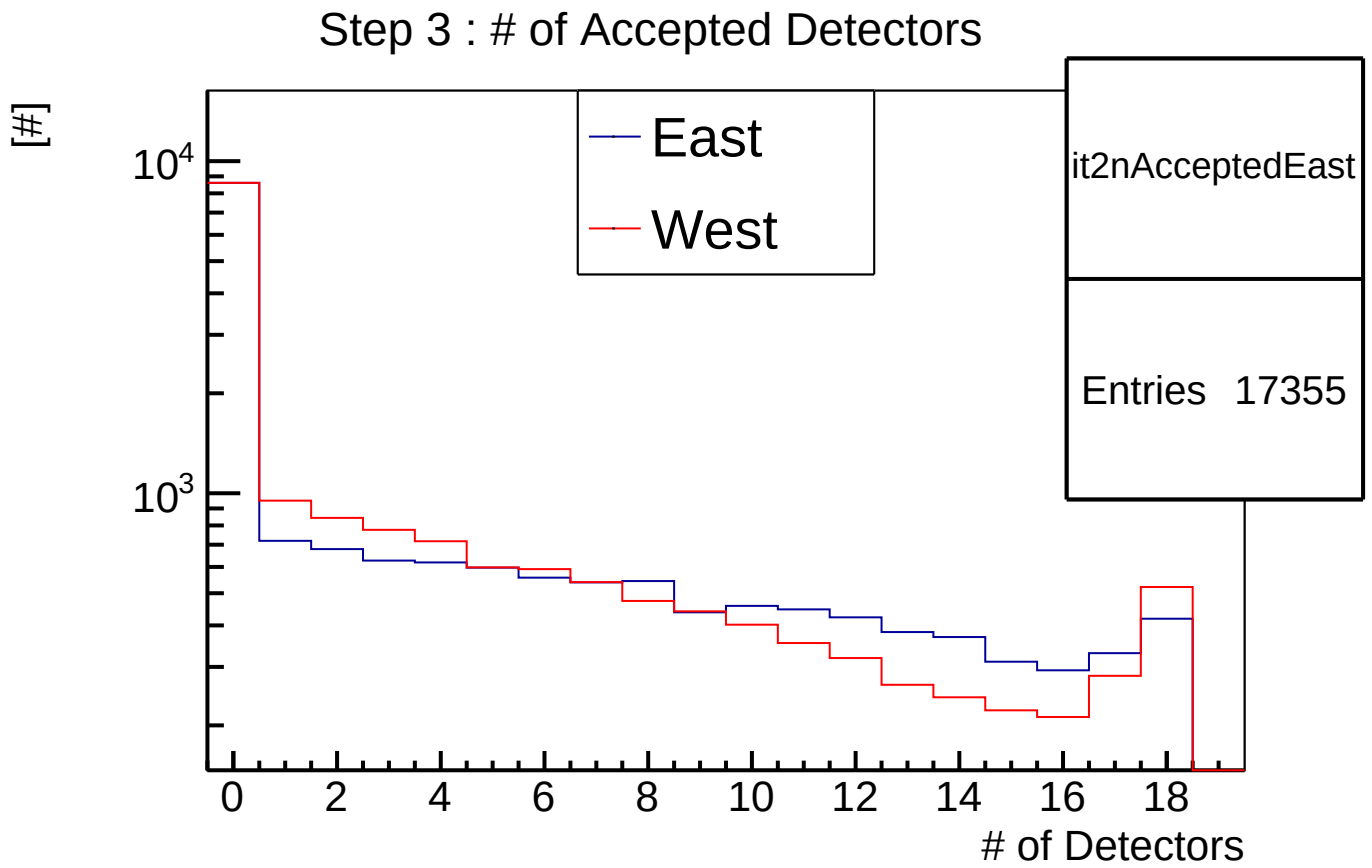

Step 2 : # of Valid Pairs
[#]
it1nValidPairs
Entries 17355
10^4
10^3
10^2
10
0 50 100 150 200 250 300
# of Pairs

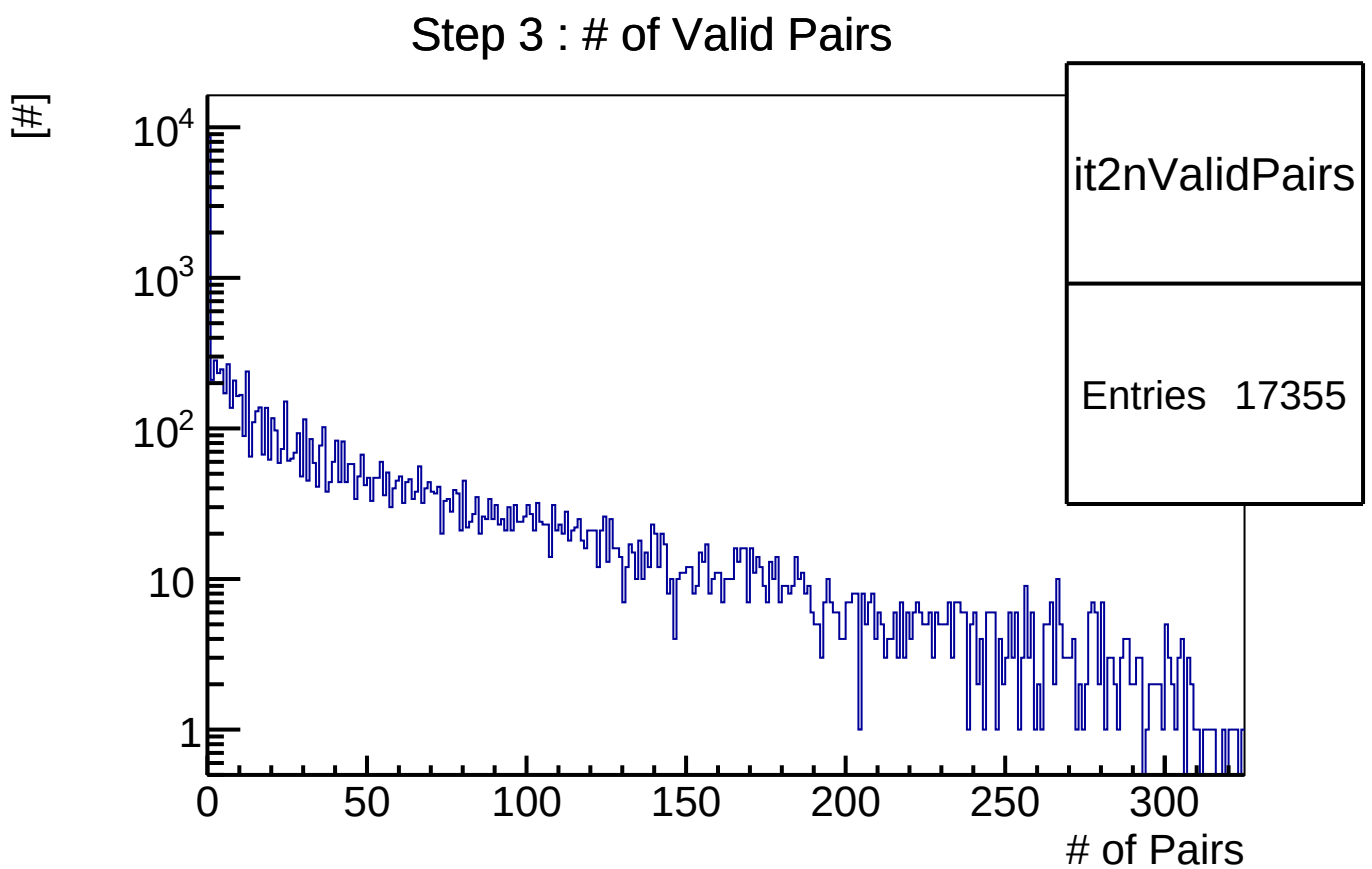

Step 3 : Outlier Rejection
it2All
Entries 1301882
Mean −0.3779
Std Dev 28.61
[#]
10^4
10^3
10^2
10
1
−200 −100 0 100 200
z_{TPC} - z_{VPD}

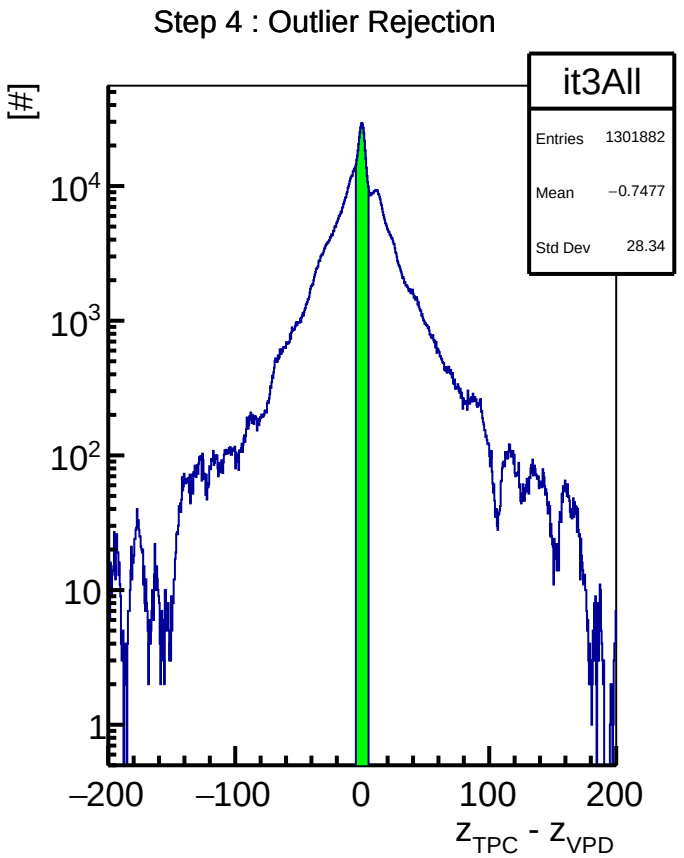

Step 3 : TPC vs. VPD z Vertex using <East> & <West>
it2avg
Entries 10319
Mean −0.0467
Std Dev 6.996
χ^2 / ndf 1749 / 316
Constant 118.3 ± 2.3
Mean 0.004512 ± 0.028531
Sigma 2.266 ± 0.033
[#]
10^2
10
1
−20 −10 0 10 20
z_{TPC} - z_{VPD} [cm]

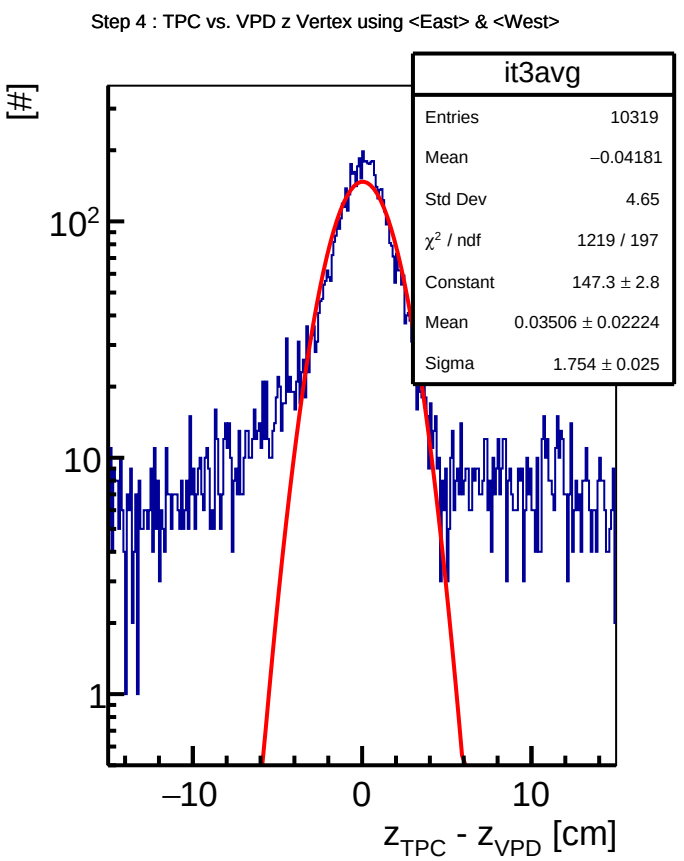

Step 3 : TPC vs. VPD z Vertex
it2zTPCzVPD
Entries 1301882
Mean x −4.541
Mean y −3.833
Std Dev x 15.96
Std Dev y 25.37
z_{VPD}
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100 −50 0 50 100
z_{TPC}

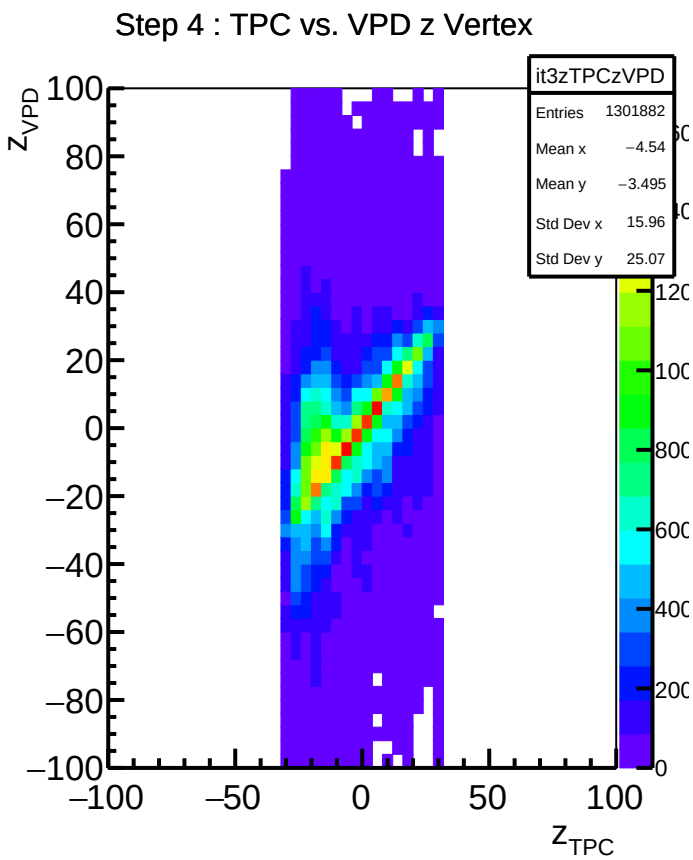

Step 3 : TPC vs. VPD z Vertex using <East> & <West>
it2zTPCzVPDAvg
Entries 10319
Mean x −1.88
Mean y −1.75
Std Dev x 15.83
Std Dev y 21.13
z_{VPD} [cm]
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100 −50 0 50 100
z_{TPC} [cm]

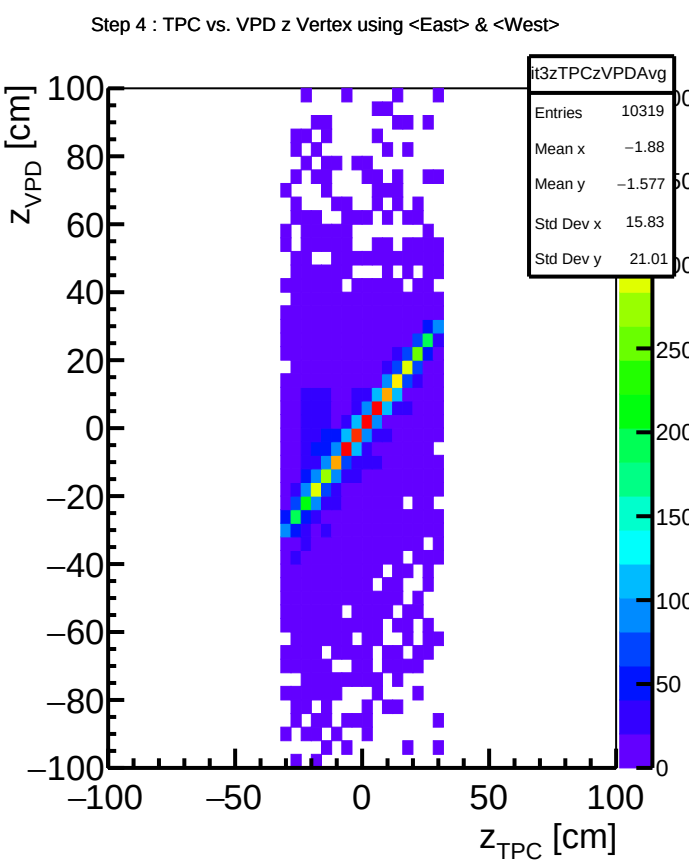

Step 3 : # of Accepted Detectors
[#]
East
West
it2nAcceptedEast
Entries 17355
10^4
10^3
0 2 4 6 8 10 12 14 16 18
# of Detectors

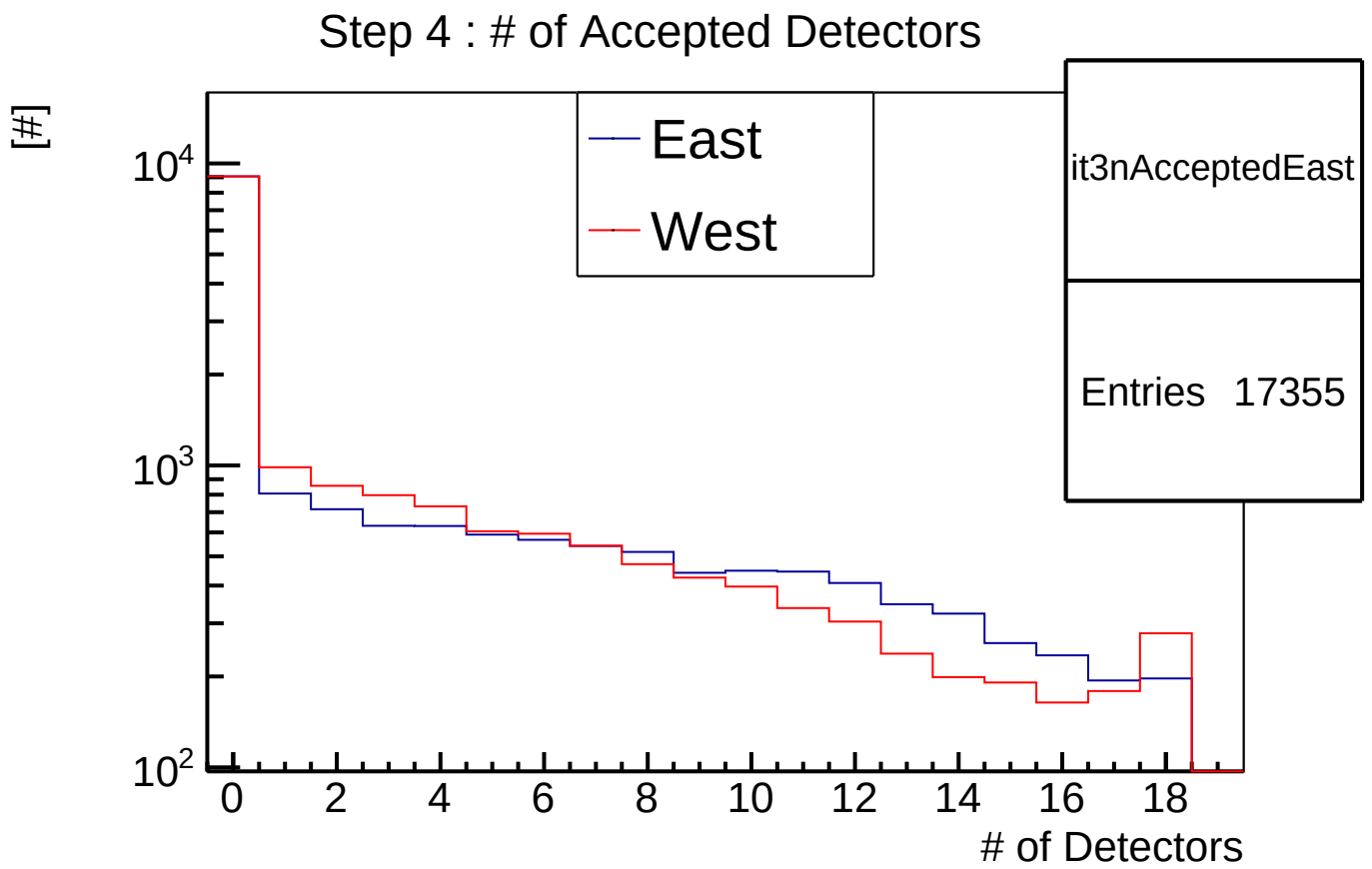

Step 3 : # of Valid Pairs
[#]
it2nValidPairs
Entries 17355
10^4
10^3
10^2
10
1
0 50 100 150 200 250 300
# of Pairs

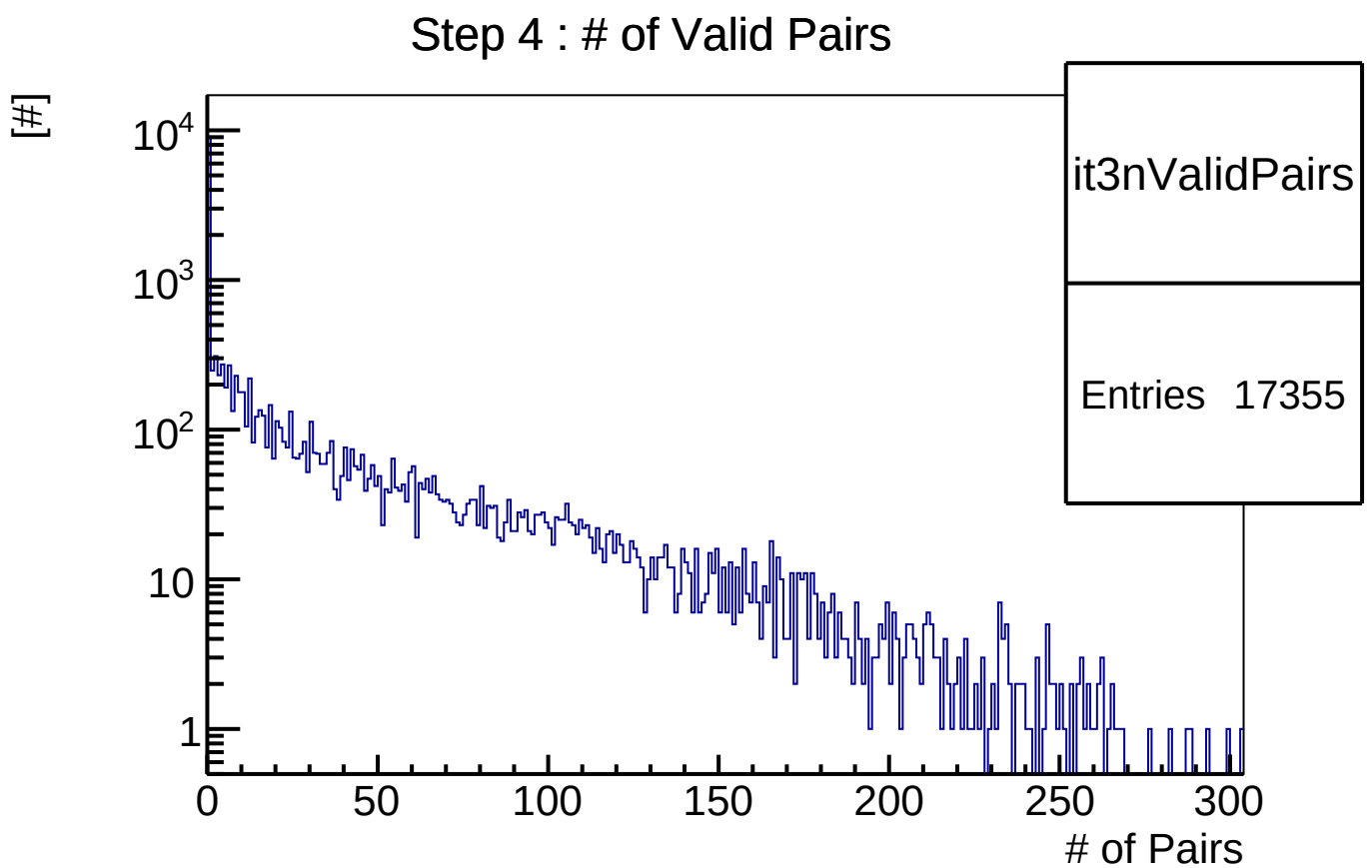

Step 4 : Outlier Rejection
it3All
Entries 1301882
Mean −0.7477
Std Dev 28.34
[#]
10^4
10^3
10^2
10
1
−200
−100
0
100
200
z_{TPC} - z_{VPD}

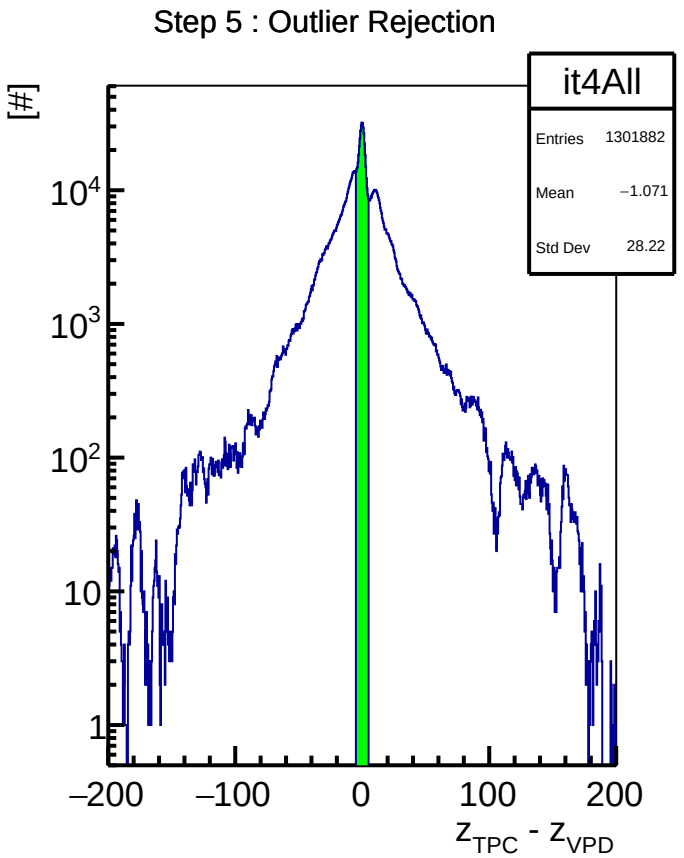

Step 4 : TPC vs. VPD z Vertex using <East> & <West>
it3avg
Entries 10319
Mean −0.04181
Std Dev 4.65
χ^2 / ndf 1219 / 197
Constant 147.3 ± 2.8
Mean 0.03506 ± 0.02224
Sigma 1.754 ± 0.025
[#]
10^2
10
1
−10
0
10
z_{TPC} - z_{VPD} [cm]

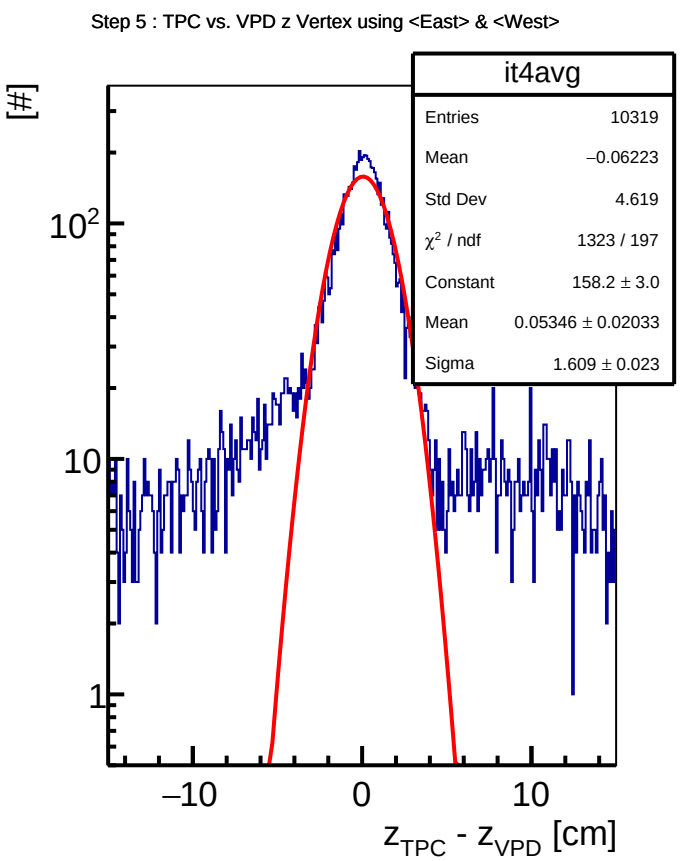

Step 4 : TPC vs. VPD z Vertex
it3zTPCzVPD
Entries 1301882
Mean x −4.54
Mean y −3.495
Std Dev x 15.96
Std Dev y 25.07
z_{VPD}
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC}

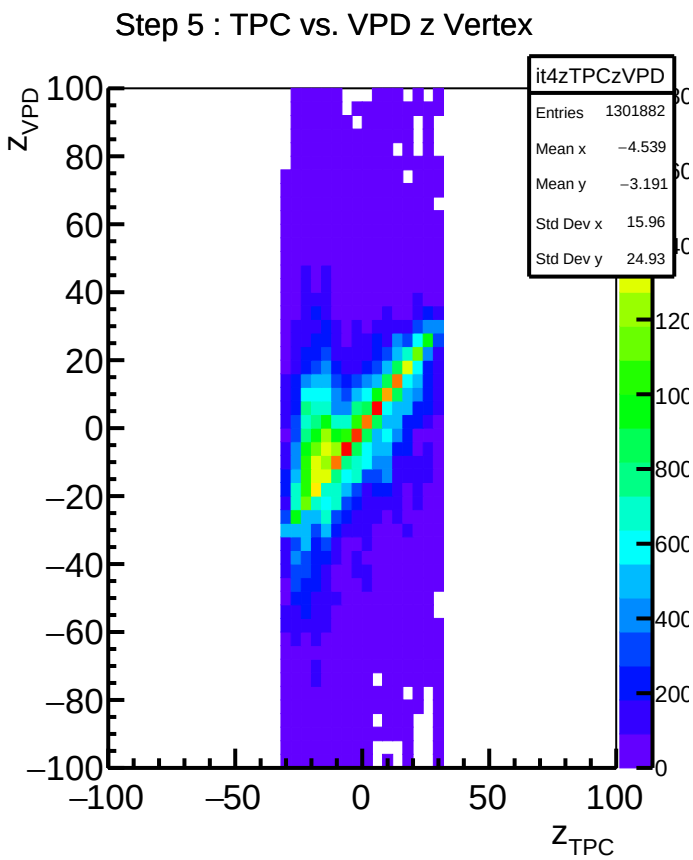

Step 4 : TPC vs. VPD z Vertex using <East> & <West>
it3zTPCzVPDAvg
Entries 10319
Mean x −1.88
Mean y −1.577
Std Dev x 15.83
Std Dev y 21.01
z_{VPD} [cm]
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC} [cm]

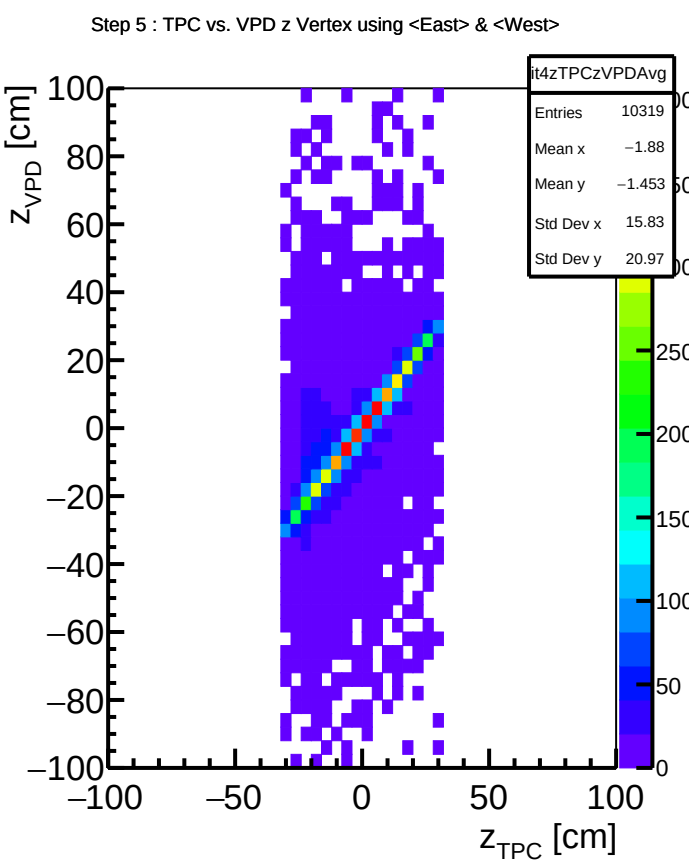

Step 4 : # of Accepted Detectors
[#]
East
West
it3nAcceptedEast
Entries 17355
10^4
10^3
10^2
0 2 4 6 8 10 12 14 16 18
# of Detectors

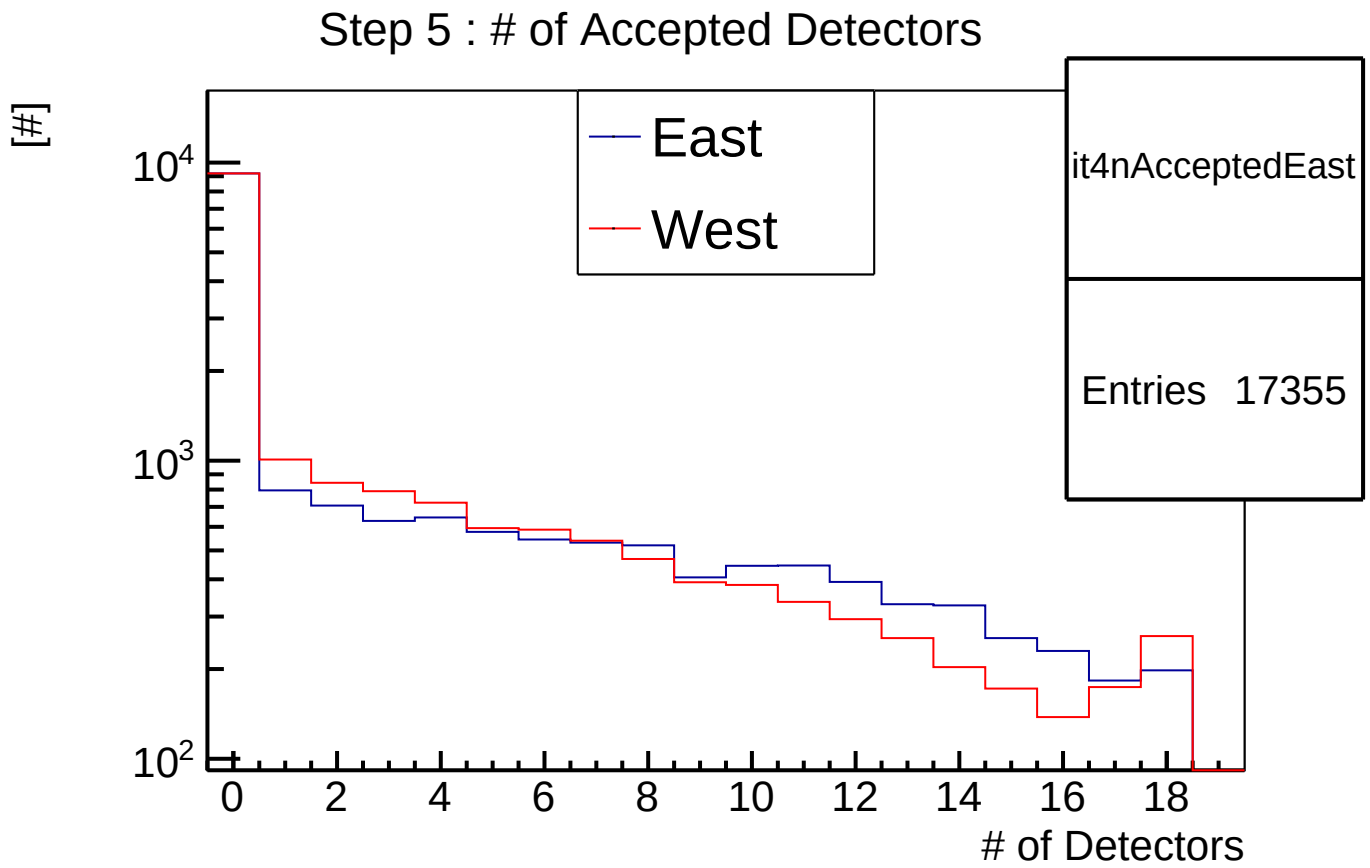

Step 4 : # of Valid Pairs
[#]
it3nValidPairs
Entries 17355
10^4
10^3
10^2
10
1
0 50 100 150 200 250 300
# of Pairs

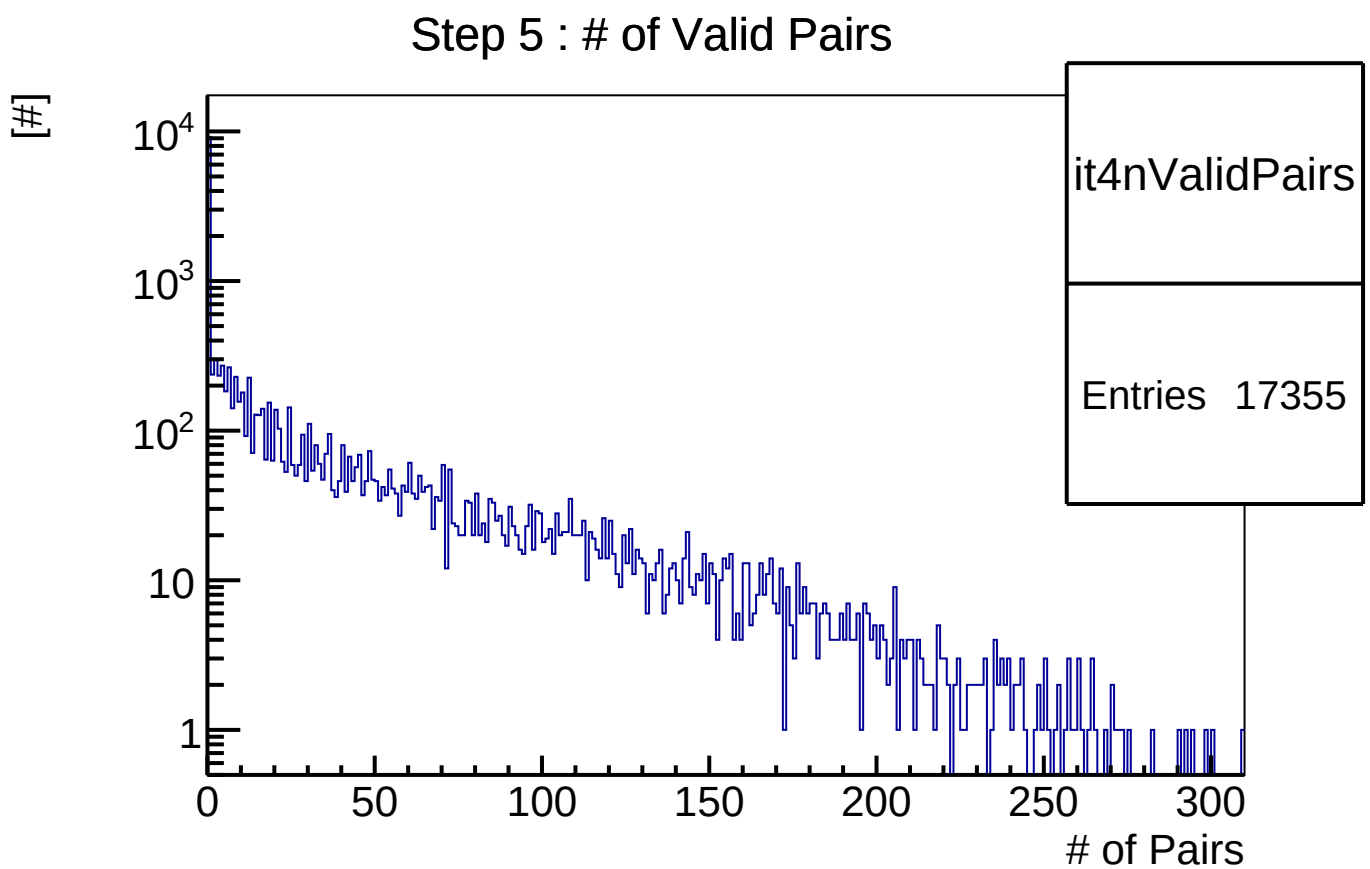

Step 5 : Outlier Rejection
it4All
Entries 1301882
Mean −1.071
Std Dev 28.22
[#]
10^4
10^3
10^2
10
1
−200
−100
0
100
200
z_{TPC} - z_{VPD}

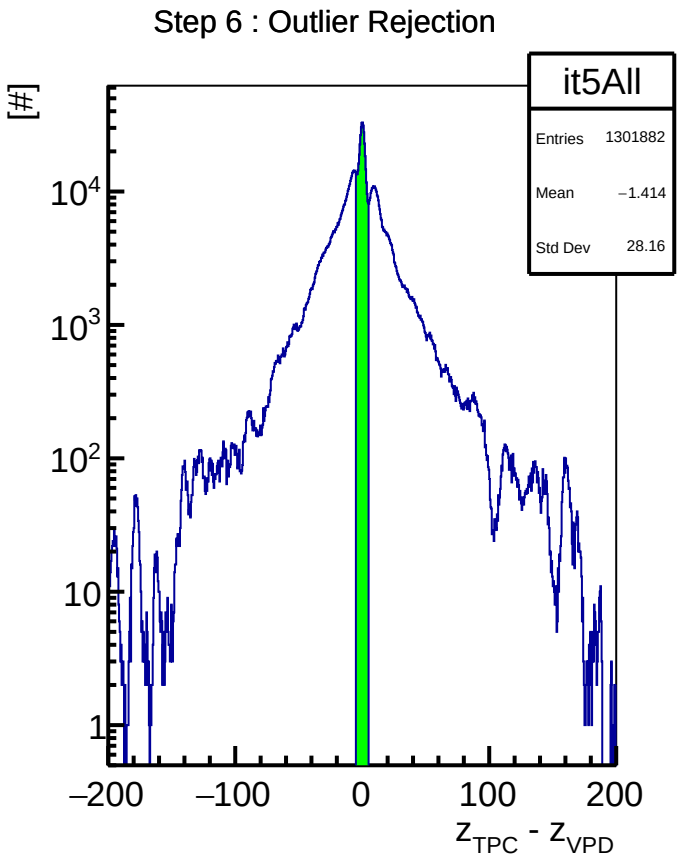

Step 5 : TPC vs. VPD z Vertex using <East> & <West>
it4avg
Entries 10319
Mean −0.06223
Std Dev 4.619
χ^2 / ndf 1323 / 197
Constant 158.2 ± 3.0
Mean 0.05346 ± 0.02033
Sigma 1.609 ± 0.023
[#]
10^2
10
1
−10
0
10
z_{TPC} - z_{VPD} [cm]

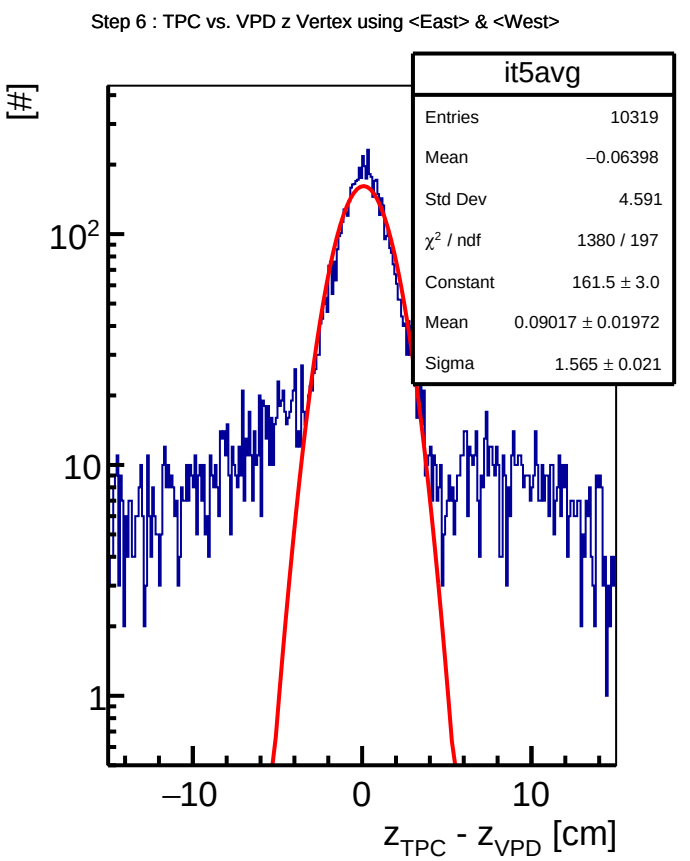

Step 5 : TPC vs. VPD z Vertex
it4zTPCzVPD
Entries 1301882
Mean x −4.539
Mean y −3.191
Std Dev x 15.96
Std Dev y 24.93
z_{VPD}
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC}

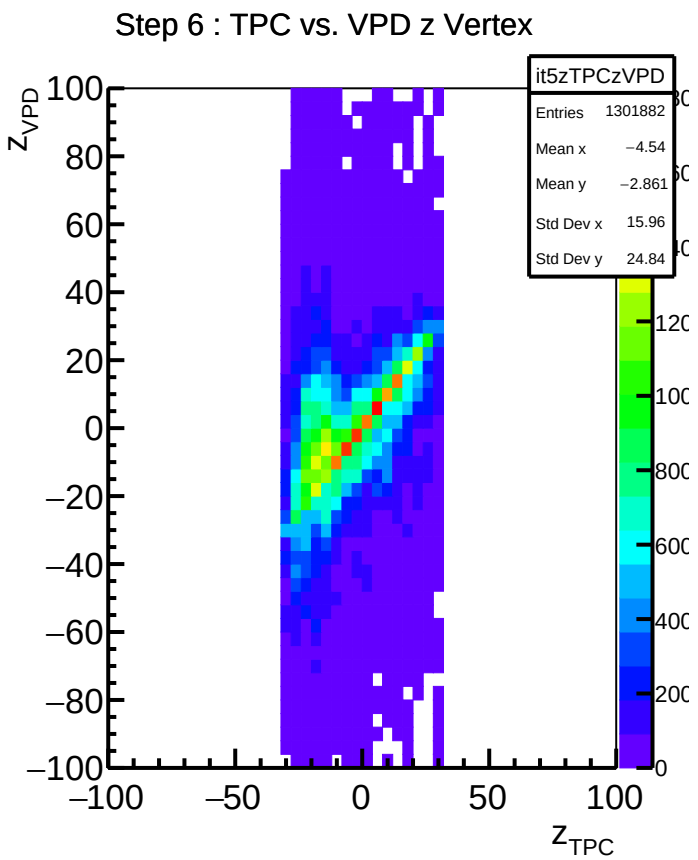

Step 5 : TPC vs. VPD z Vertex using <East> & <West>
it4zTPCzVPDAvg
Entries 10319
Mean x −1.88
Mean y −1.453
Std Dev x 15.83
Std Dev y 20.97
z_{VPD} [cm]
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC} [cm]

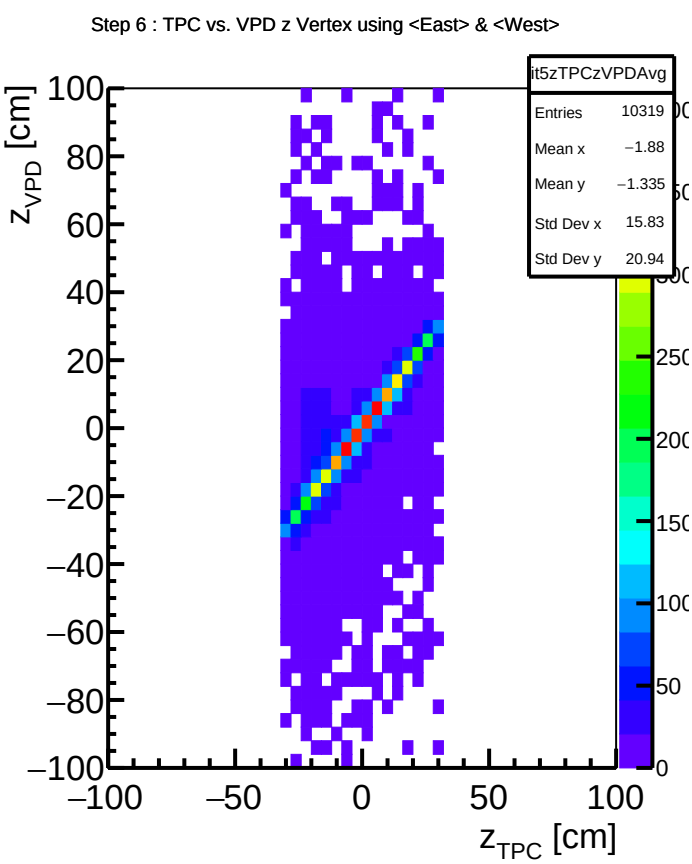

Step 5 : # of Accepted Detectors
[#]
East
West
it4nAcceptedEast
Entries 17355
10^4
10^3
10^2
0 2 4 6 8 10 12 14 16 18
# of Detectors

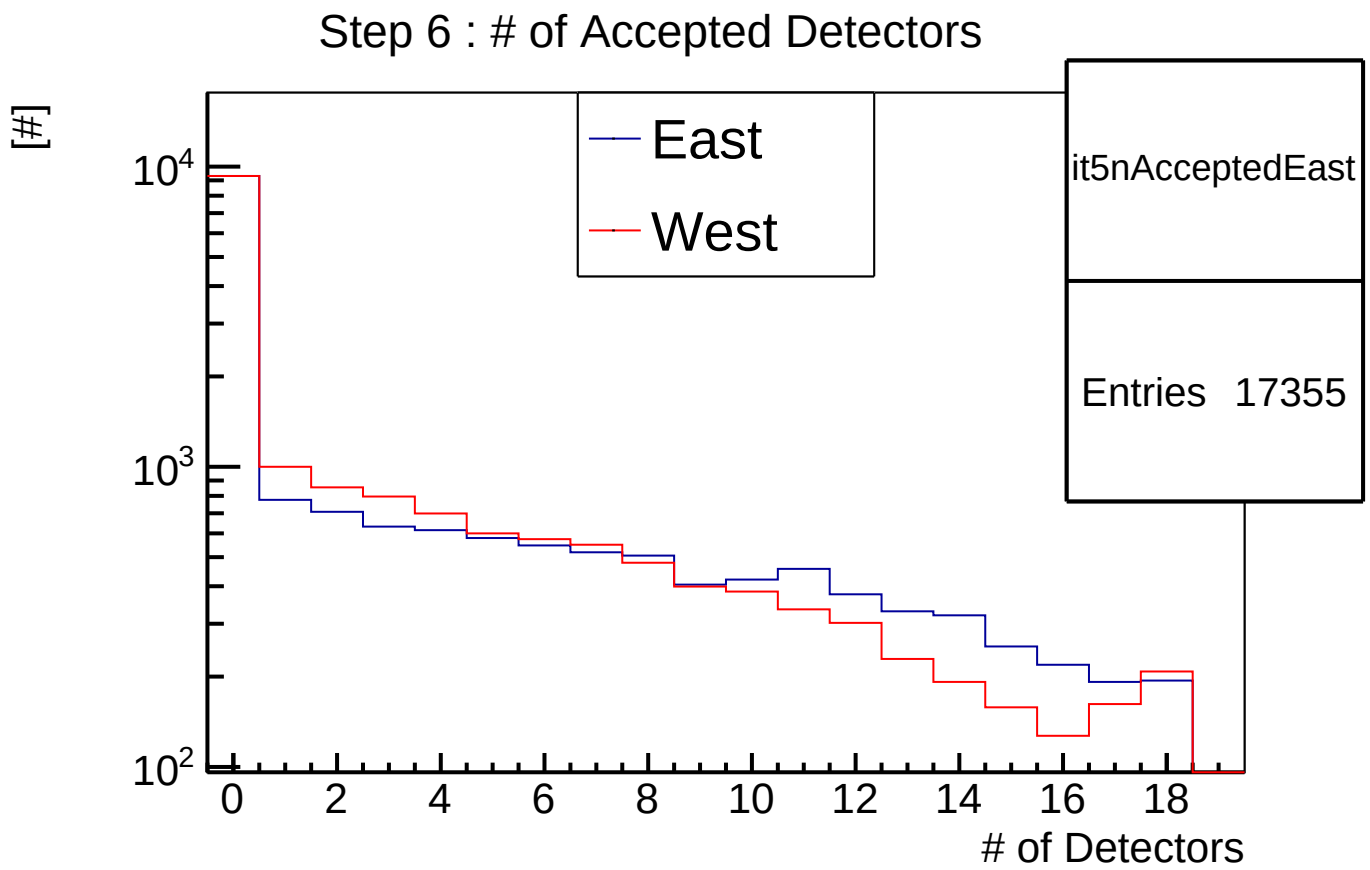

Step 5 : # of Valid Pairs
[#]
it4nValidPairs
Entries 17355
10^4
10^3
10^2
10
1
0 50 100 150 200 250 300
# of Pairs

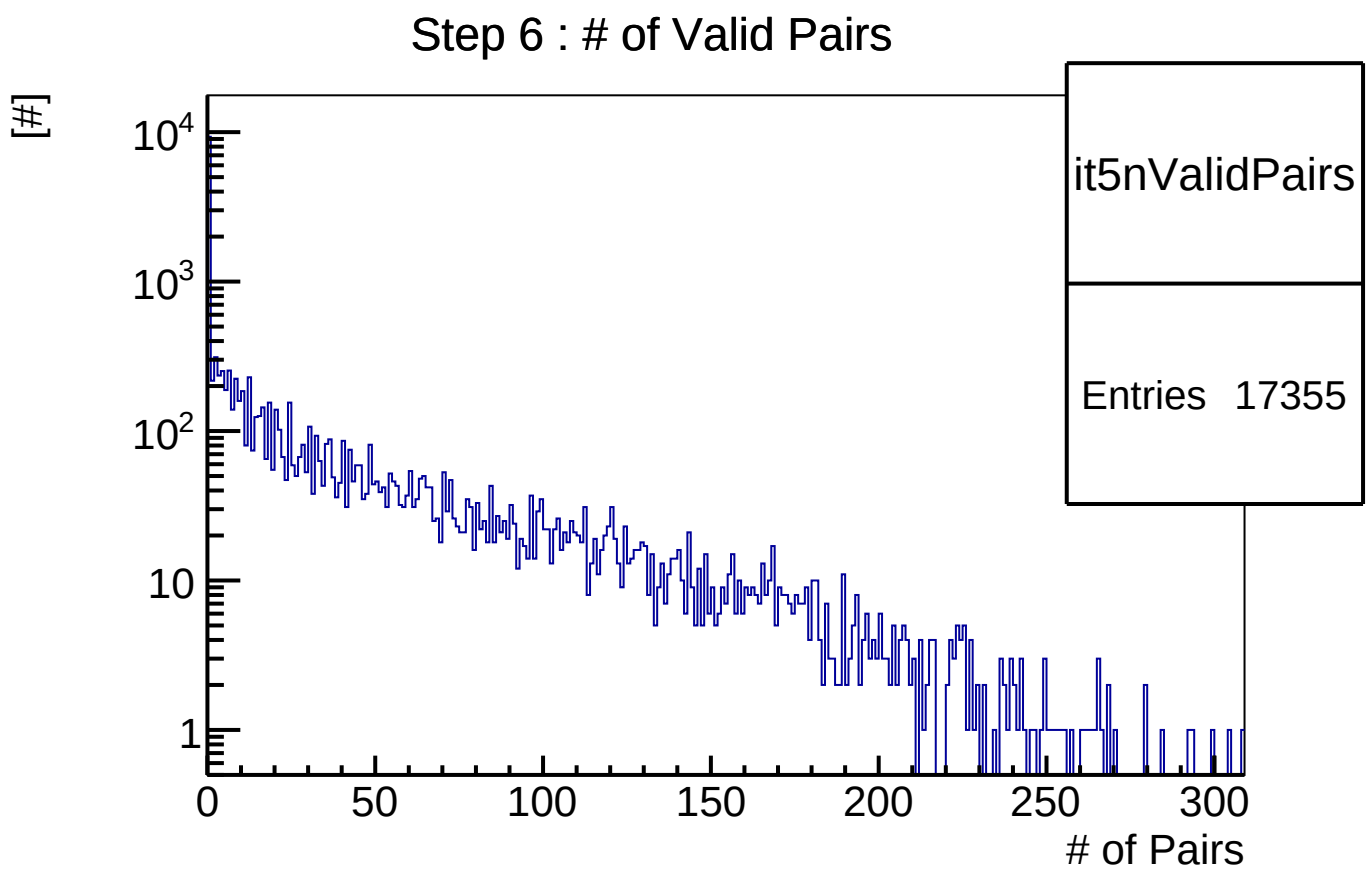

Step 6 : Outlier Rejection
it5All
Entries 1301882
Mean −1.414
Std Dev 28.16
[#]
10^4
10^3
10^2
10
1
−200
−100
0
100
200
z_{TPC} - z_{VPD}

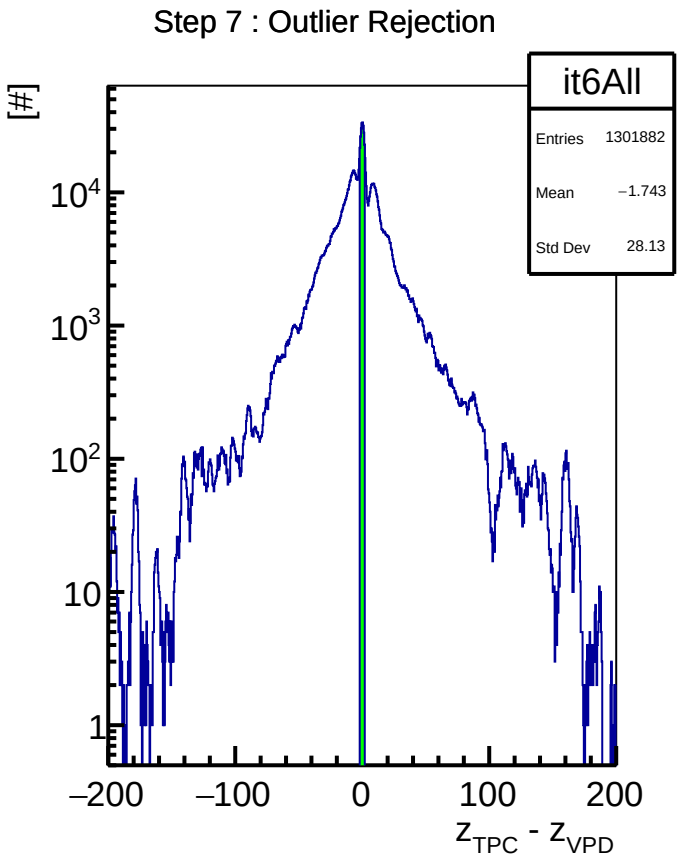

Step 6 : TPC vs. VPD z Vertex using <East> & <West>
it5avg
Entries 10319
Mean −0.06398
Std Dev 4.591
χ^2 / ndf 1380 / 197
Constant 161.5 ± 3.0
Mean 0.09017 ± 0.01972
Sigma 1.565 ± 0.021
[#]
10^2
10
1
−10
0
10
z_{TPC} - z_{VPD} [cm]

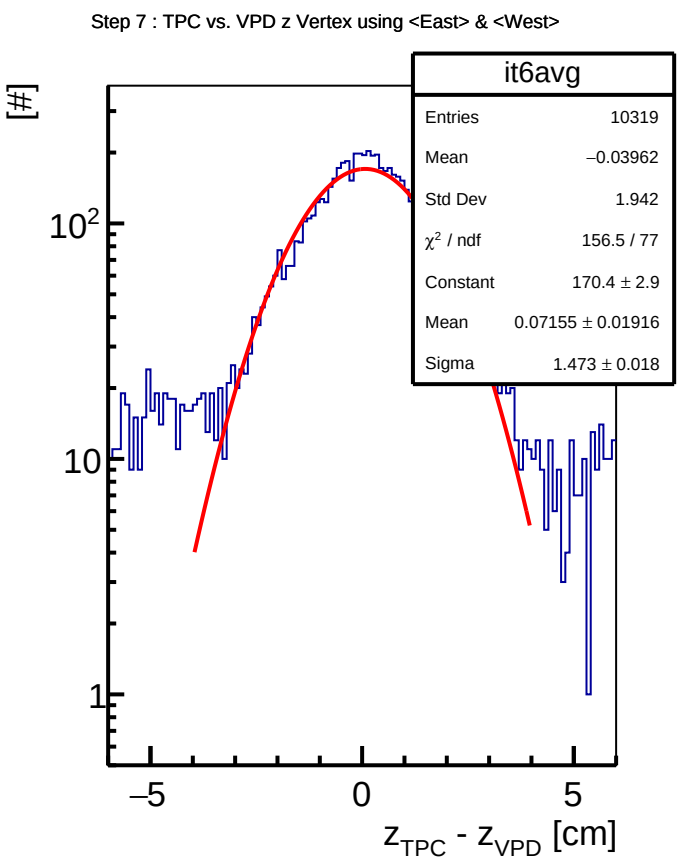

Step 6 : TPC vs. VPD z Vertex
it5zTPCzVPD
Entries 1301882
Mean x −4.54
Mean y −2.861
Std Dev x 15.96
Std Dev y 24.84
z_{VPD}
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC}

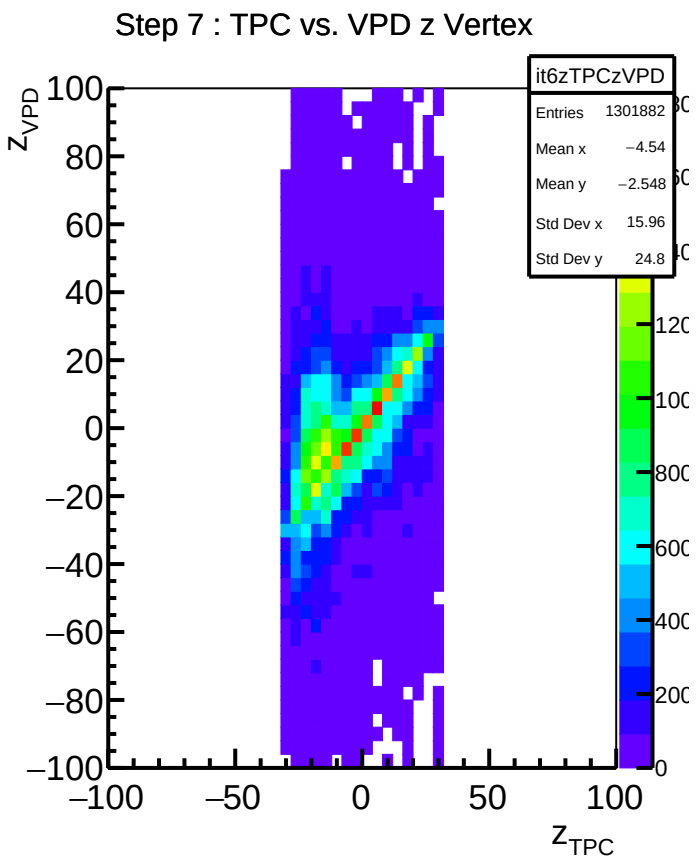

Step 6 : TPC vs. VPD z Vertex using <East> & <West>
it5zTPCzVPDAvg
Entries 10319
Mean x −1.88
Mean y −1.335
Std Dev x 15.83
Std Dev y 20.94
z_{VPD} [cm]
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC} [cm]

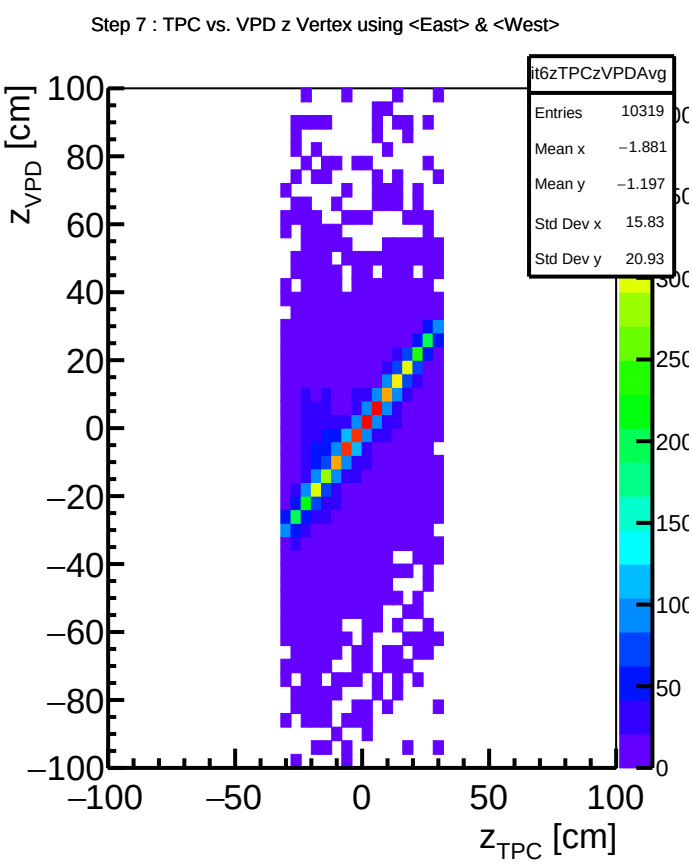

Step 6 : # of Accepted Detectors
[#]
East
West
it5nAcceptedEast
Entries 17355
10^4
10^3
10^2
0 2 4 6 8 10 12 14 16 18
# of Detectors

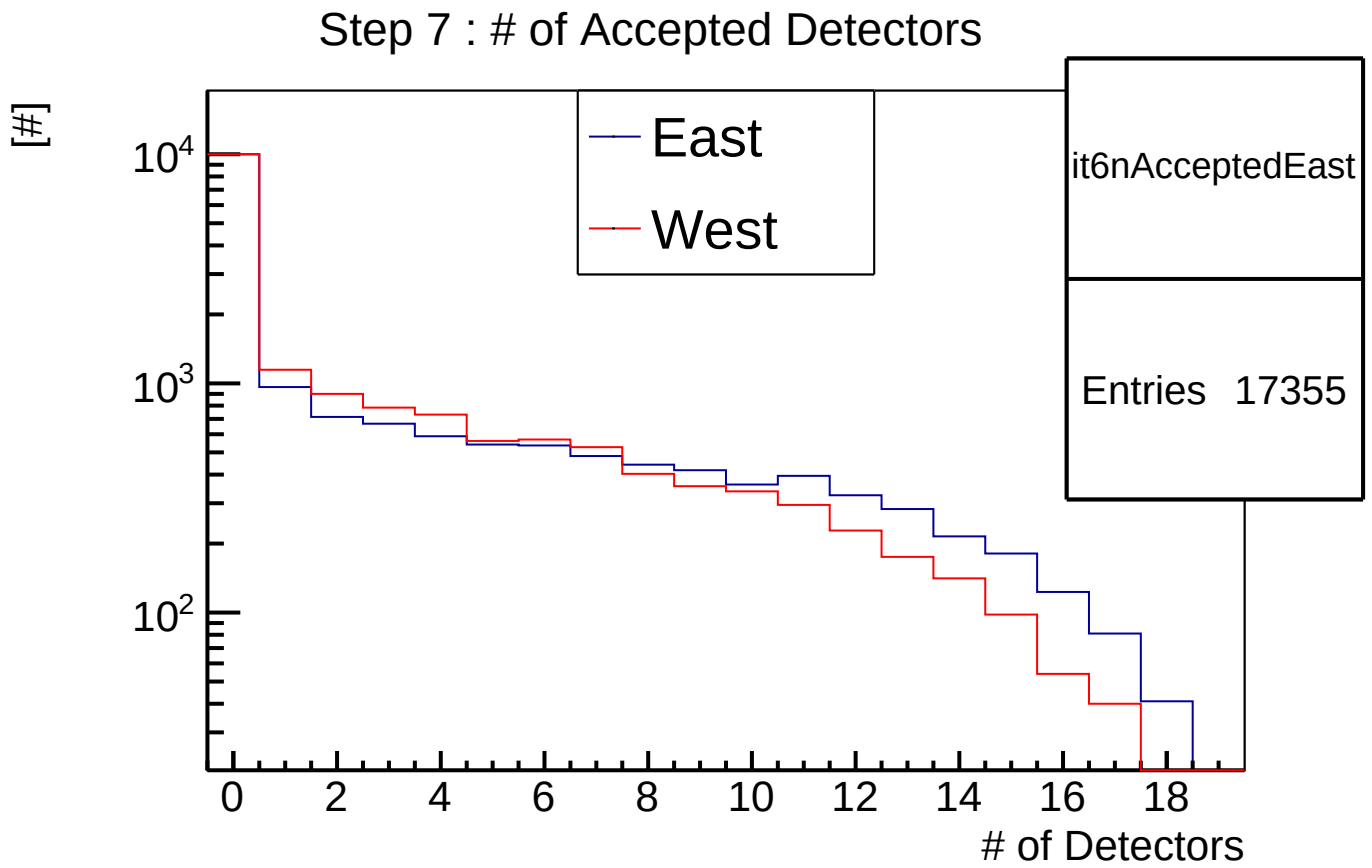

Step 6 : # of Valid Pairs
[#]
it5nValidPairs
Entries 17355
10^4
10^3
10^2
10
1
0 50 100 150 200 250 300
# of Pairs

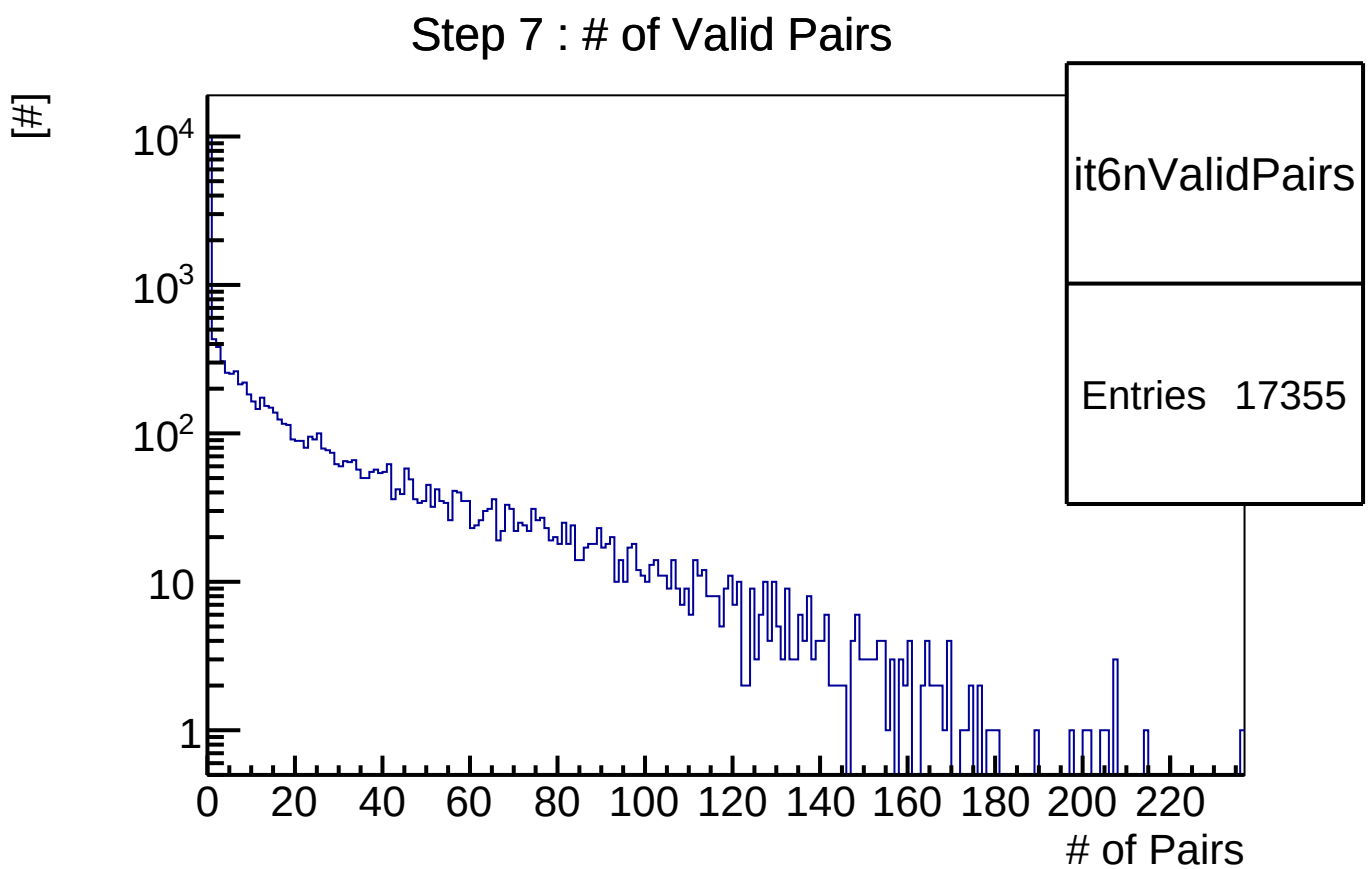

Step 7 : Outlier Rejection
it6All
Entries 1301882
Mean −1.743
Std Dev 28.13
[#]
10^4
10^3
10^2
10
1
−200
−100
0
100
200
z_{TPC} - z_{VPD}

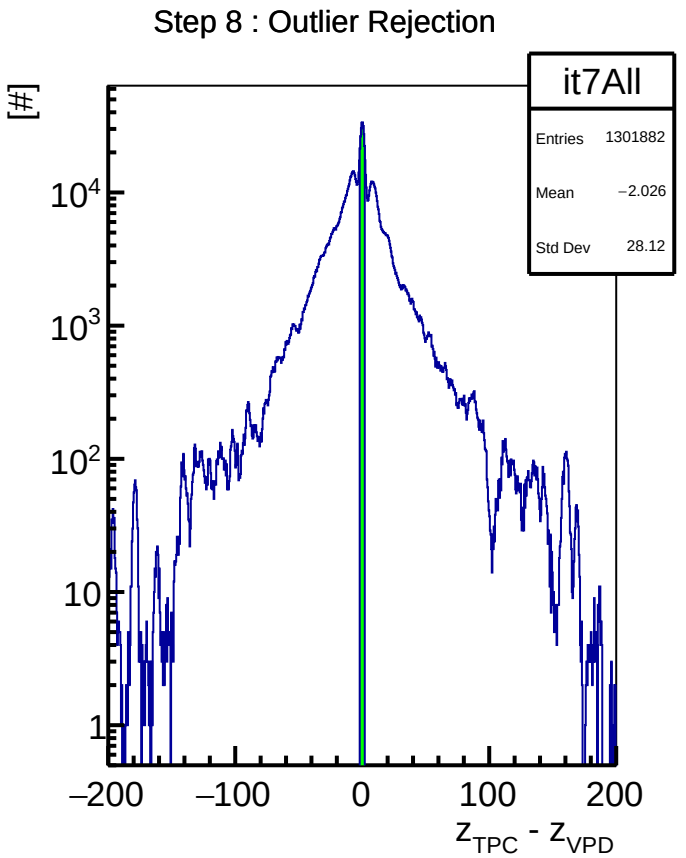

Step 7 : TPC vs. VPD z Vertex using <East> & <West>
it6avg
Entries 10319
Mean −0.03962
Std Dev 1.942
χ^2 / ndf 156.5 / 77
Constant 170.4 ± 2.9
Mean 0.07155 ± 0.01916
Sigma 1.473 ± 0.018
[#]
10^2
10
1
−5
0
5
z_{TPC} - z_{VPD} [cm]

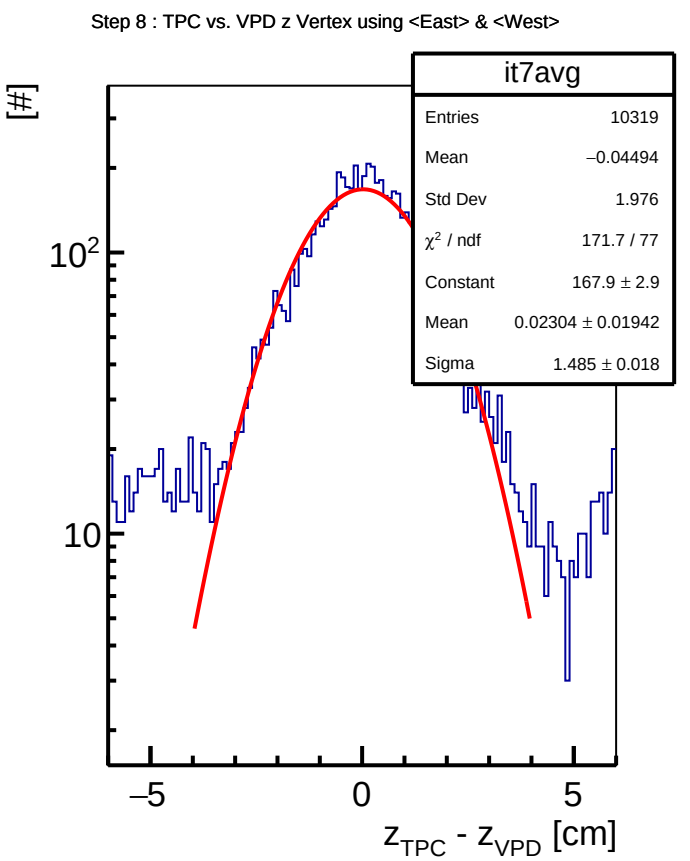

Step 7 : TPC vs. VPD z Vertex
it6zTPCzVPD
Entries 1301882
Mean x −4.54
Mean y −2.548
Std Dev x 15.96
Std Dev y 24.8
z_{VPD}
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC}

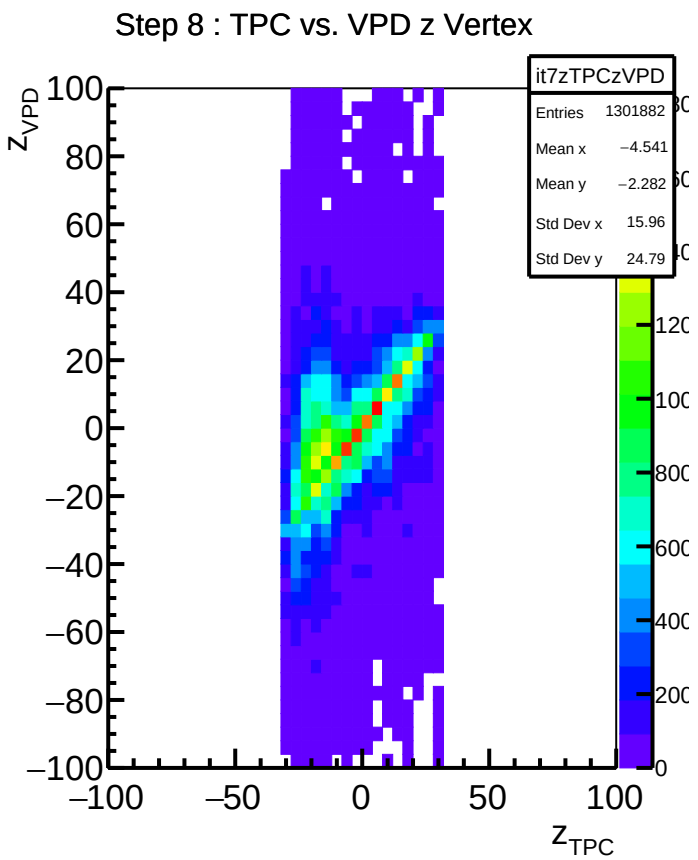

Step 7 : TPC vs. VPD z Vertex using <East> & <West>
it6zTPCzVPDAvg
Entries 10319
Mean x −1.881
Mean y −1.197
Std Dev x 15.83
Std Dev y 20.93
z_{VPD} [cm]
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC} [cm]

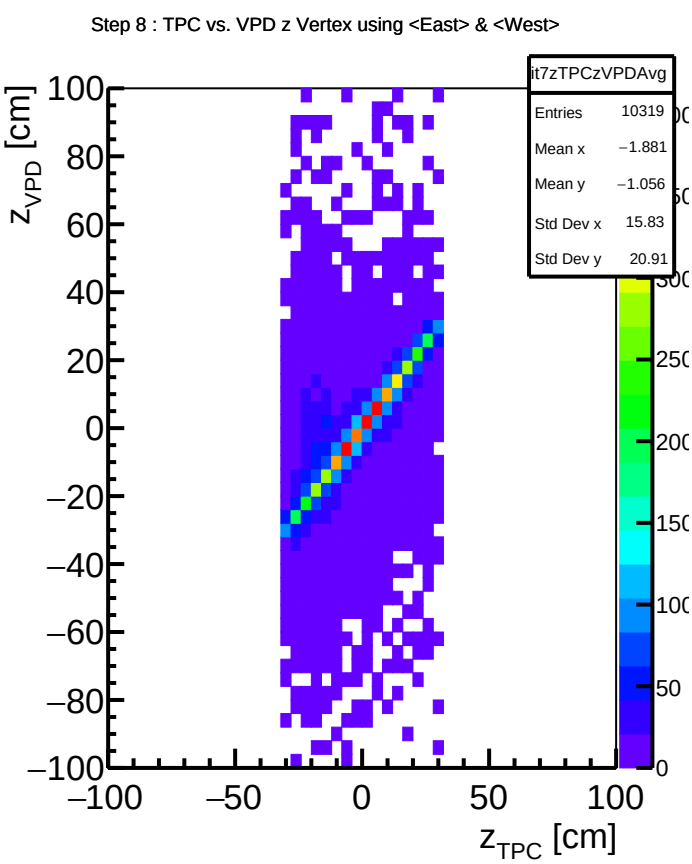

Step 7 : # of Accepted Detectors
[#]
East
West
it6nAcceptedEast
Entries 17355
# of Detectors

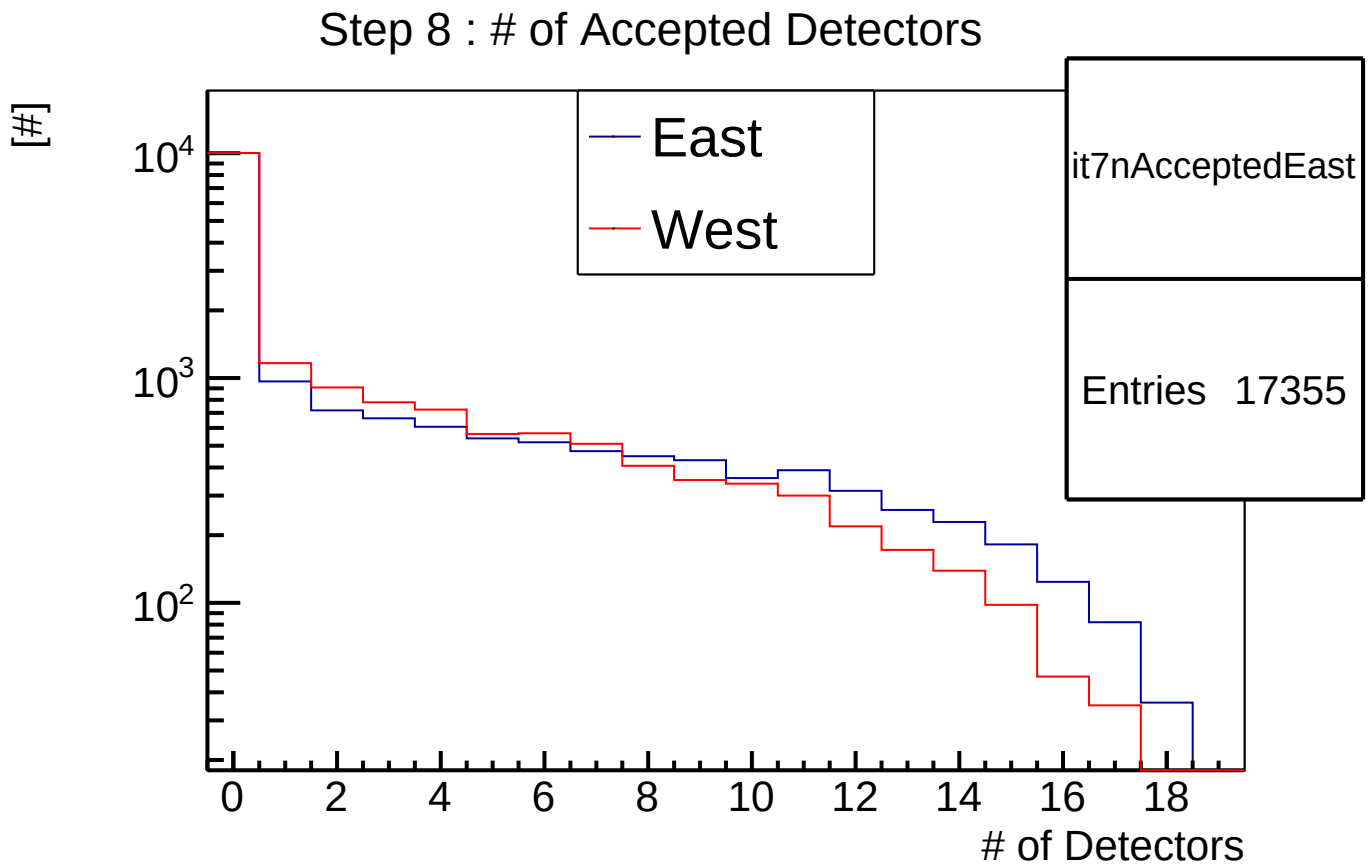

Step 7 : # of Valid Pairs
[#]
it6nValidPairs
Entries 17355
# of Pairs

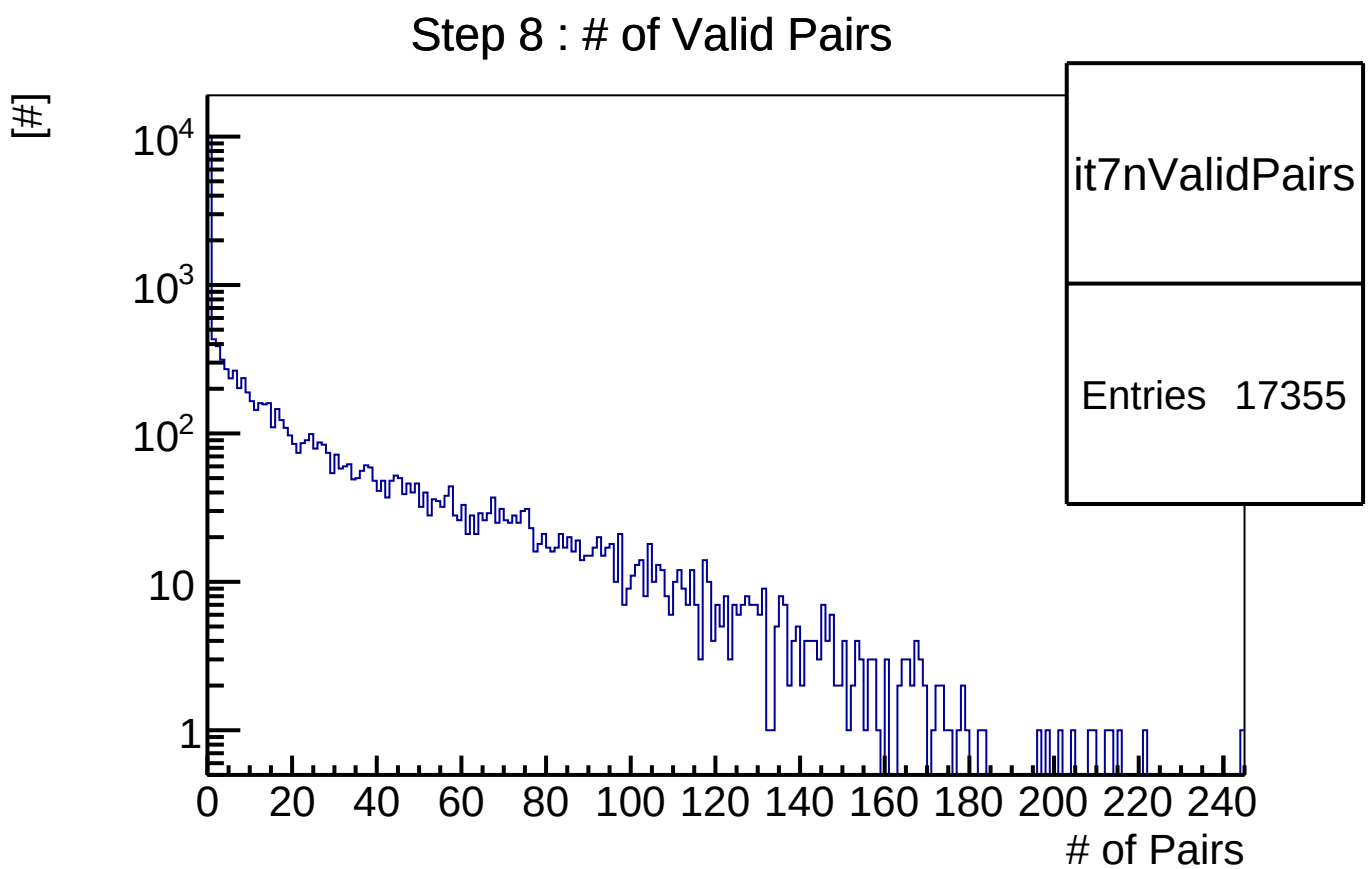

Step 8 : Outlier Rejection
it7All
Entries 1301882
Mean −2.026
Std Dev 28.12
[#]
10^4
10^3
10^2
10
1
−200
−100
0
100
200
z_{TPC} - z_{VPD}

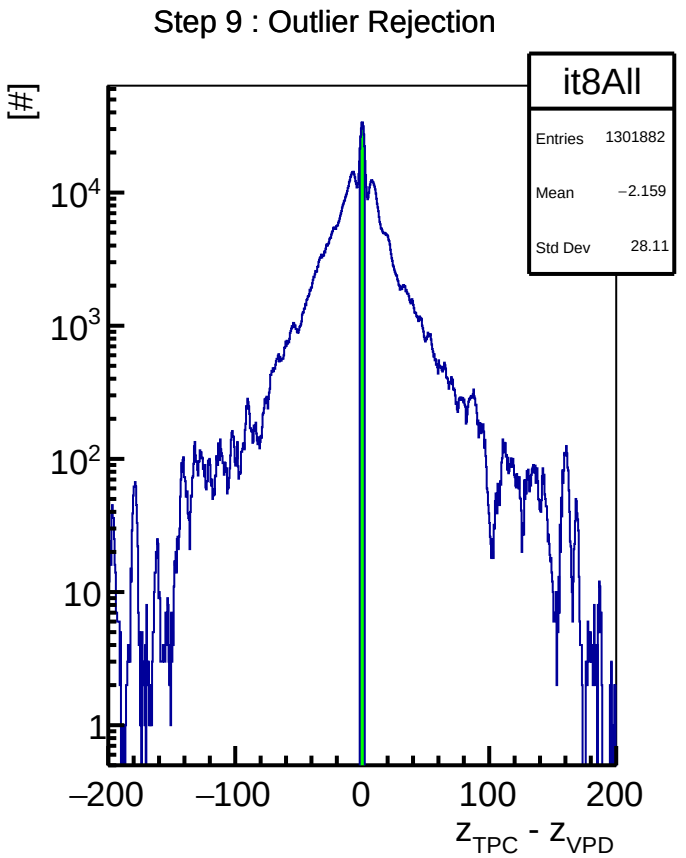

Step 8 : TPC vs. VPD z Vertex using <East> & <West>
it7avg
Entries 10319
Mean −0.04494
Std Dev 1.976
χ^2 / ndf 171.7 / 77
Constant 167.9 ± 2.9
Mean 0.02304 ± 0.01942
Sigma 1.485 ± 0.018
[#]
10^2
10
−5
0
5
z_{TPC} - z_{VPD} [cm]

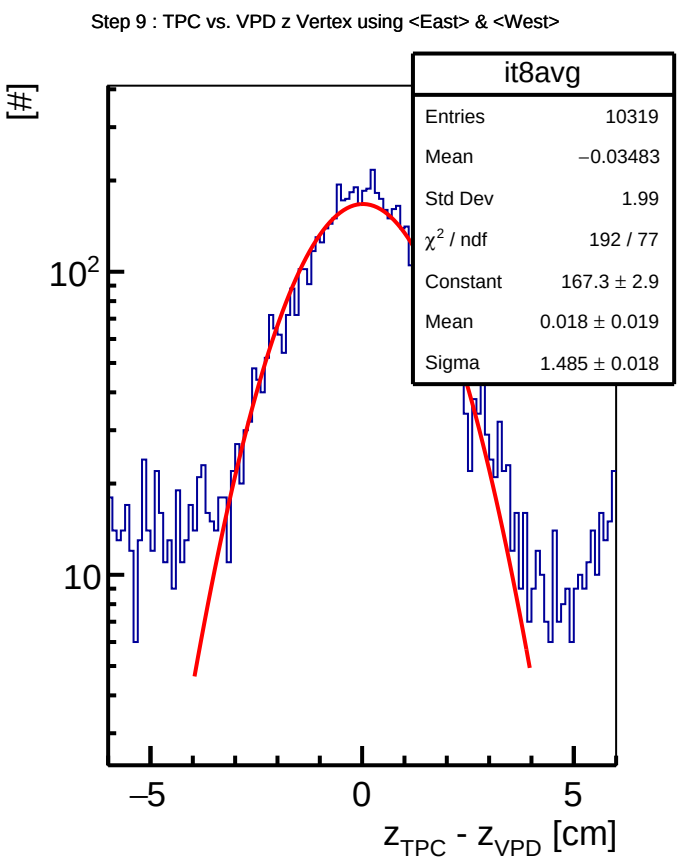

Step 8 : TPC vs. VPD z Vertex
it7zTPCzVPD
Entries 1301882
Mean x −4.541
Mean y −2.282
Std Dev x 15.96
Std Dev y 24.79
z_{VPD}
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC}

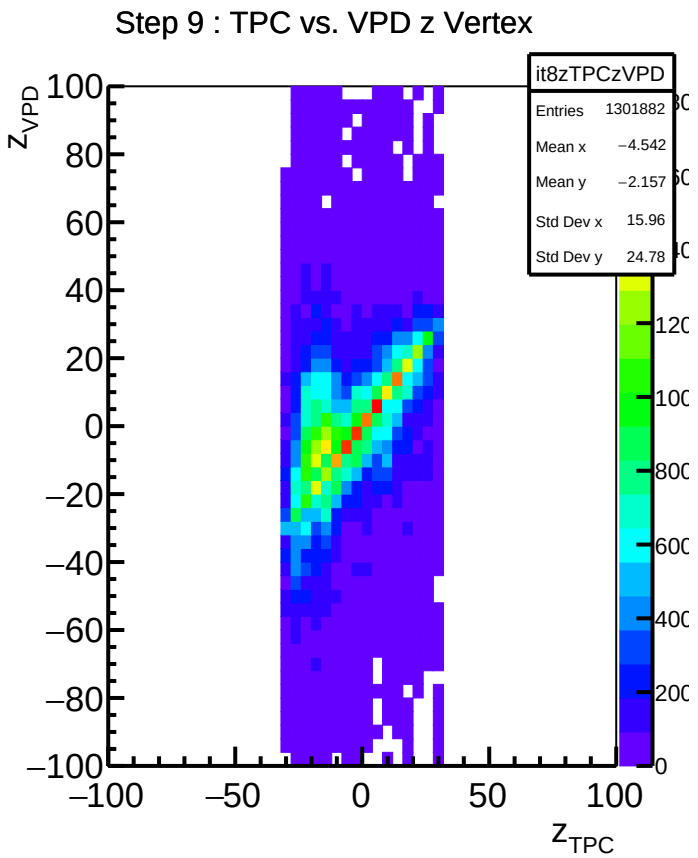

Step 8 : TPC vs. VPD z Vertex using <East> & <West>
it7zTPCzVPDAvg
Entries 10319
Mean x −1.881
Mean y −1.056
Std Dev x 15.83
Std Dev y 20.91
z_{VPD} [cm]
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC} [cm]

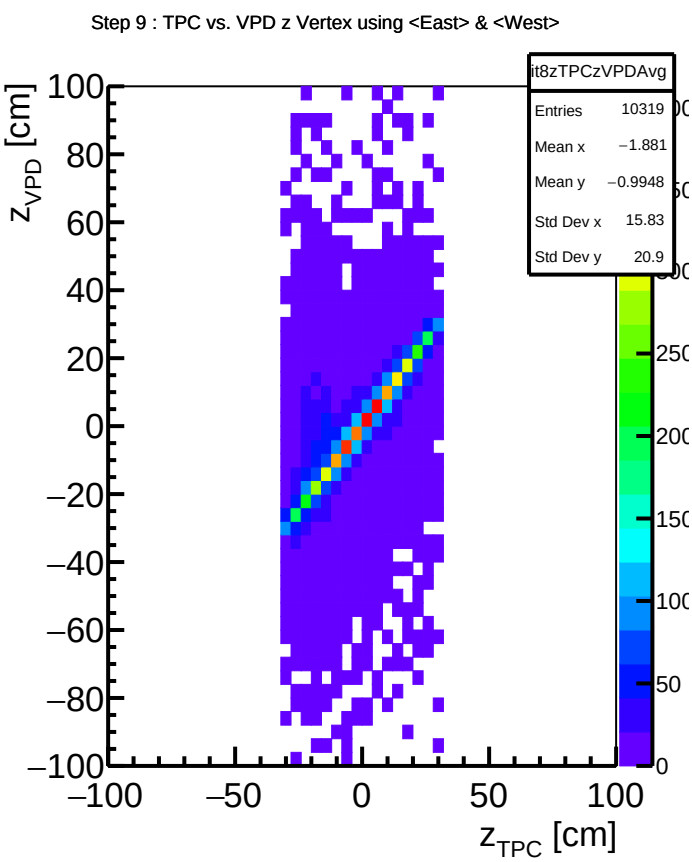

Step 8 : # of Accepted Detectors
[#]
East
West
it7nAcceptedEast
Entries 17355
10^4
10^3
10^2
0 2 4 6 8 10 12 14 16 18
# of Detectors

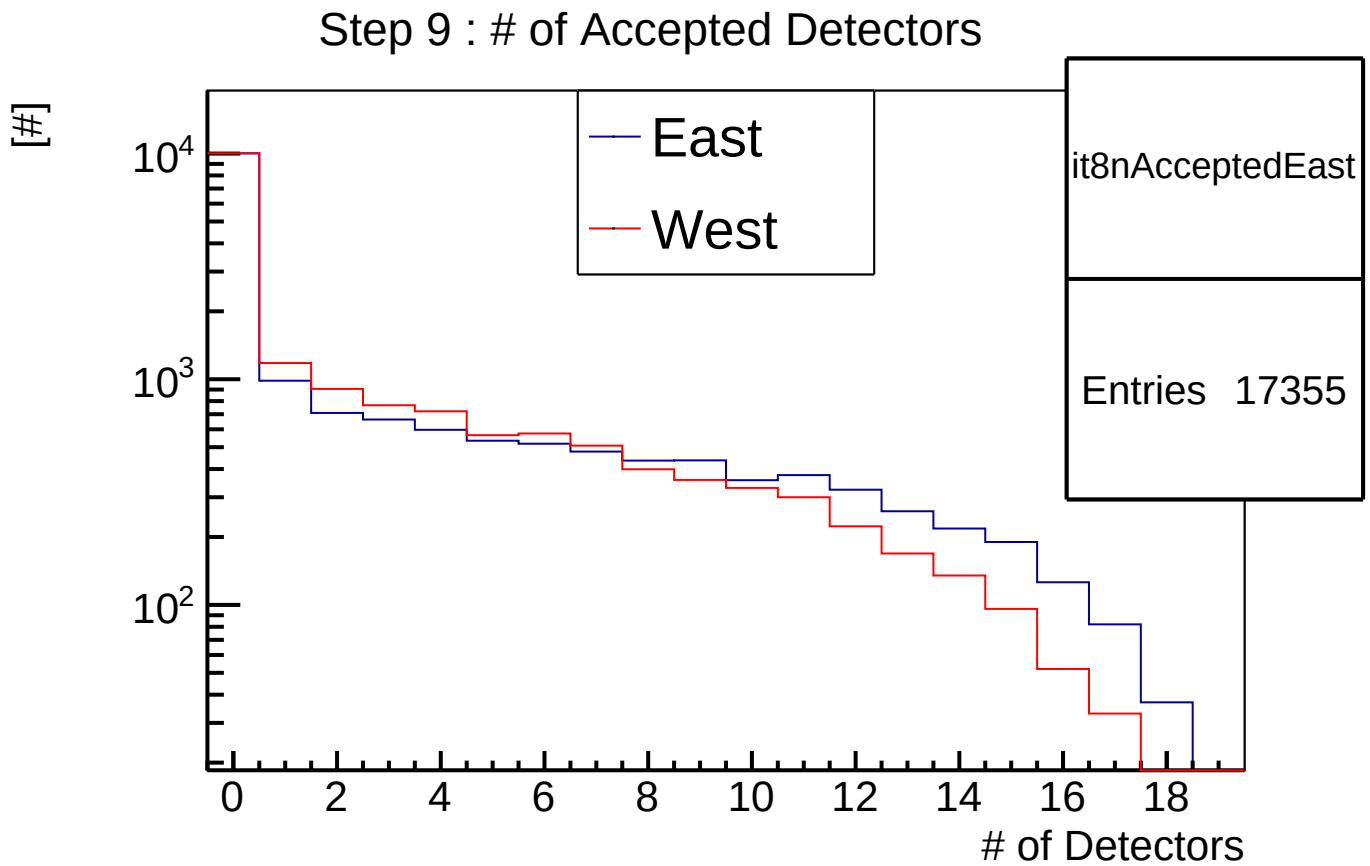

Step 8 : # of Valid Pairs
[#]
it7nValidPairs
Entries 17355
10^4
10^3
10^2
10
1
0 20 40 60 80 100 120 140 160 180 200 220 240
# of Pairs

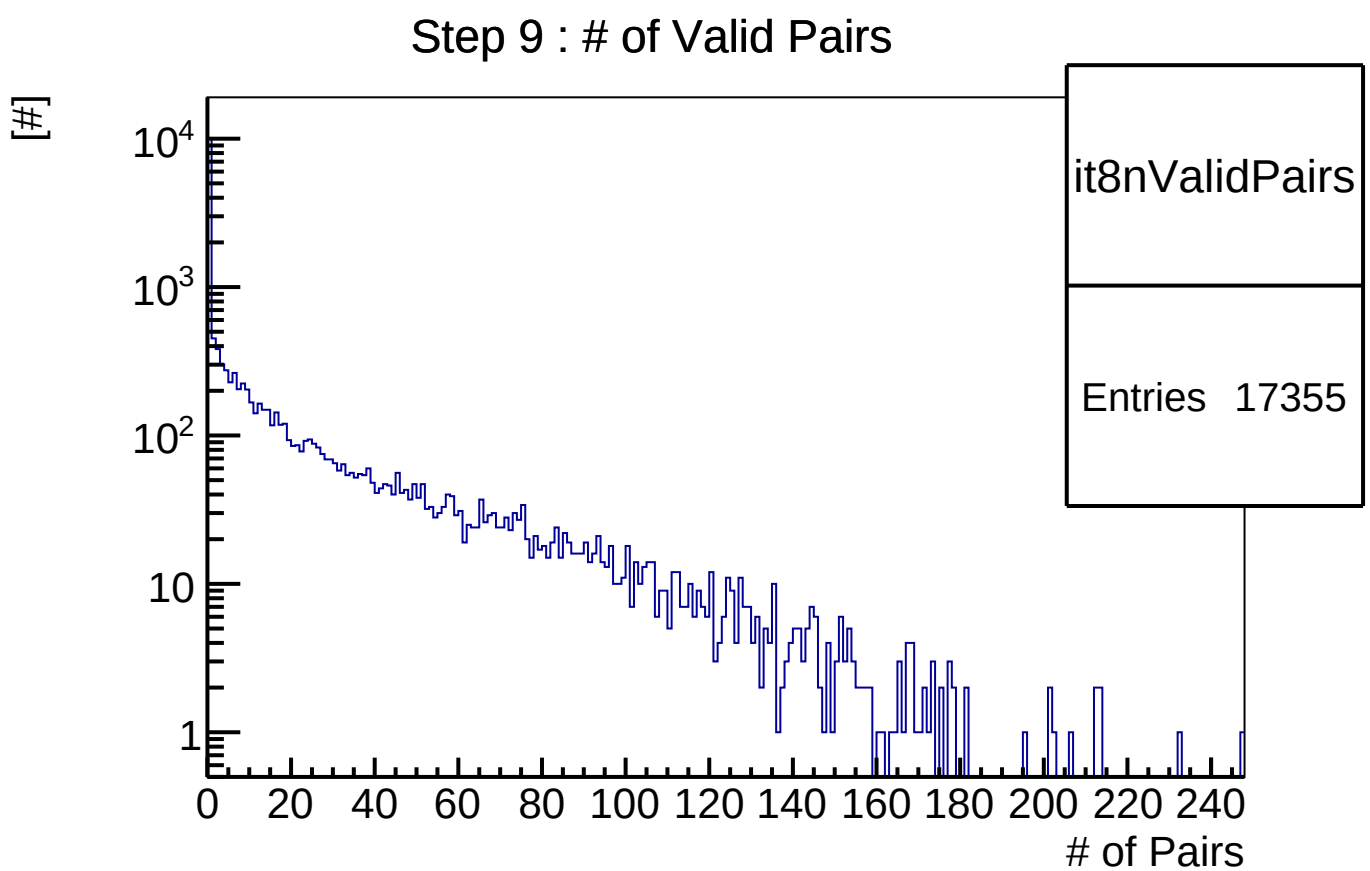

Step 9 : Outlier Rejection
it8All
Entries 1301882
Mean −2.159
Std Dev 28.11
[#]
10^4
10^3
10^2
10
1
−200
−100
0
100
200
z_{TPC} - z_{VPD}

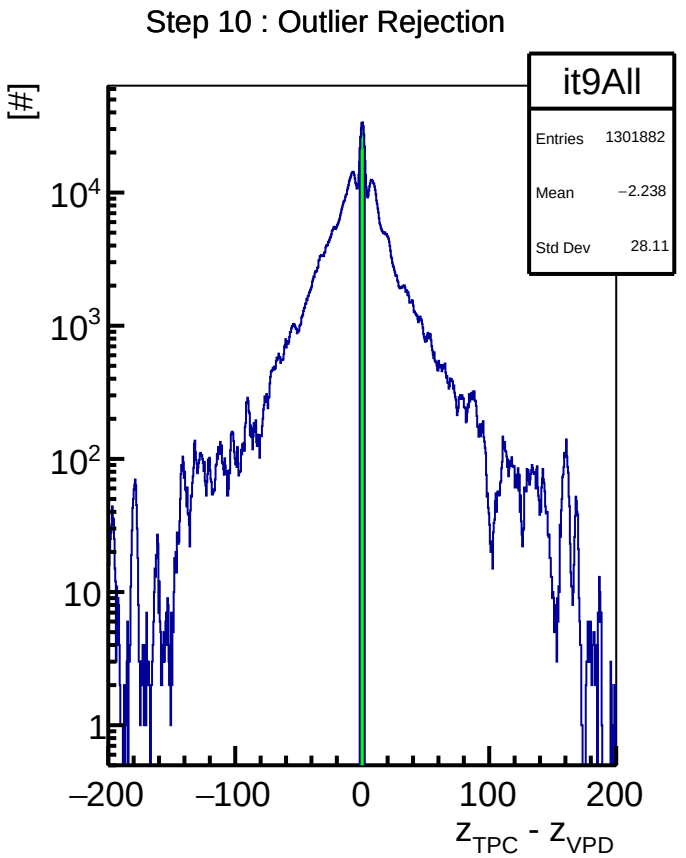

Step 9 : TPC vs. VPD z Vertex using <East> & <West>
it8avg
Entries 10319
Mean −0.03483
Std Dev 1.99
χ^2 / ndf 192 / 77
Constant 167.3 ± 2.9
Mean 0.018 ± 0.019
Sigma 1.485 ± 0.018
[#]
10^2
10
−5
0
5
z_{TPC} - z_{VPD} [cm]

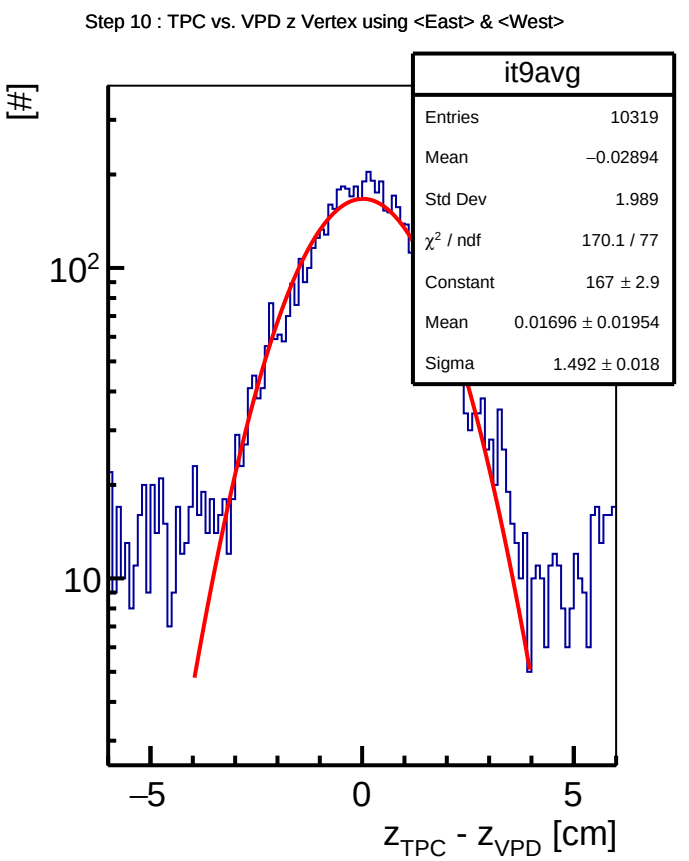

Step 9 : TPC vs. VPD z Vertex
it8zTPCzVPD
Entries 1301882
Mean x −4.542
Mean y −2.157
Std Dev x 15.96
Std Dev y 24.78
z_{VPD}
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC}

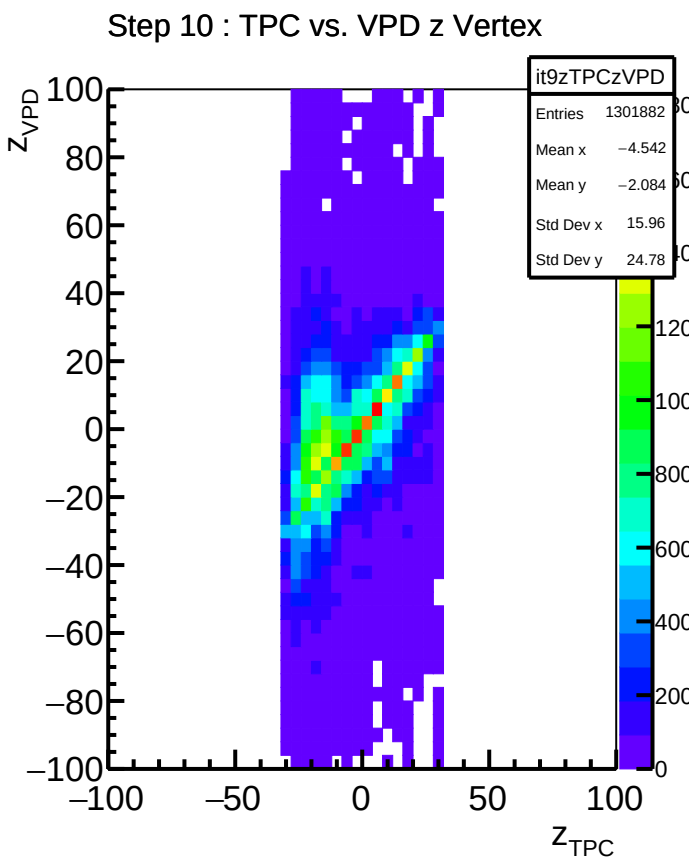

Step 9 : TPC vs. VPD z Vertex using <East> & <West>
it8zTPCzVPDAvg
Entries 10319
Mean x −1.881
Mean y −0.9948
Std Dev x 15.83
Std Dev y 20.9
z_{VPD} [cm]
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC} [cm]

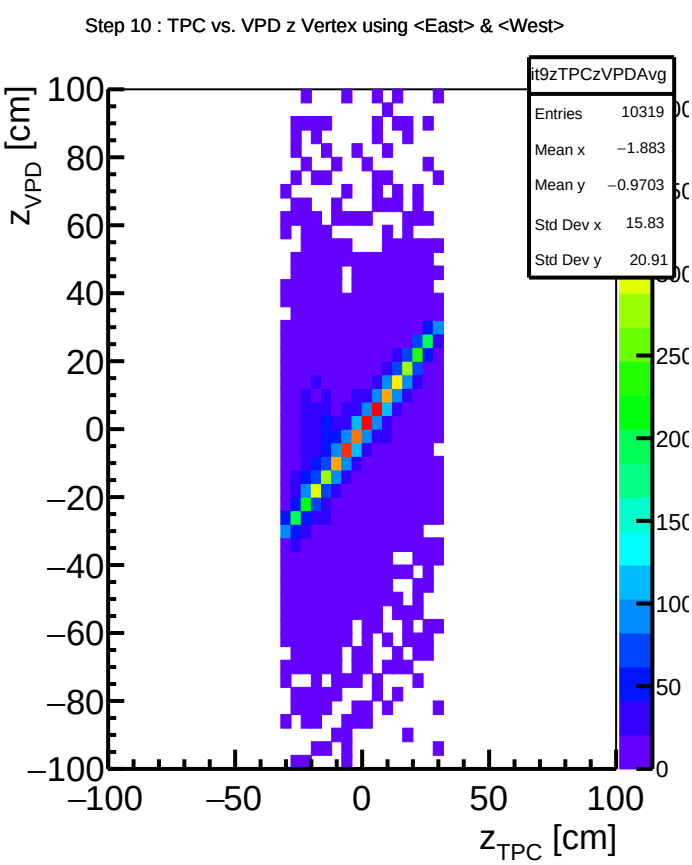

Step 9 : # of Accepted Detectors
[#]
East
West
it8nAcceptedEast
Entries 17355
10^4
10^3
10^2
0 2 4 6 8 10 12 14 16 18
# of Detectors

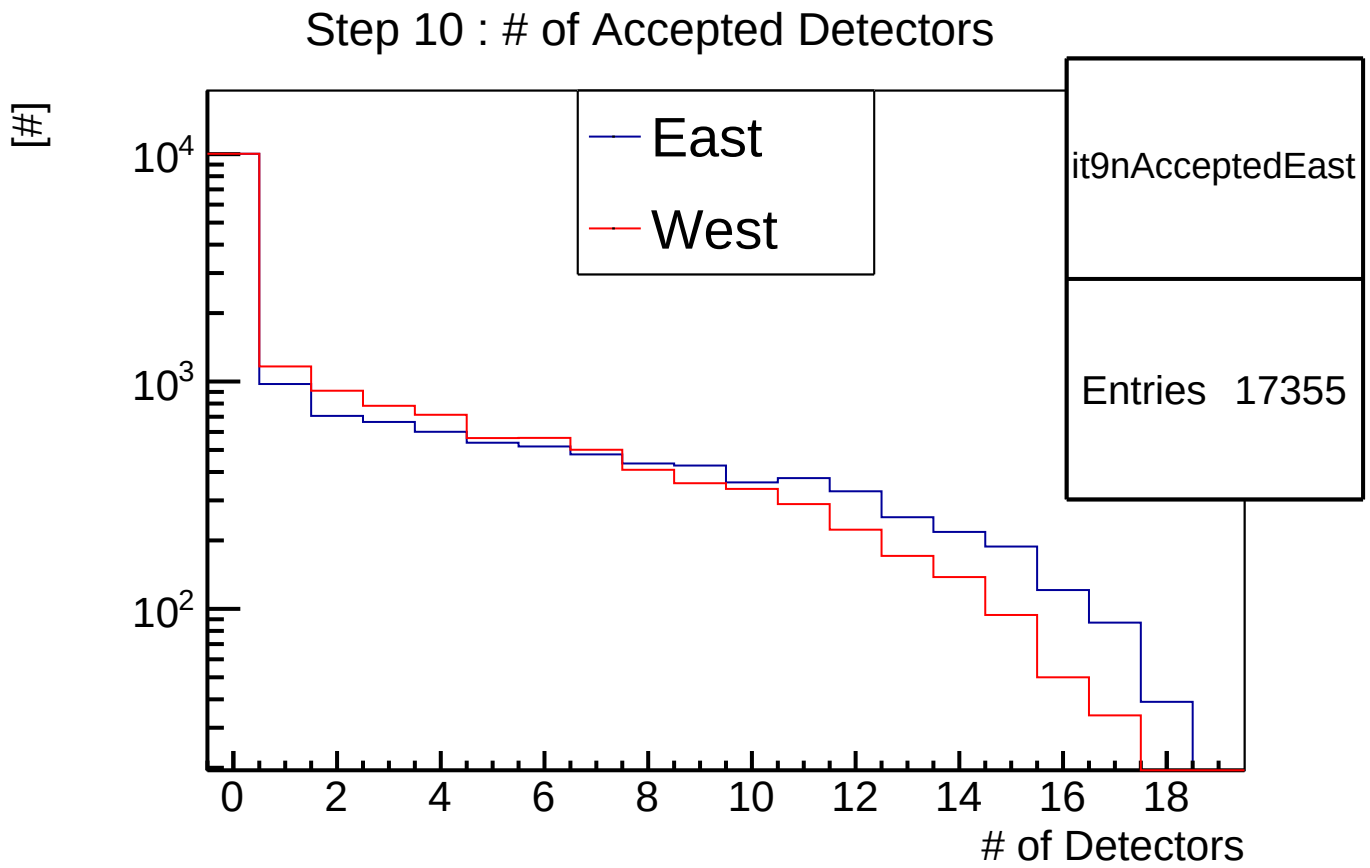

Step 9 : # of Valid Pairs
[#]
it8nValidPairs
Entries 17355
10^4
10^3
10^2
10
1
0 20 40 60 80 100 120 140 160 180 200 220 240
# of Pairs

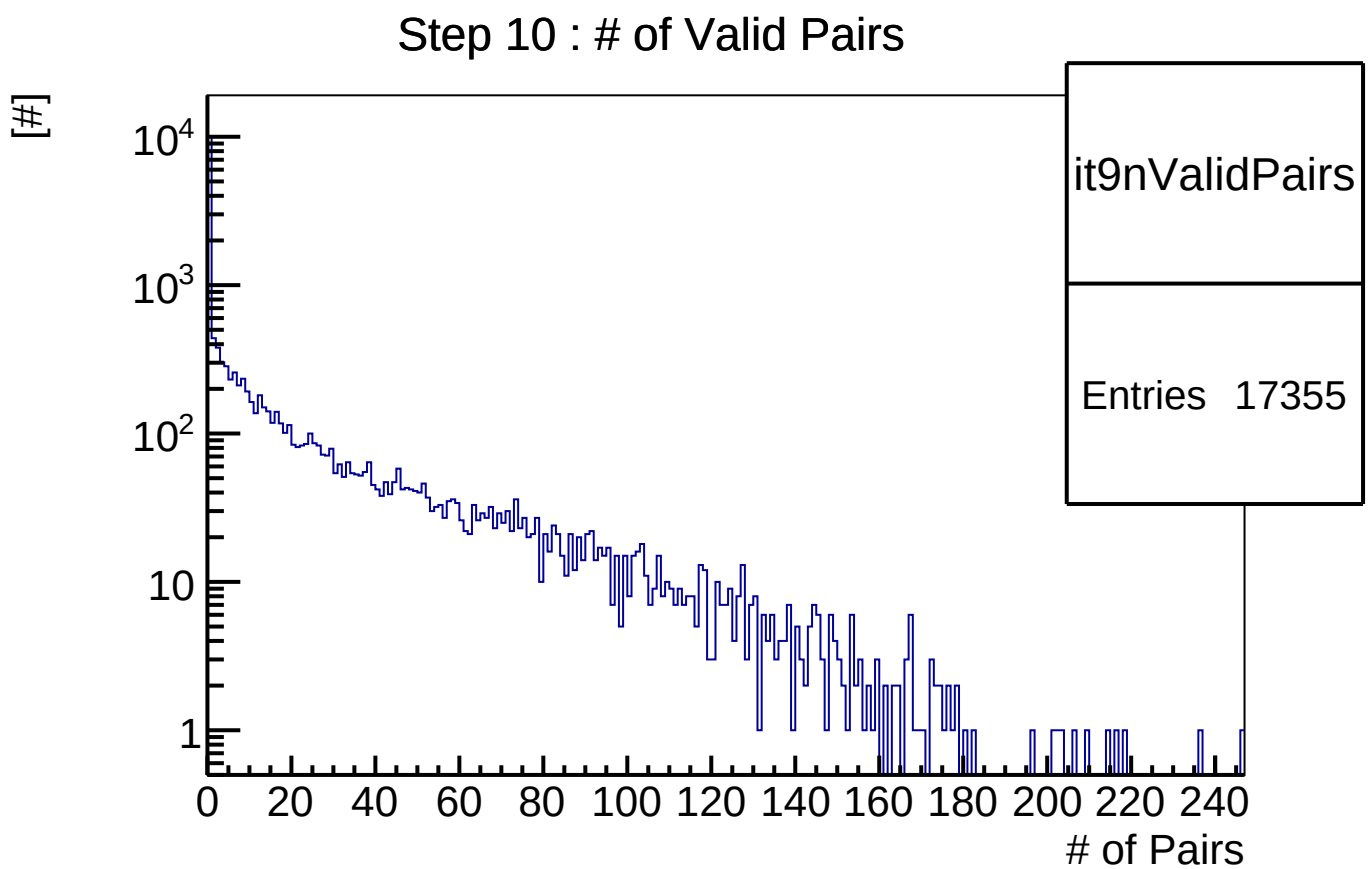

Step 10 : Outlier Rejection
it9All
Entries 1301882
Mean −2.238
Std Dev 28.11
[#]
10^4
10^3
10^2
10
1
−200
−100
0
100
200
z_{TPC} - z_{VPD}

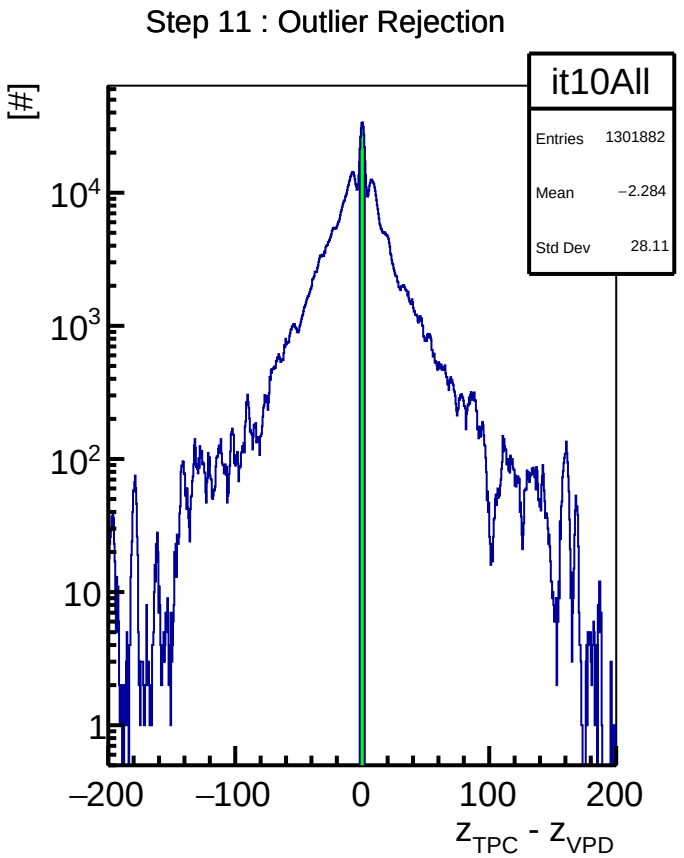

Step 10 : TPC vs. VPD z Vertex using <East> & <West>
it9avg
Entries 10319
Mean −0.02894
Std Dev 1.989
χ^2 / ndf 170.1 / 77
Constant 167 ± 2.9
Mean 0.01696 ± 0.01954
Sigma 1.492 ± 0.018
[#]
10^2
10
−5
0
5
z_{TPC} - z_{VPD} [cm]

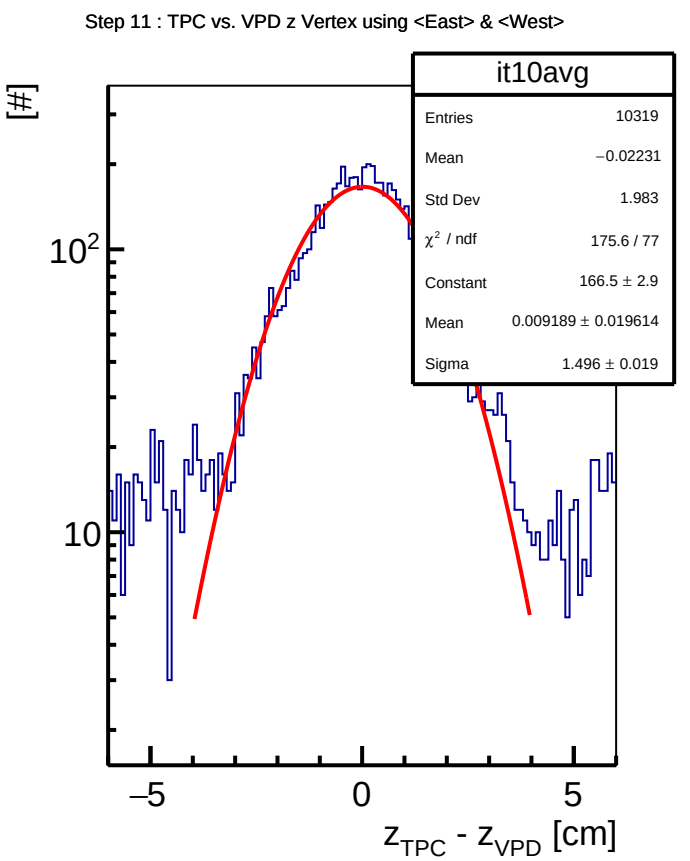

Step 10 : TPC vs. VPD z Vertex
it9zTPCzVPD
Entries 1301882
Mean x −4.542
Mean y −2.084
Std Dev x 15.96
Std Dev y 24.78
z_{VPD}
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC}

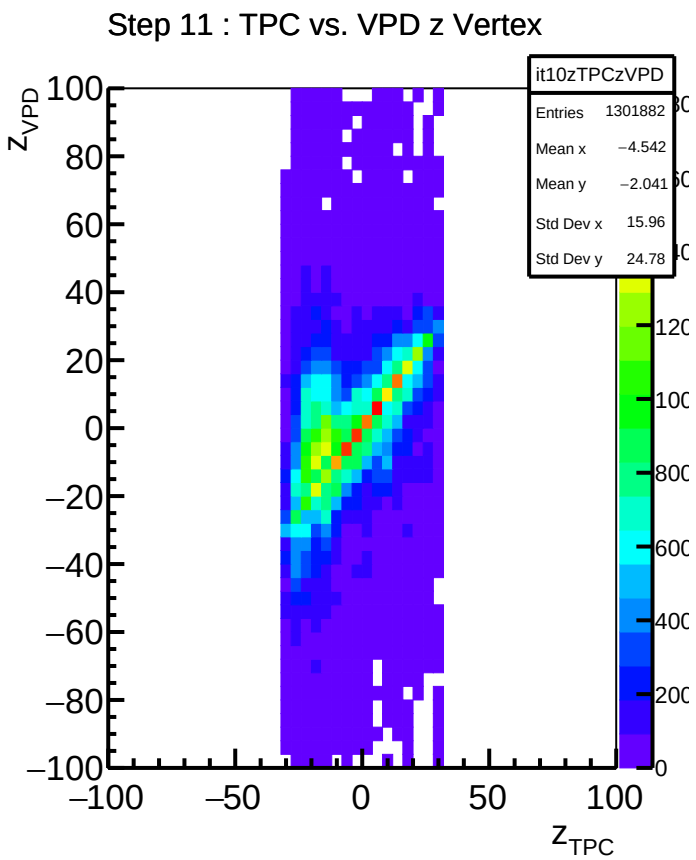

Step 10 : TPC vs. VPD z Vertex using <East> & <West>
it9zTPCzVPDAvg
Entries 10319
Mean x −1.883
Mean y −0.9703
Std Dev x 15.83
Std Dev y 20.91
z_{VPD} [cm]
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC} [cm]

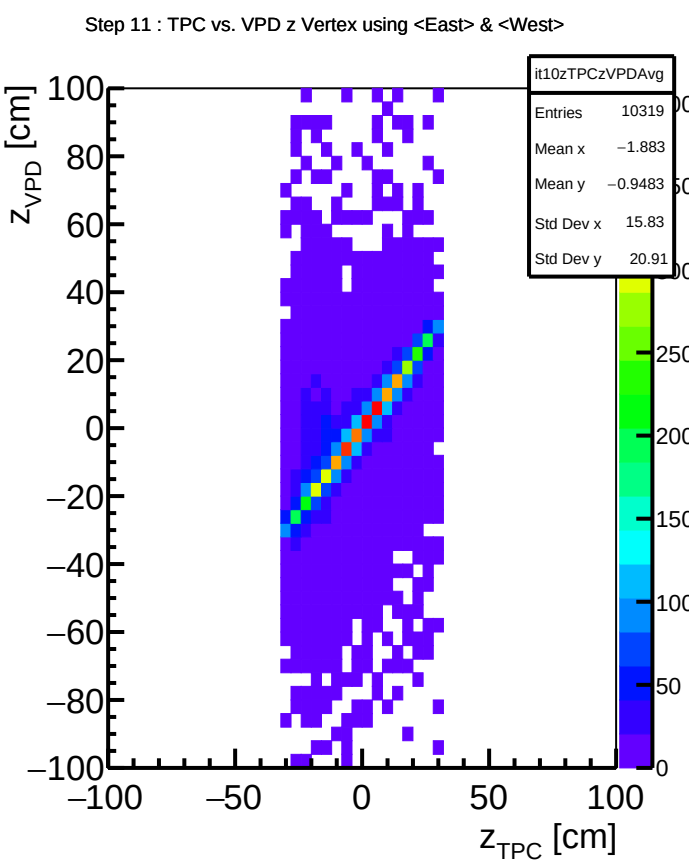

Step 10 : # of Accepted Detectors
[#]
East
West
it9nAcceptedEast
Entries 17355
10^4
10^3
10^2
0 2 4 6 8 10 12 14 16 18
# of Detectors

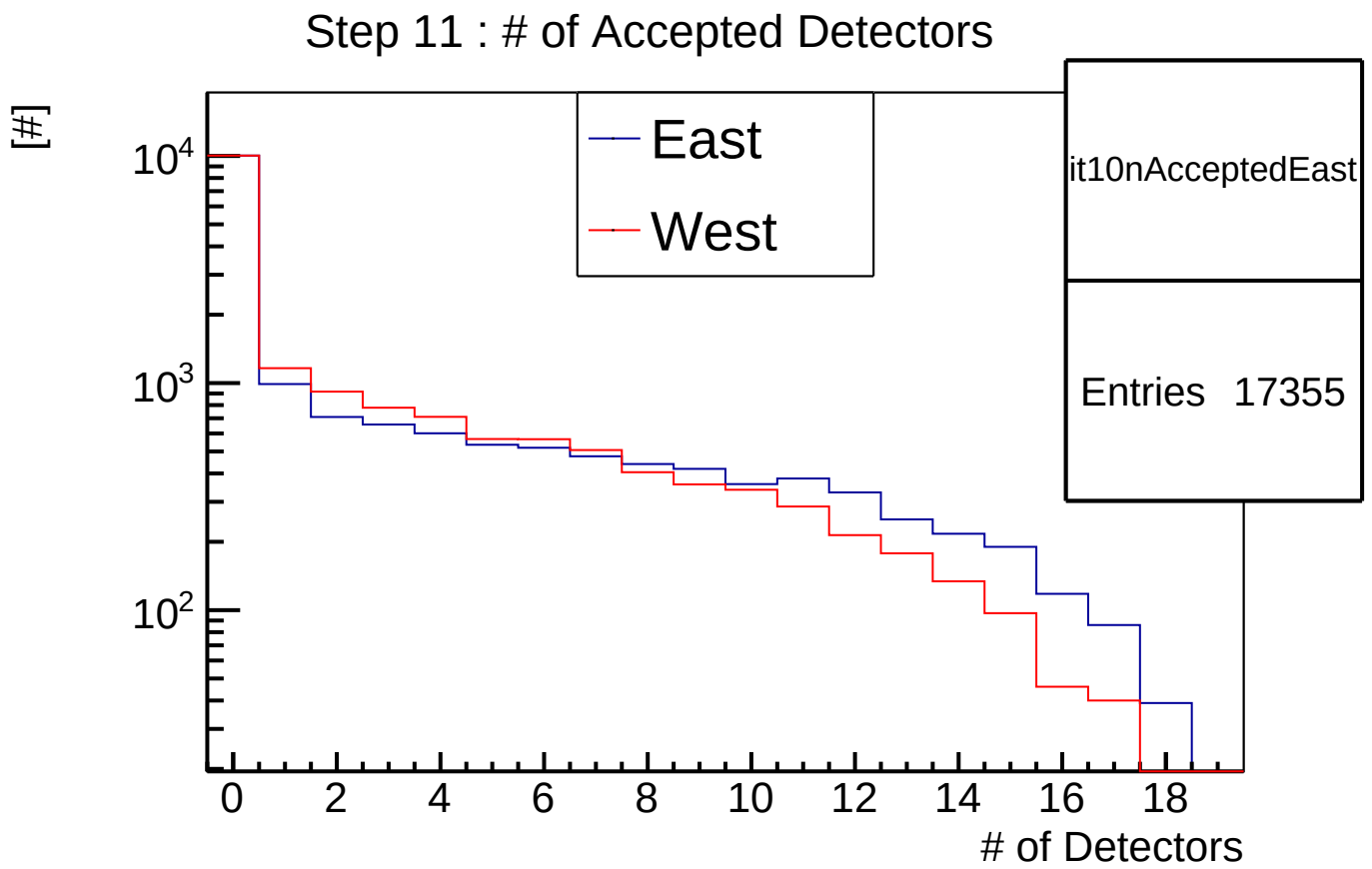

Step 10 : # of Valid Pairs
[#]
it9nValidPairs
Entries 17355
10^4
10^3
10^2
10
1
0 20 40 60 80 100 120 140 160 180 200 220 240
# of Pairs

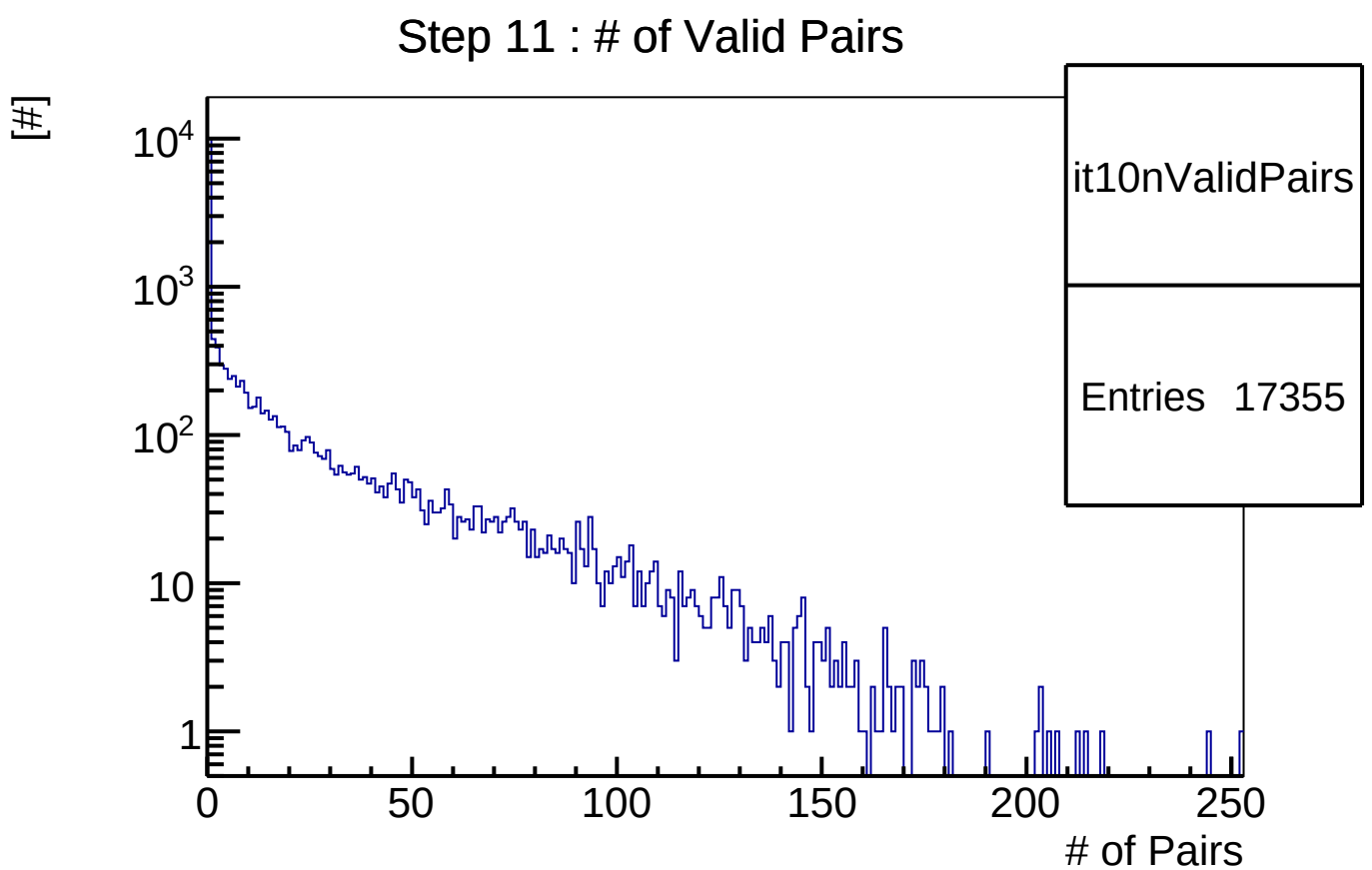

Step 11 : Outlier Rejection
it10All
Entries 1301882
Mean −2.284
Std Dev 28.11
[#]
10^4
10^3
10^2
10
1
−200
−100
0
100
200
z_{TPC} - z_{VPD}

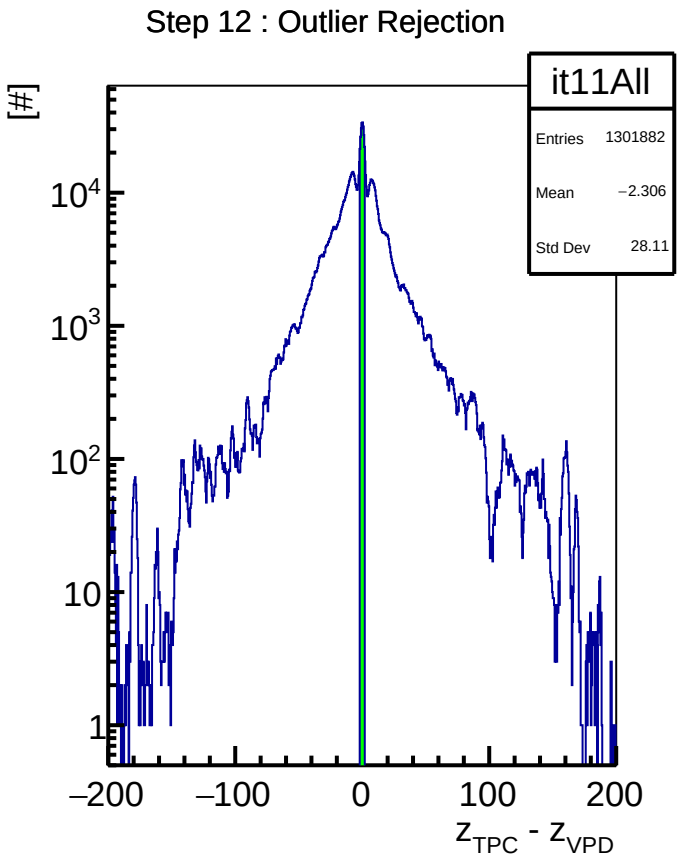

Step 11 : TPC vs. VPD z Vertex using <East> & <West>
it10avg
Entries 10319
Mean −0.02231
Std Dev 1.983
χ^2 / ndf 175.6 / 77
Constant 166.5 ± 2.9
Mean 0.009189 ± 0.019614
Sigma 1.496 ± 0.019
[#]
10^2
10
−5
0
5
z_{TPC} - z_{VPD} [cm]

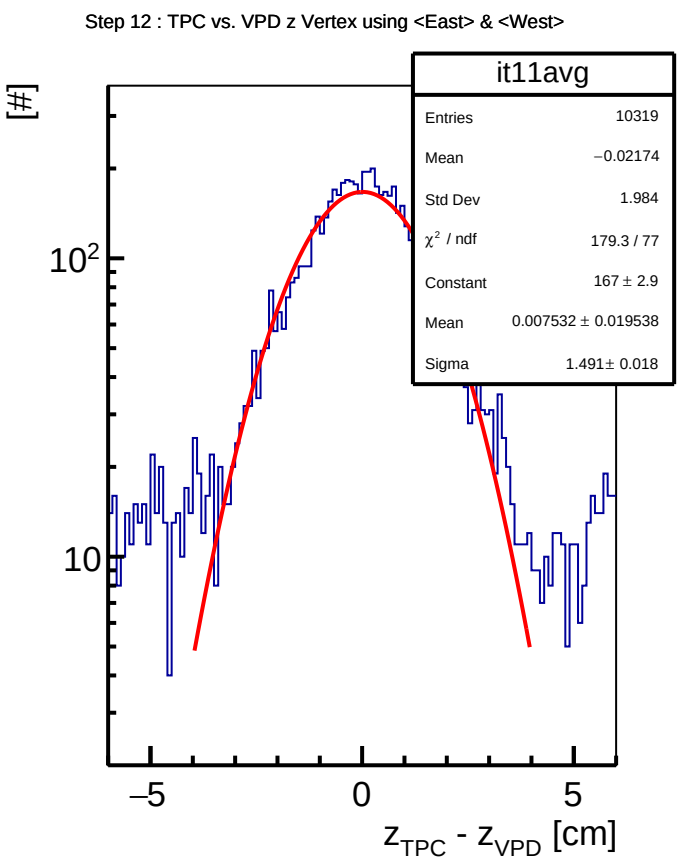

Step 11 : TPC vs. VPD z Vertex
it10zTPCzVPD
Entries 1301882
Mean x −4.542
Mean y −2.041
Std Dev x 15.96
Std Dev y 24.78
z_{VPD}
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC}

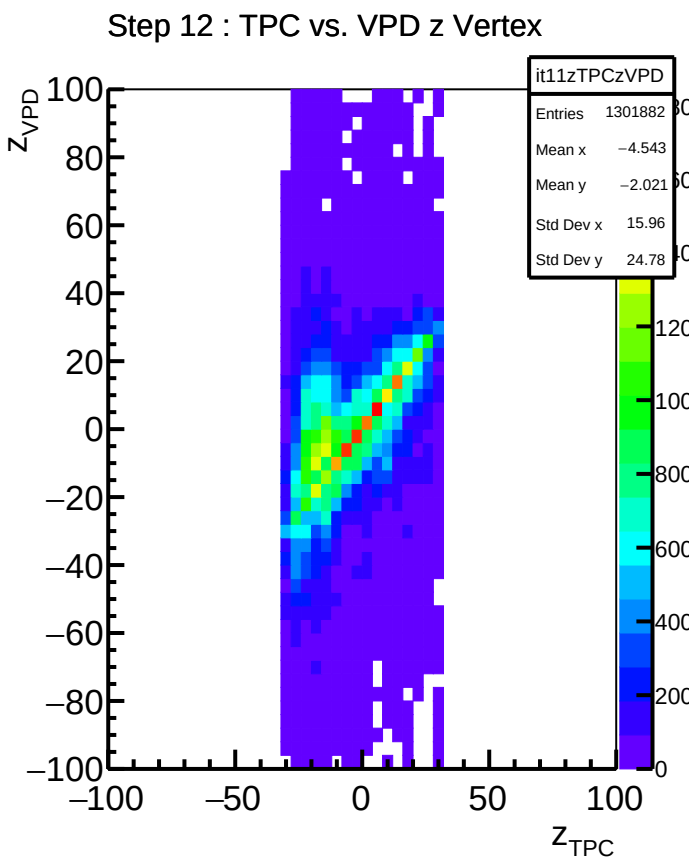

Step 11 : TPC vs. VPD z Vertex using <East> & <West>
it10zTPCzVPDAvg
Entries 10319
Mean x −1.883
Mean y −0.9483
Std Dev x 15.83
Std Dev y 20.91
z_{VPD} [cm]
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC} [cm]

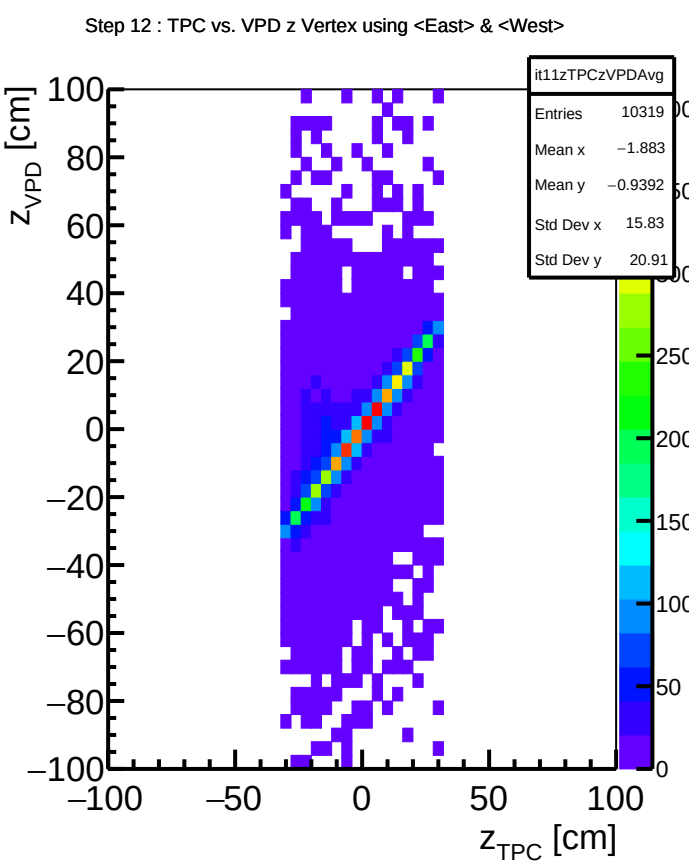

Step 11 : # of Accepted Detectors
[#]
East
West
it10nAcceptedEast
Entries 17355
10^4
10^3
10^2
0 2 4 6 8 10 12 14 16 18
# of Detectors

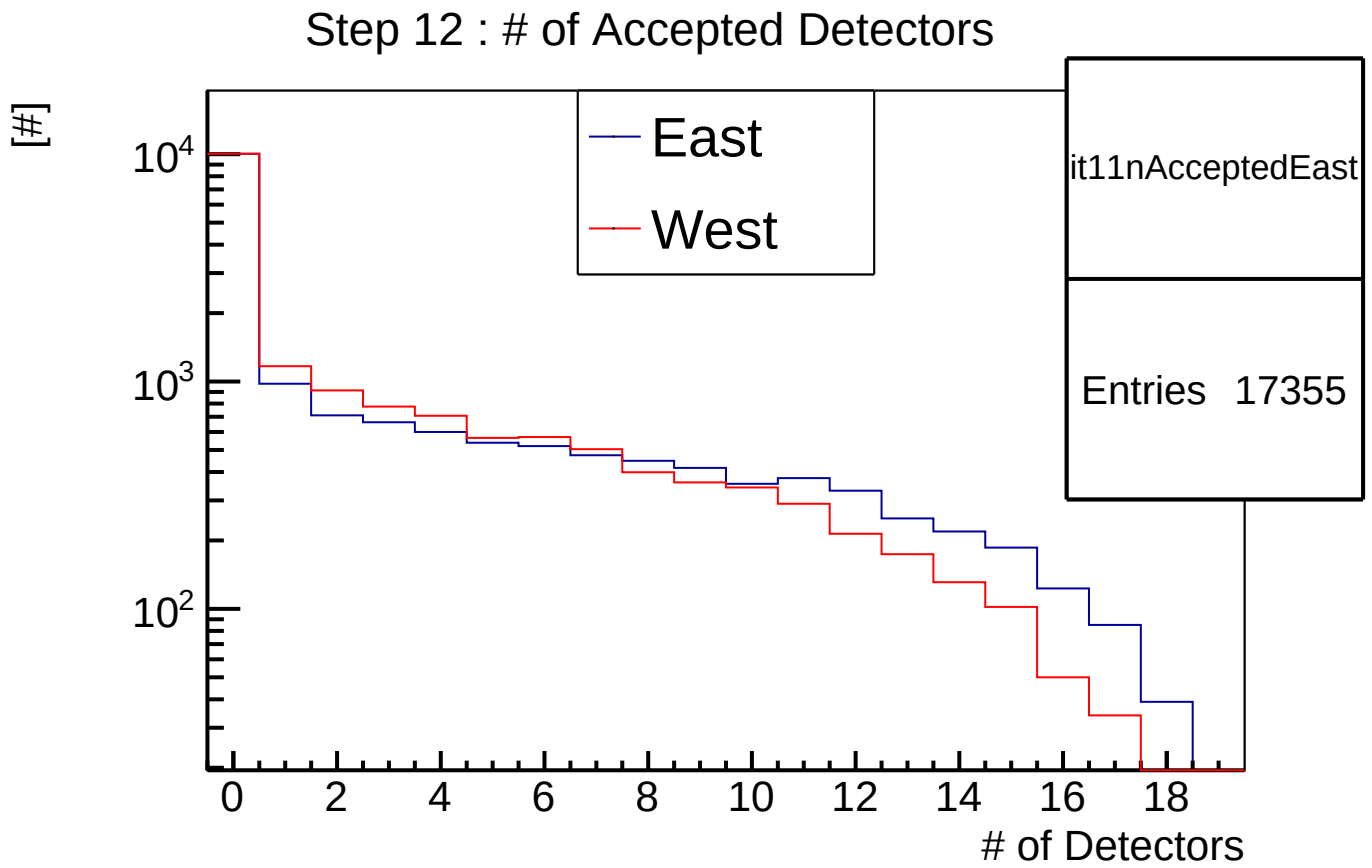

Step 11 : # of Valid Pairs
[#]
it10nValidPairs
Entries 17355
10^4
10^3
10^2
10
1
0 50 100 150 200 250
# of Pairs

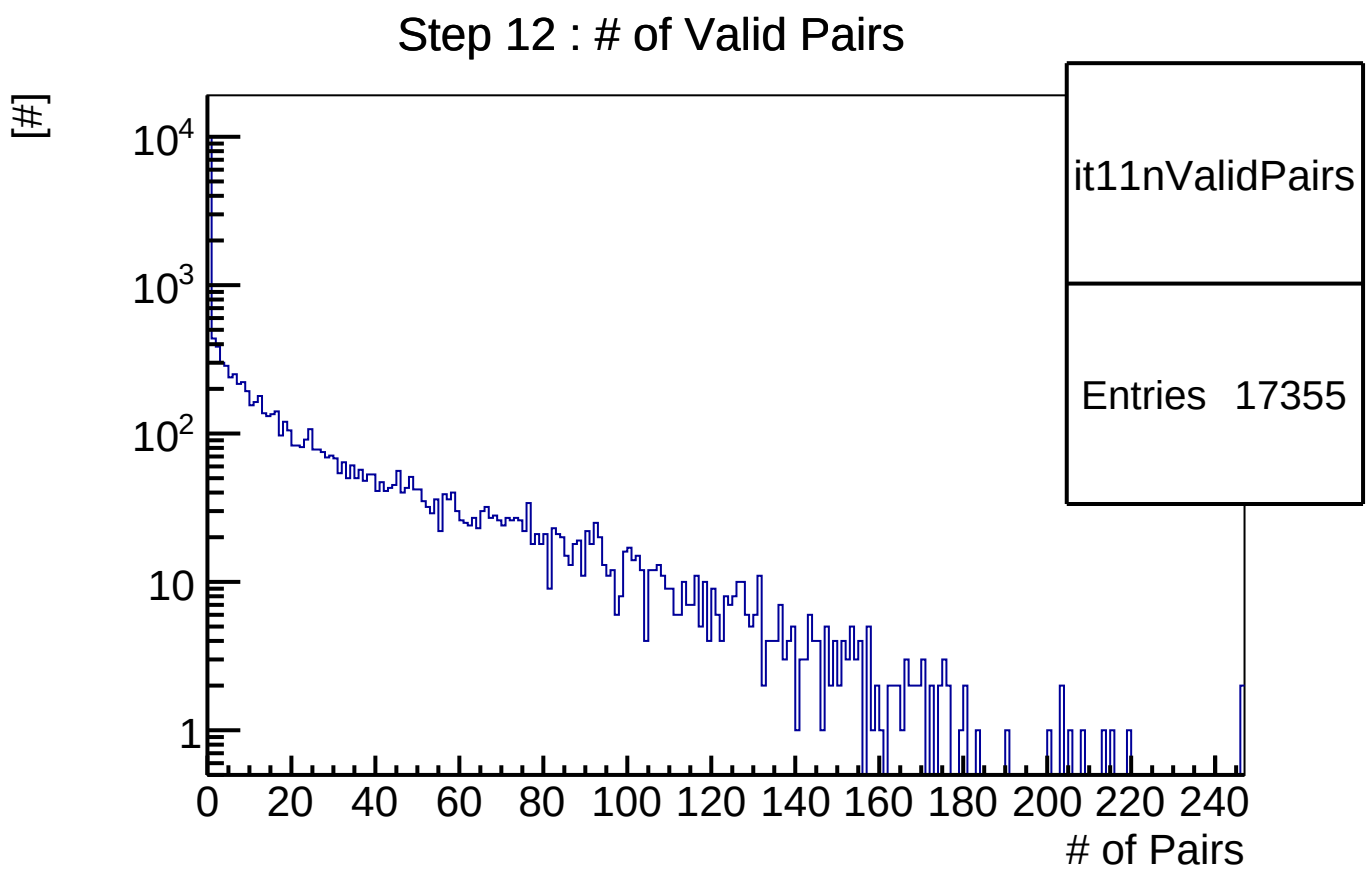

Step 12 : Outlier Rejection
it11All
Entries 1301882
Mean −2.306
Std Dev 28.11
[#]
10^4
10^3
10^2
10
1
−200
−100
0
100
200
z_{TPC} - z_{VPD}

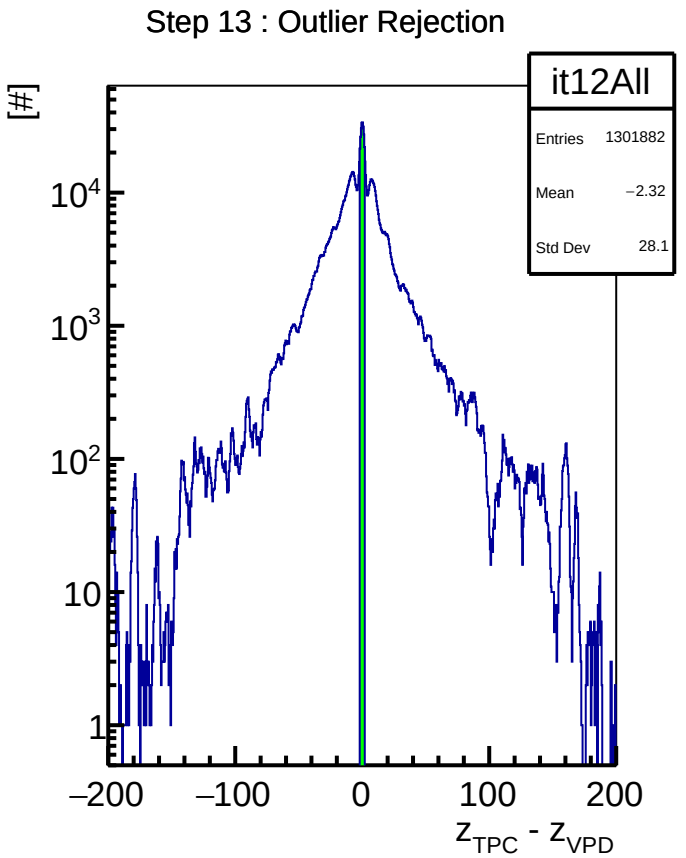

Step 12 : TPC vs. VPD z Vertex using <East> & <West>
it11avg
Entries 10319
Mean −0.02174
Std Dev 1.984
χ^2 / ndf 179.3 / 77
Constant 167 ± 2.9
Mean 0.007532 ± 0.019538
Sigma 1.491± 0.018
[#]
10^2
10
−5
0
5
z_{TPC} - z_{VPD} [cm]

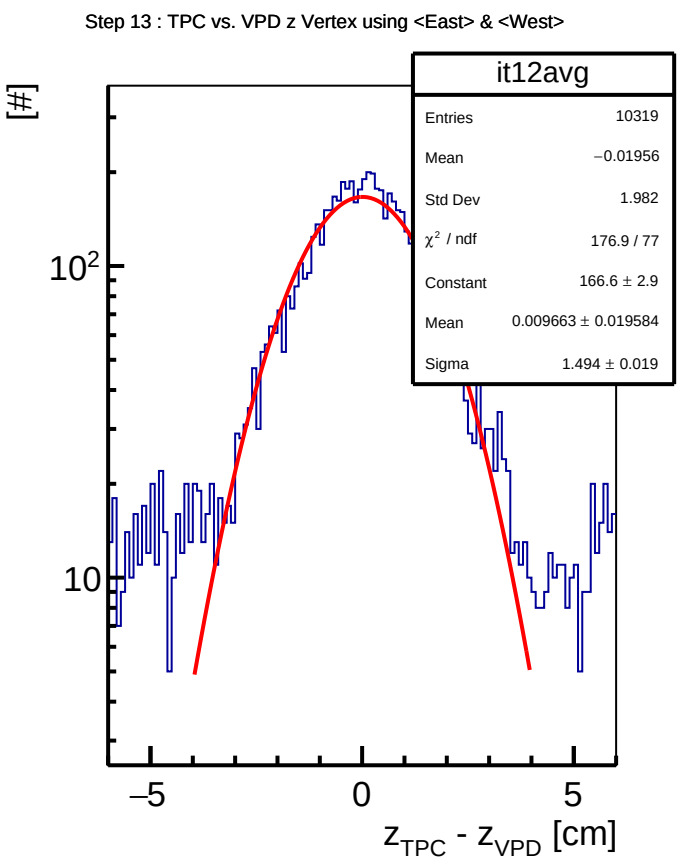

Step 12 : TPC vs. VPD z Vertex
it11zTPCzVPD
Entries 1301882
Mean x −4.543
Mean y −2.021
Std Dev x 15.96
Std Dev y 24.78
z_{VPD}
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC}

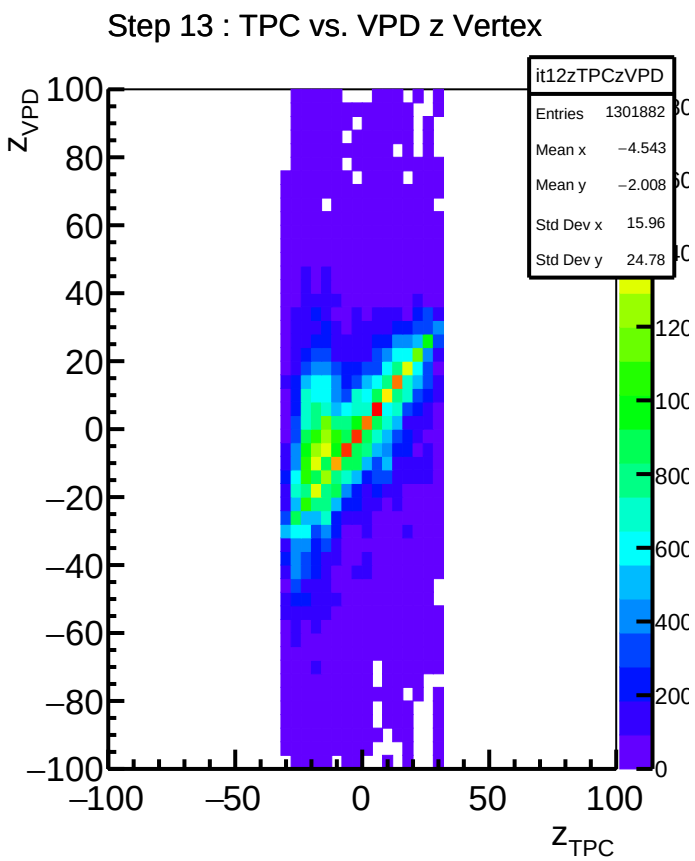

Step 12 : TPC vs. VPD z Vertex using <East> & <West>
it11zTPCzVPDAvg
Entries 10319
Mean x −1.883
Mean y −0.9392
Std Dev x 15.83
Std Dev y 20.91
z_{VPD} [cm]
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC} [cm]

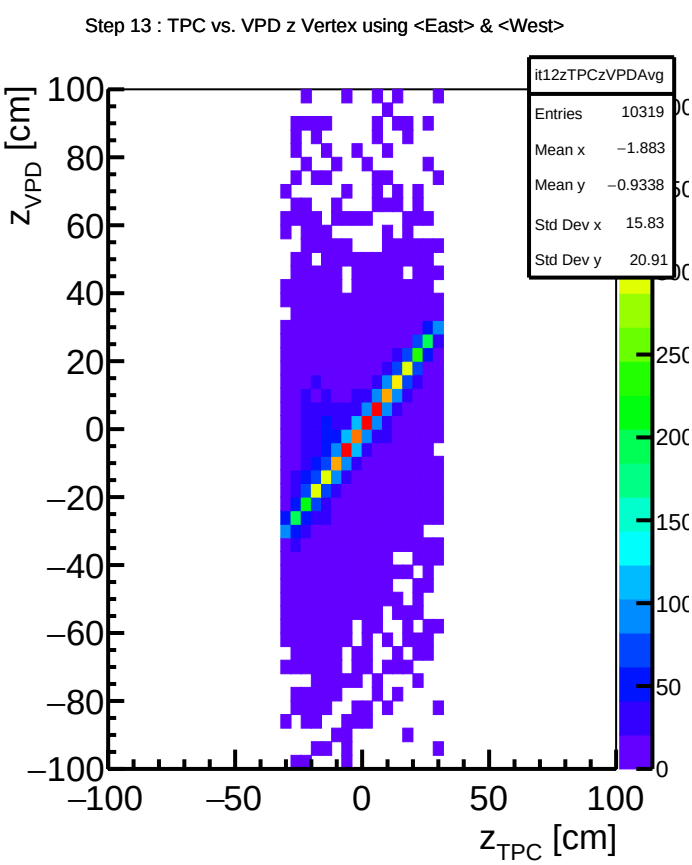

Step 12 : # of Accepted Detectors
[#]
East
West
it11nAcceptedEast
Entries 17355
10^4
10^3
10^2
0 2 4 6 8 10 12 14 16 18
# of Detectors

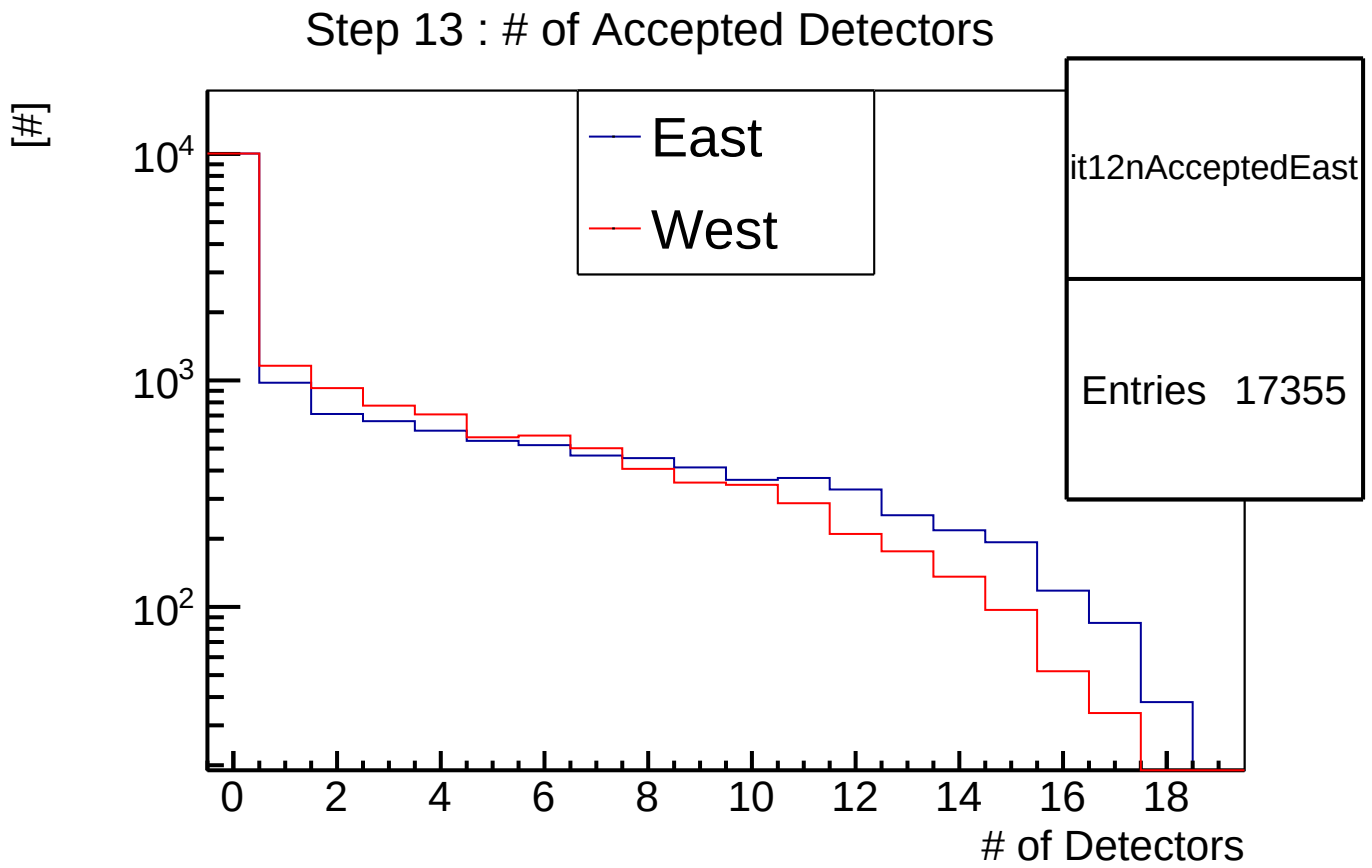

Step 12 : # of Valid Pairs
[#]
it11nValidPairs
Entries 17355
10^4
10^3
10^2
10
1
0 20 40 60 80 100 120 140 160 180 200 220 240
# of Pairs

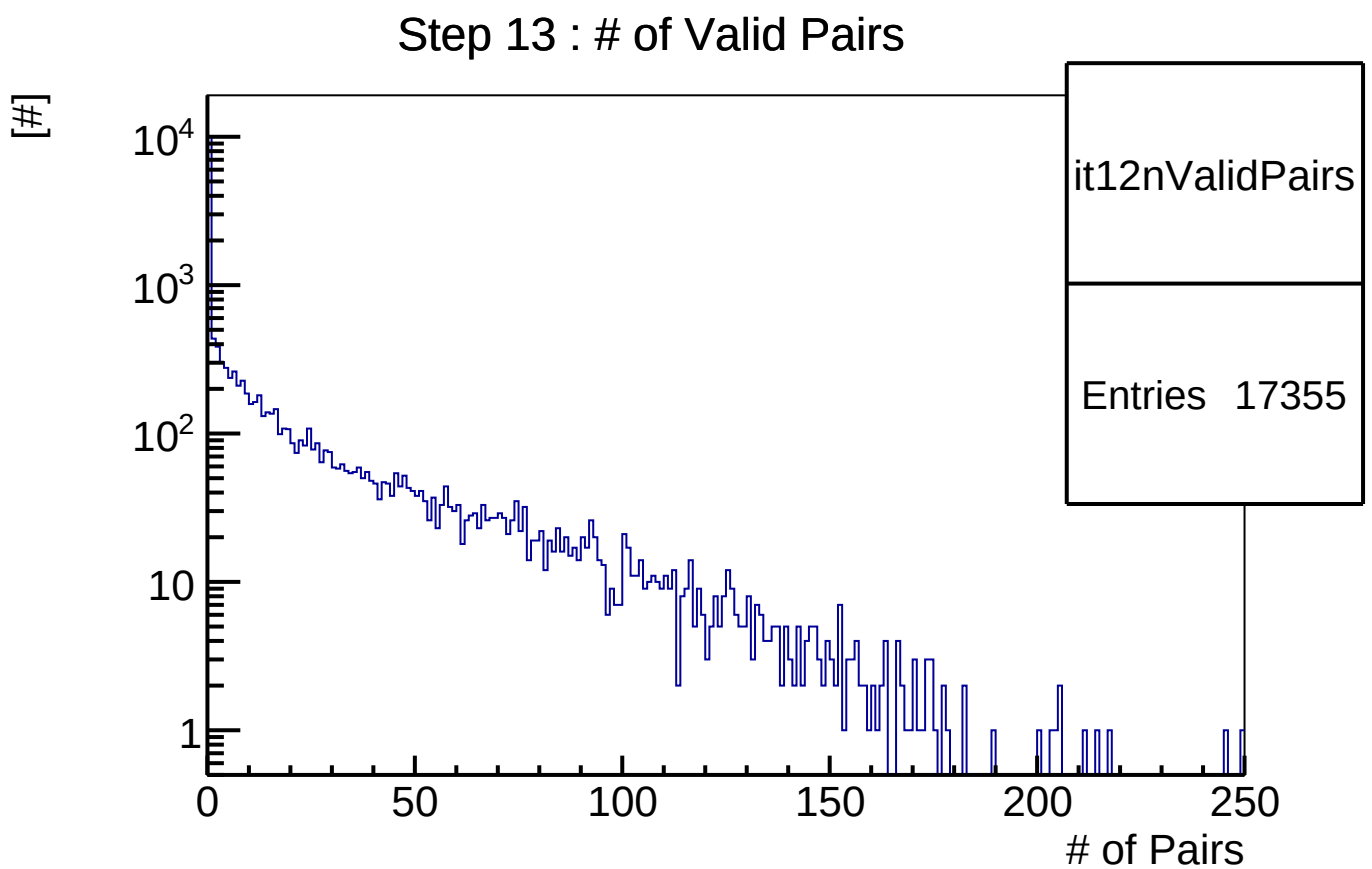

Step 13 : Outlier Rejection
it12All
Entries 1301882
Mean −2.32
Std Dev 28.1
[#]
10^4
10^3
10^2
10
1
−200
−100
0
100
200
z_{TPC} - z_{VPD}

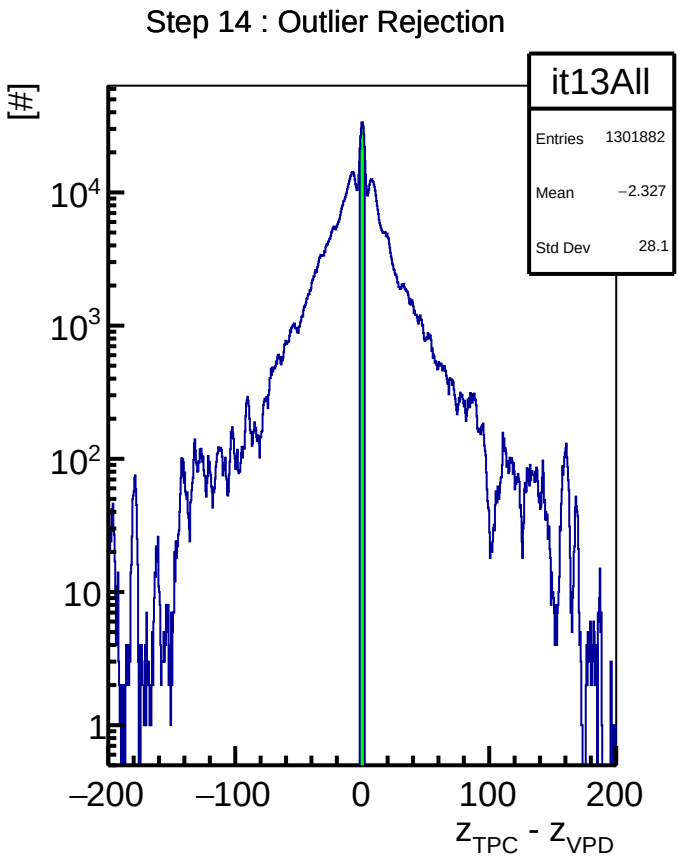

Step 13 : TPC vs. VPD z Vertex using <East> & <West>
it12avg
Entries 10319
Mean −0.01956
Std Dev 1.982
χ^2 / ndf 176.9 / 77
Constant 166.6 ± 2.9
Mean 0.009663 ± 0.019584
Sigma 1.494 ± 0.019
[#]
10^2
10
−5
0
5
z_{TPC} - z_{VPD} [cm]

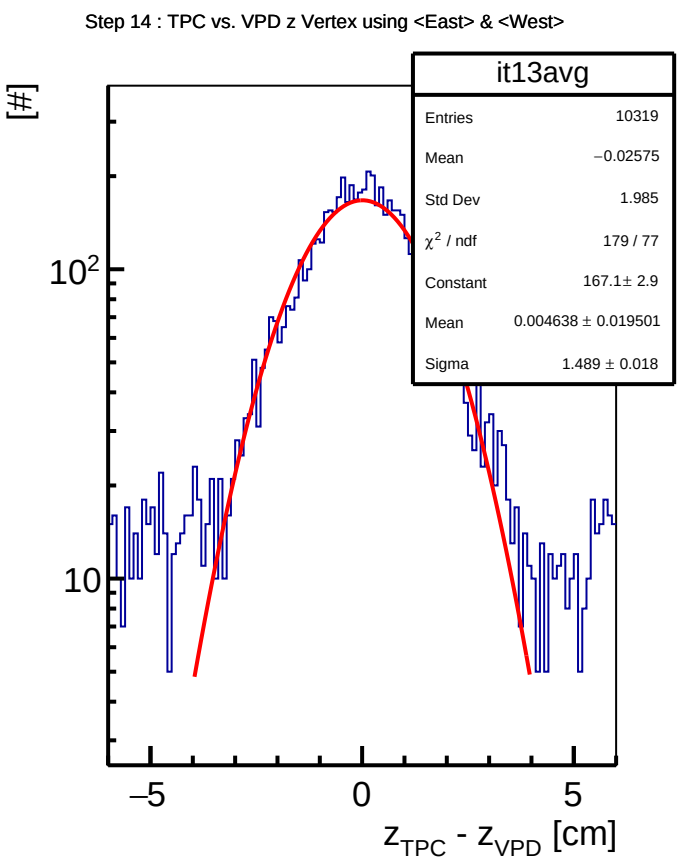

Step 13 : TPC vs. VPD z Vertex
it12zTPCzVPD
Entries 1301882
Mean x −4.543
Mean y −2.008
Std Dev x 15.96
Std Dev y 24.78
z_{VPD}
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC}

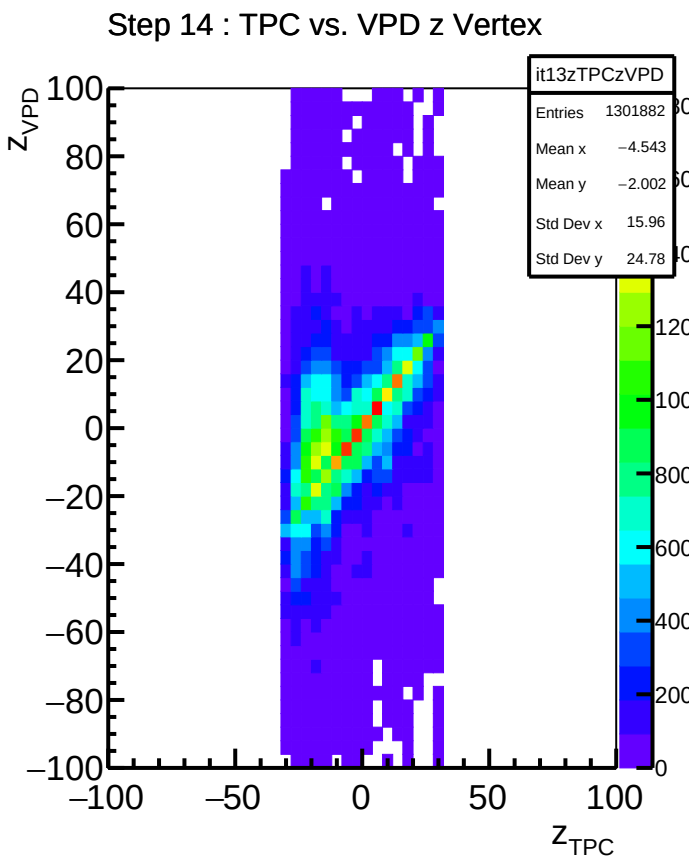

Step 13 : TPC vs. VPD z Vertex using <East> & <West>
it12zTPCzVPDAvg
Entries 10319
Mean x −1.883
Mean y −0.9338
Std Dev x 15.83
Std Dev y 20.91
z_{VPD} [cm]
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC} [cm]

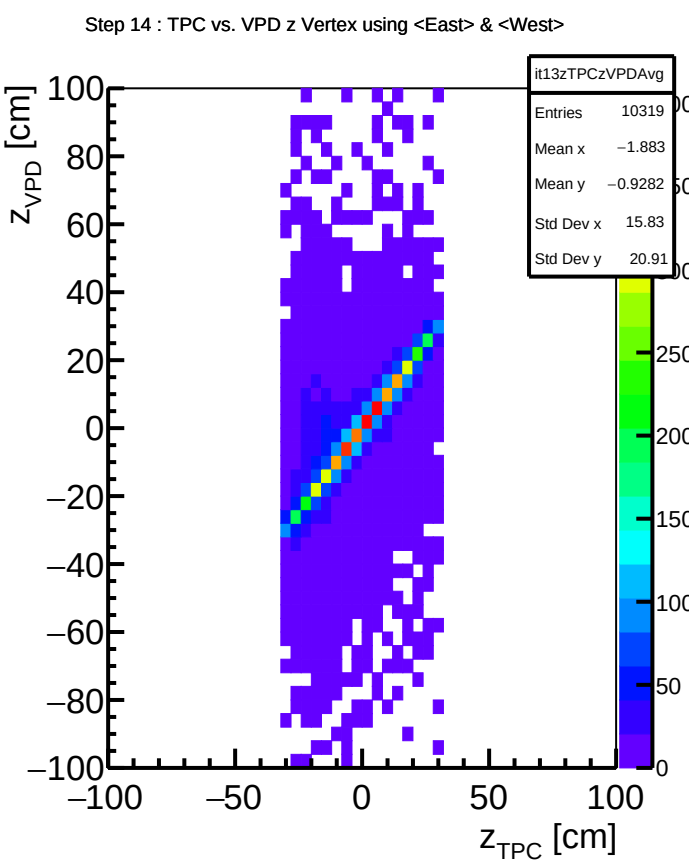

Step 13 : # of Accepted Detectors
[#]
East
West
it12nAcceptedEast
Entries 17355
10^4
10^3
10^2
0 2 4 6 8 10 12 14 16 18
# of Detectors

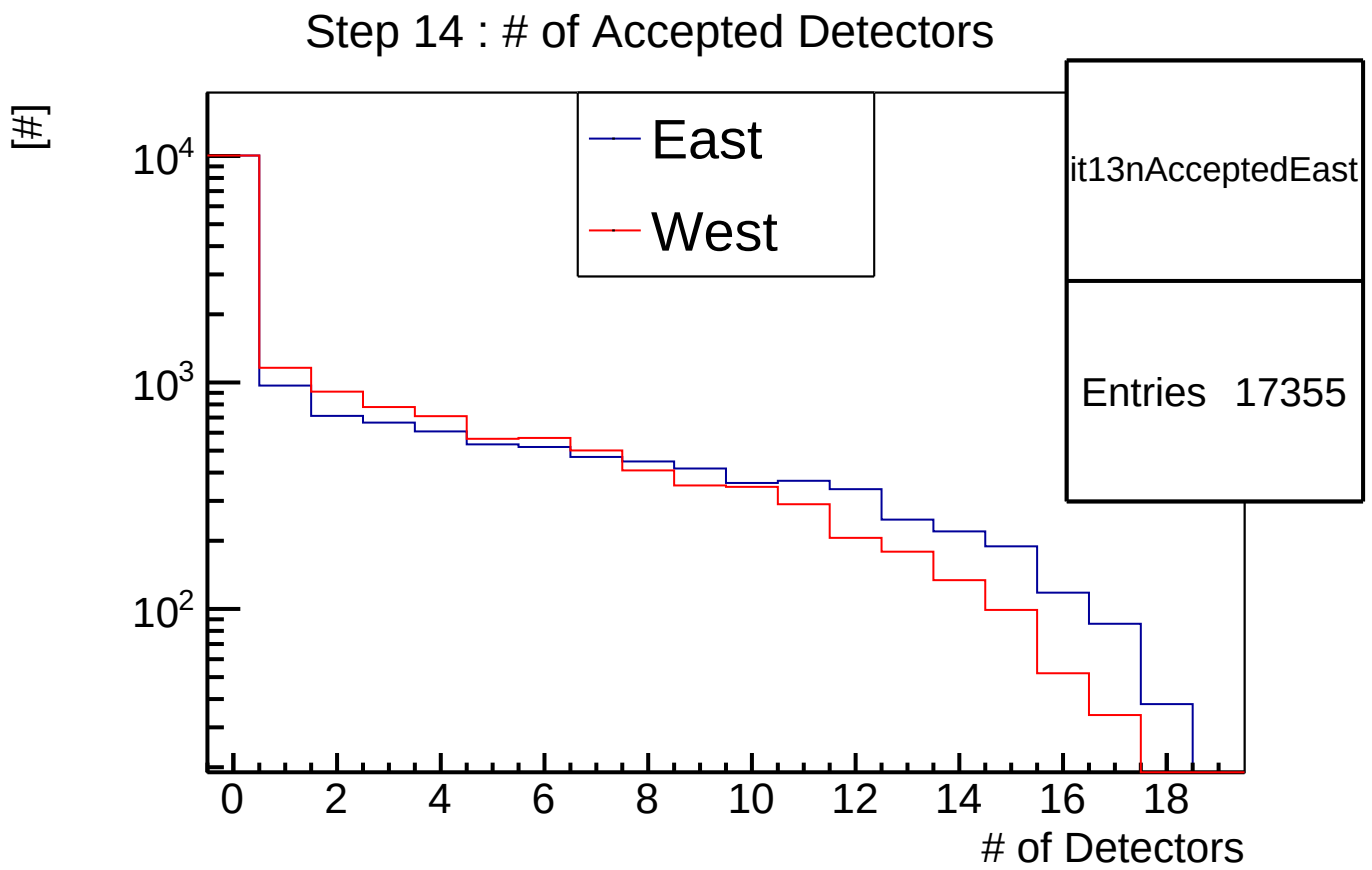

Step 13 : # of Valid Pairs
[#]
it12nValidPairs
Entries 17355
10^4
10^3
10^2
10
1
0 50 100 150 200 250
# of Pairs

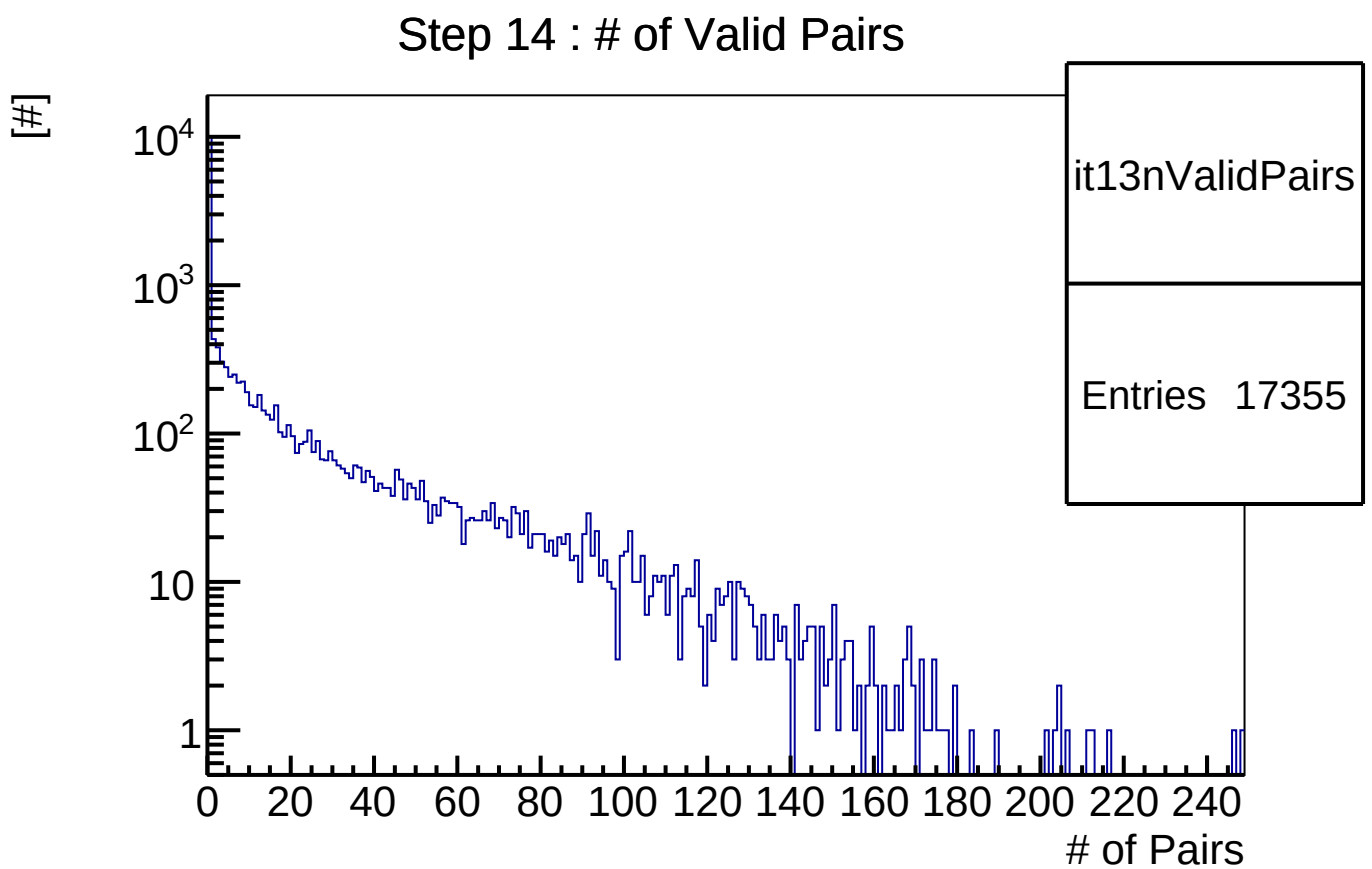

Step 14 : Outlier Rejection
it13All
Entries 1301882
Mean −2.327
Std Dev 28.1
[#]
10^4
10^3
10^2
10
1
−200
−100
0
100
200
z_{TPC} - z_{VPD}

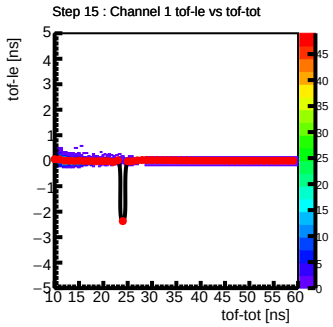

Step 14 : TPC vs. VPD z Vertex using <East> & <West>
it13avg
Entries 10319
Mean −0.02575
Std Dev 1.985
χ^2 / ndf 179 / 77
Constant 167.1± 2.9
Mean 0.004638 ± 0.019501
Sigma 1.489 ± 0.018
[#]
10^2
10
−5
0
5
z_{TPC} - z_{VPD} [cm]

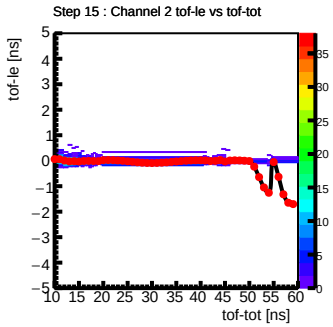

Step 14 : TPC vs. VPD z Vertex
it13zTPCzVPD
Entries 1301882
Mean x −4.543
Mean y −2.002
Std Dev x 15.96
Std Dev y 24.78
z_{VPD}
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC}

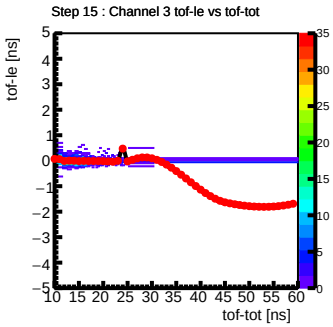

Step 14 : TPC vs. VPD z Vertex using <East> & <West>
it13zTPCzVPDAvg
Entries 10319
Mean x −1.883
Mean y −0.9282
Std Dev x 15.83
Std Dev y 20.91
z_{VPD} [cm]
100
80
60
40
20
0
−20
−40
−60
−80
−100
−100
−50
0
50
100
z_{TPC} [cm]

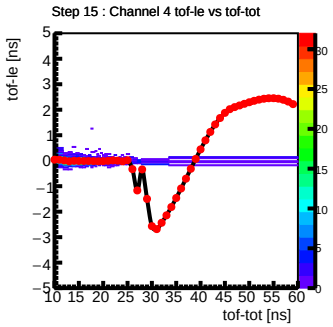

Step 14 : # of Accepted Detectors
[#]
East
West
it13nAcceptedEast
Entries 17355
10^4
10^3
10^2
0 2 4 6 8 10 12 14 16 18
# of Detectors

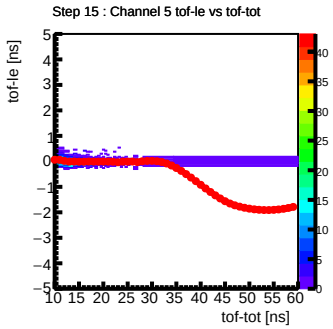

Step 14 : # of Valid Pairs
[#]
it13nValidPairs
Entries 17355
10^4
10^3
10^2
10
1
0 20 40 60 80 100 120 140 160 180 200 220 240
# of Pairs

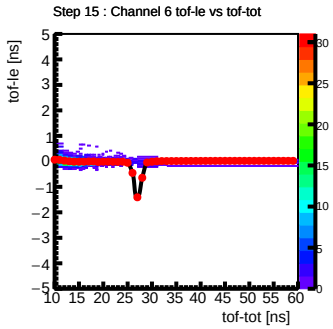

Step 15 : Channel 1 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

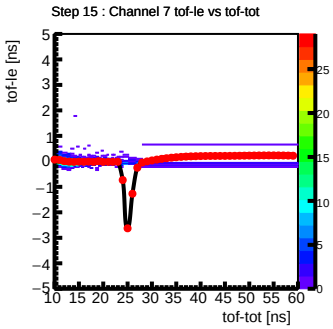

Step 15 : Channel 2 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

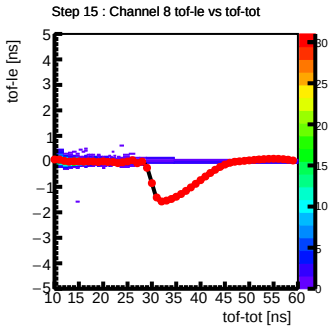

Step 15 : Channel 3 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

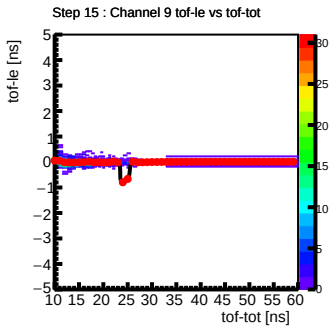

Step 15 : Channel 4 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

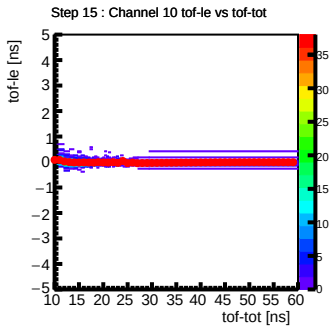

Step 15 : Channel 5 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

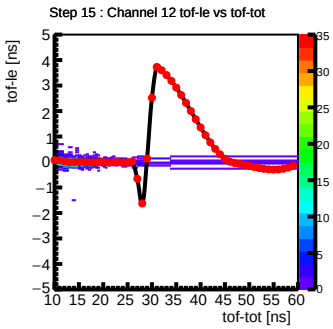

Step 15 : Channel 6 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

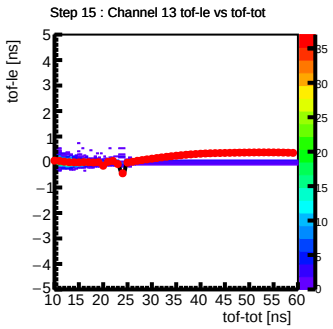

Step 15 : Channel 7 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

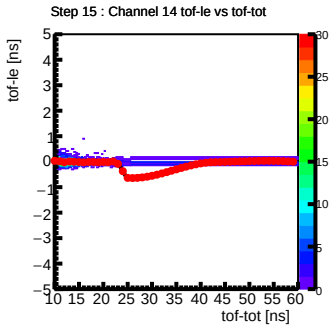

Step 15 : Channel 8 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

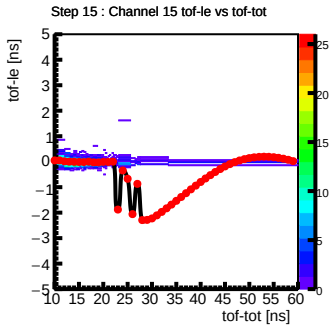

Step 15 : Channel 9 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

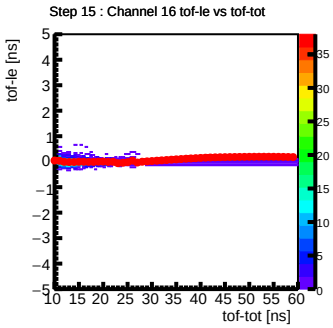

Step 15 : Channel 10 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

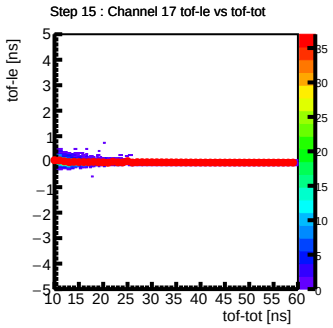

Step 15 : Channel 12 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

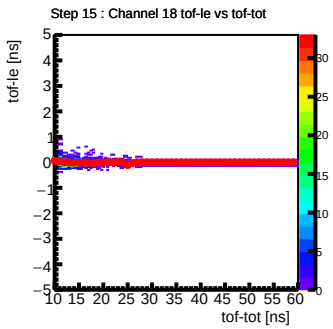

Step 15 : Channel 13 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

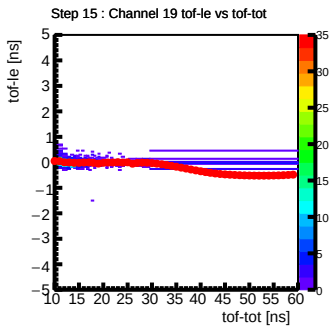

Step 15 : Channel 14 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

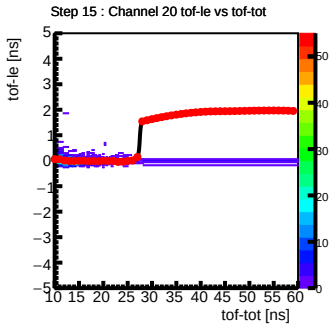

Step 15 : Channel 15 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

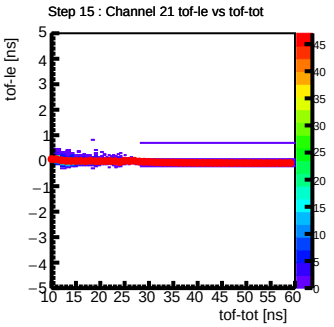

Step 15 : Channel 16 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

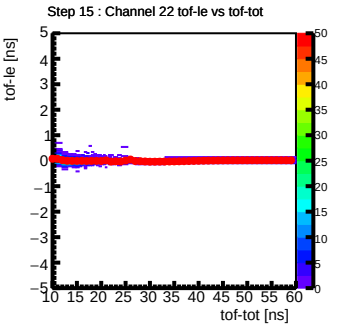

Step 15 : Channel 17 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

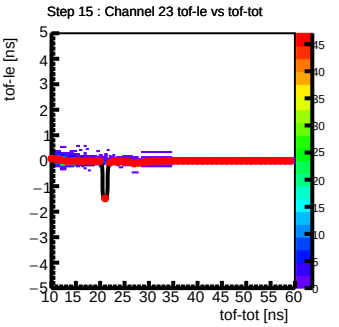

Step 15 : Channel 18 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

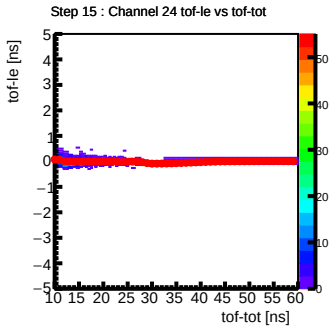

Step 15 : Channel 19 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

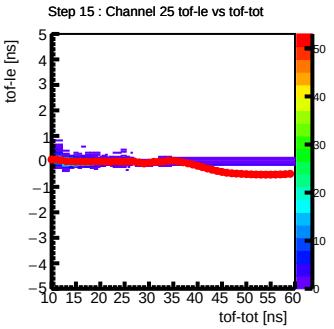

Step 15 : Channel 20 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

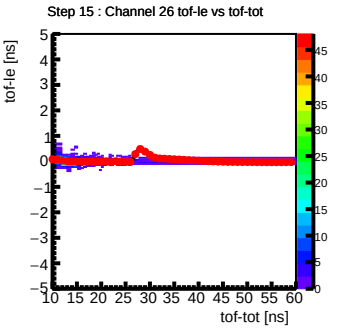

Step 15 : Channel 21 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

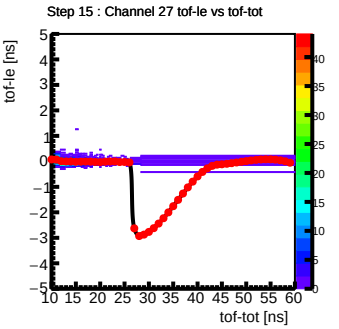

Step 15 : Channel 22 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

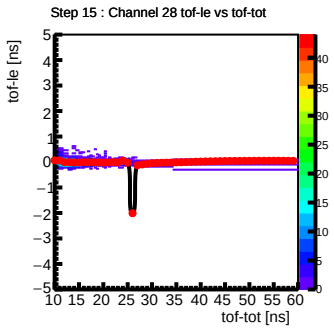

Step 15 : Channel 23 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

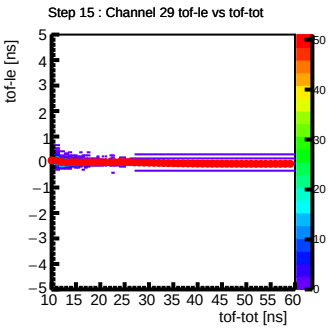

Step 15 : Channel 24 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

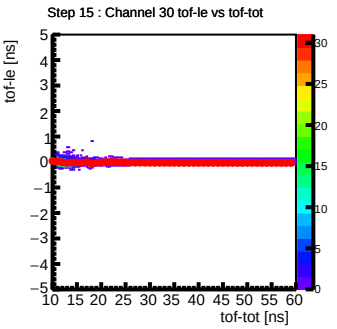

Step 15 : Channel 25 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

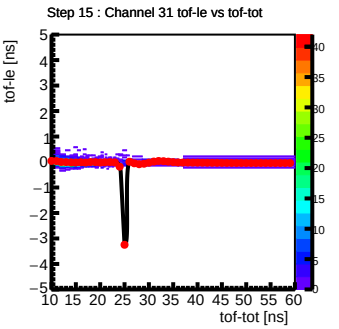

Step 15 : Channel 26 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

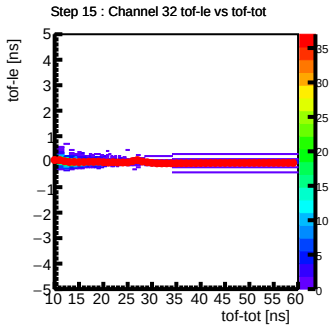

Step 15 : Channel 27 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

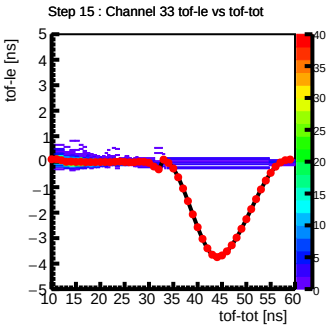

Step 15 : Channel 28 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

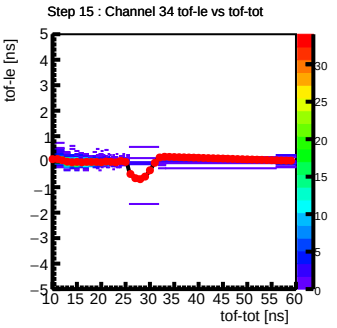

Step 15 : Channel 29 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

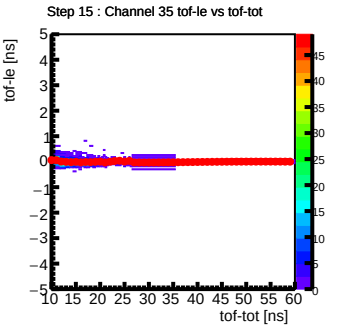

Step 15 : Channel 30 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

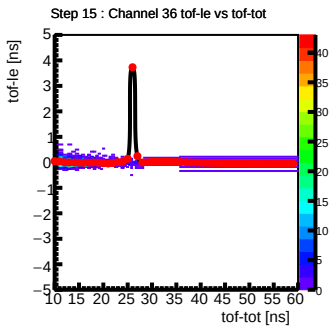

Step 15 : Channel 31 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

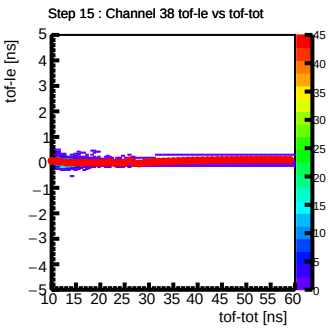

Step 15 : Channel 32 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]


Step 15 : Channel 33 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

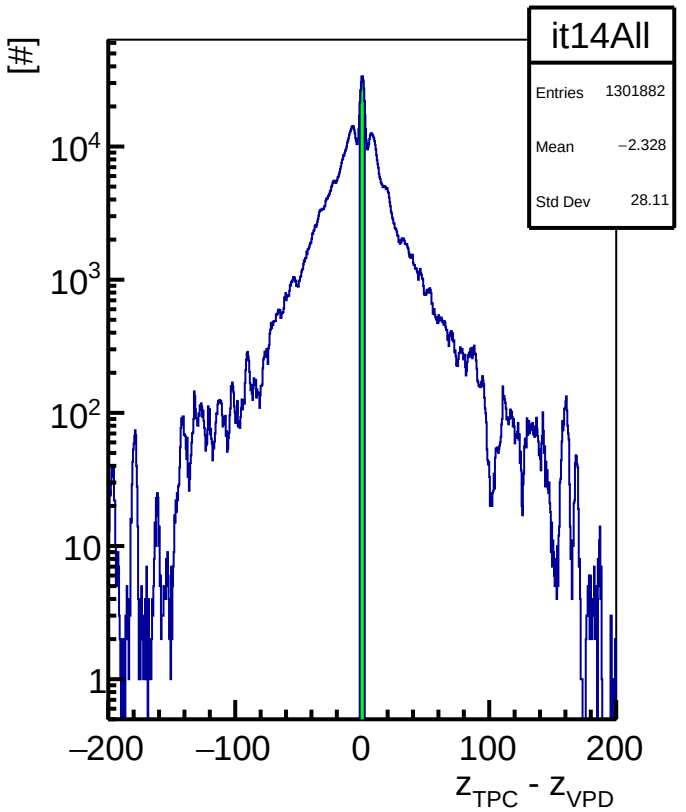

Step 15 : Channel 34 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]


Step 15 : Channel 35 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

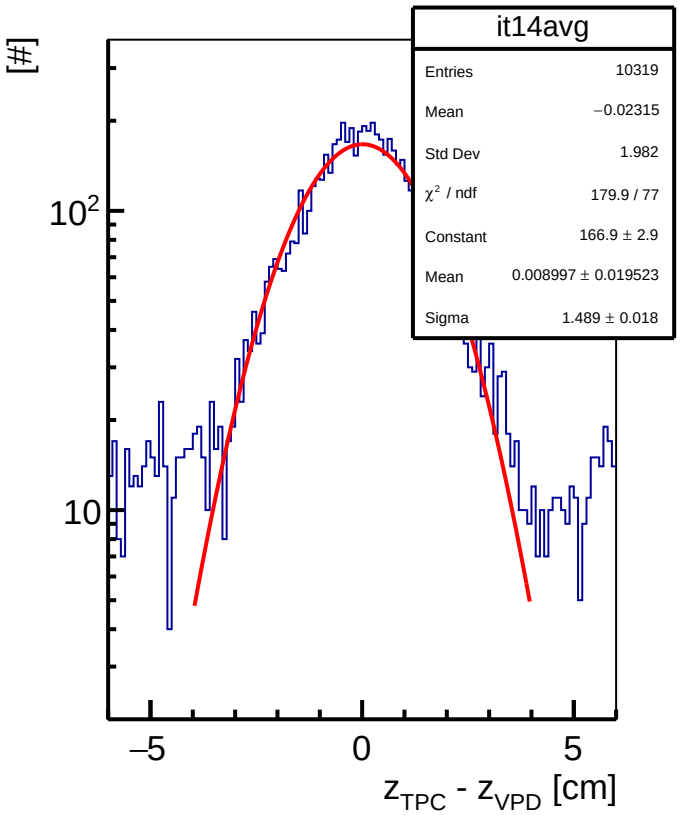

Step 15 : Channel 36 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]


Step 15 : Channel 38 tof-le vs tof-tot
tof-le [ns]
tof-tot [ns]

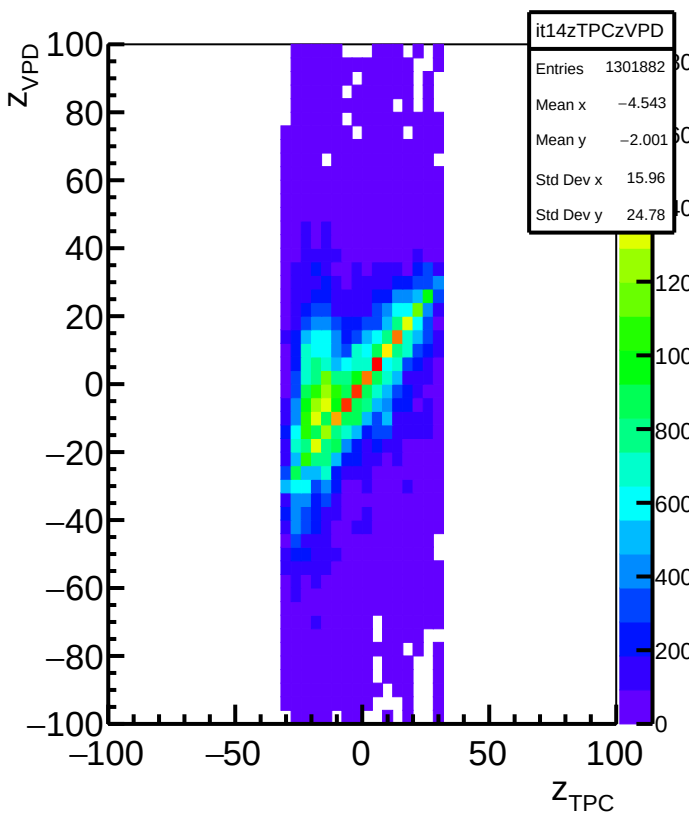
Step 15 : Outlier Rejection



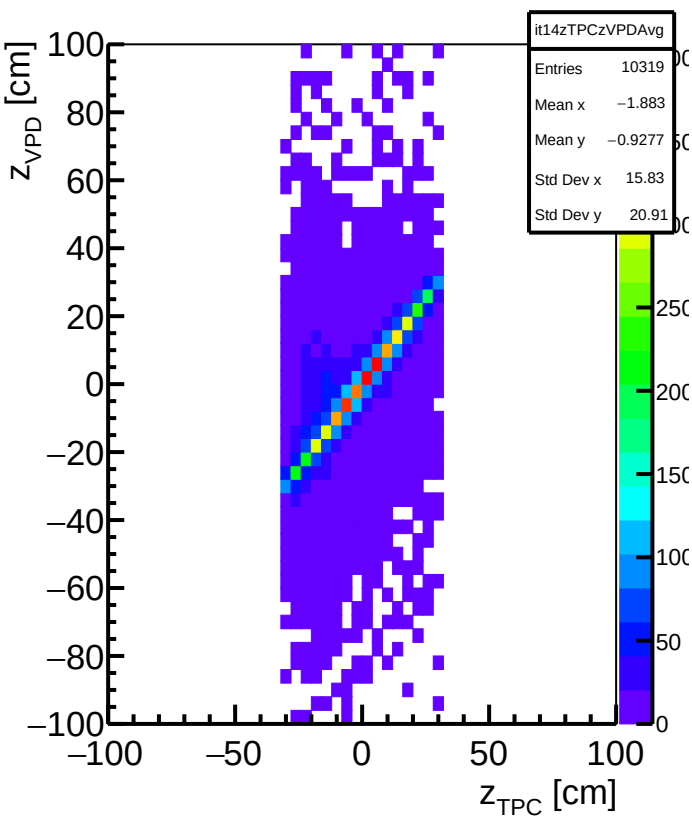
Step 15 : TPC vs. VPD z Vertex using <East> & <West>

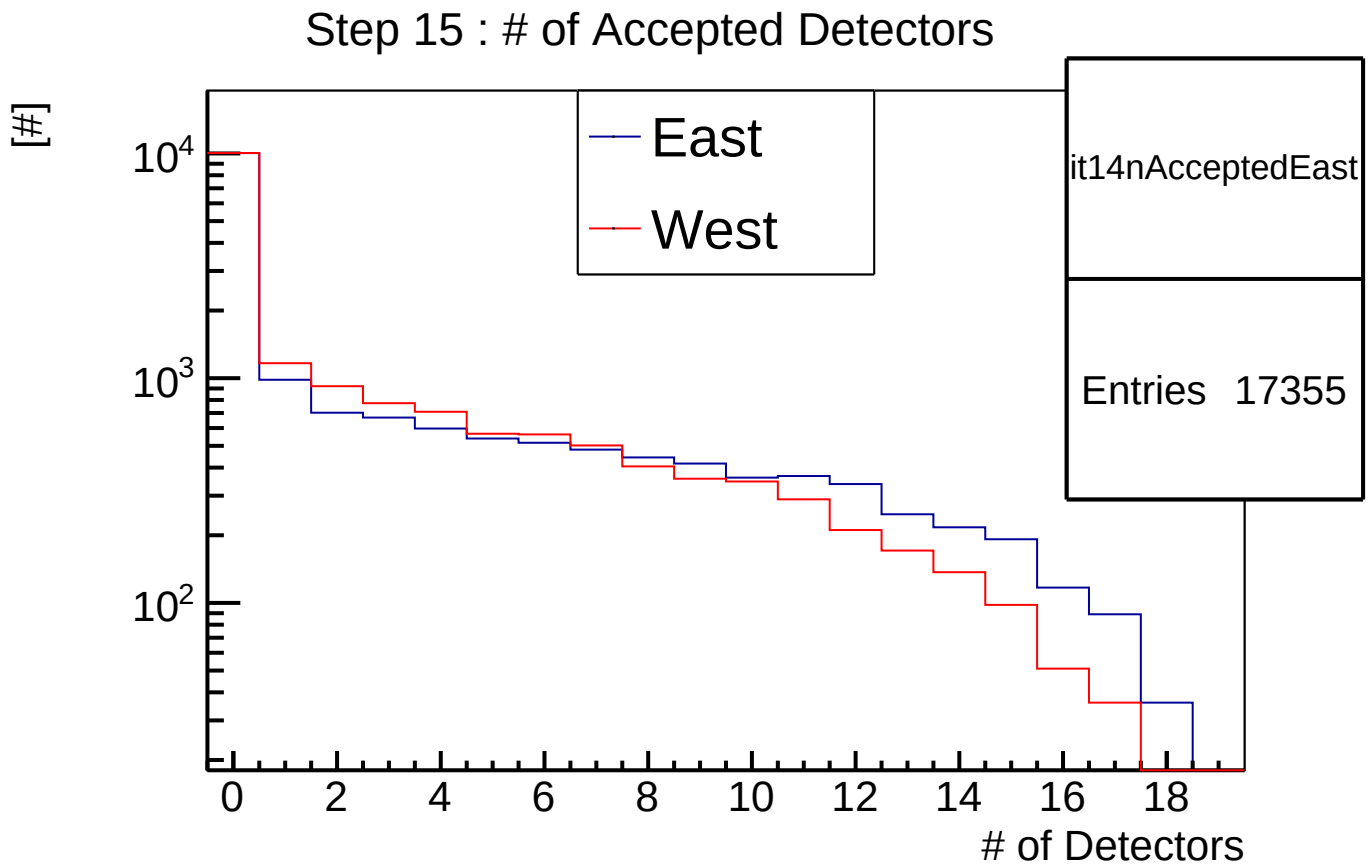


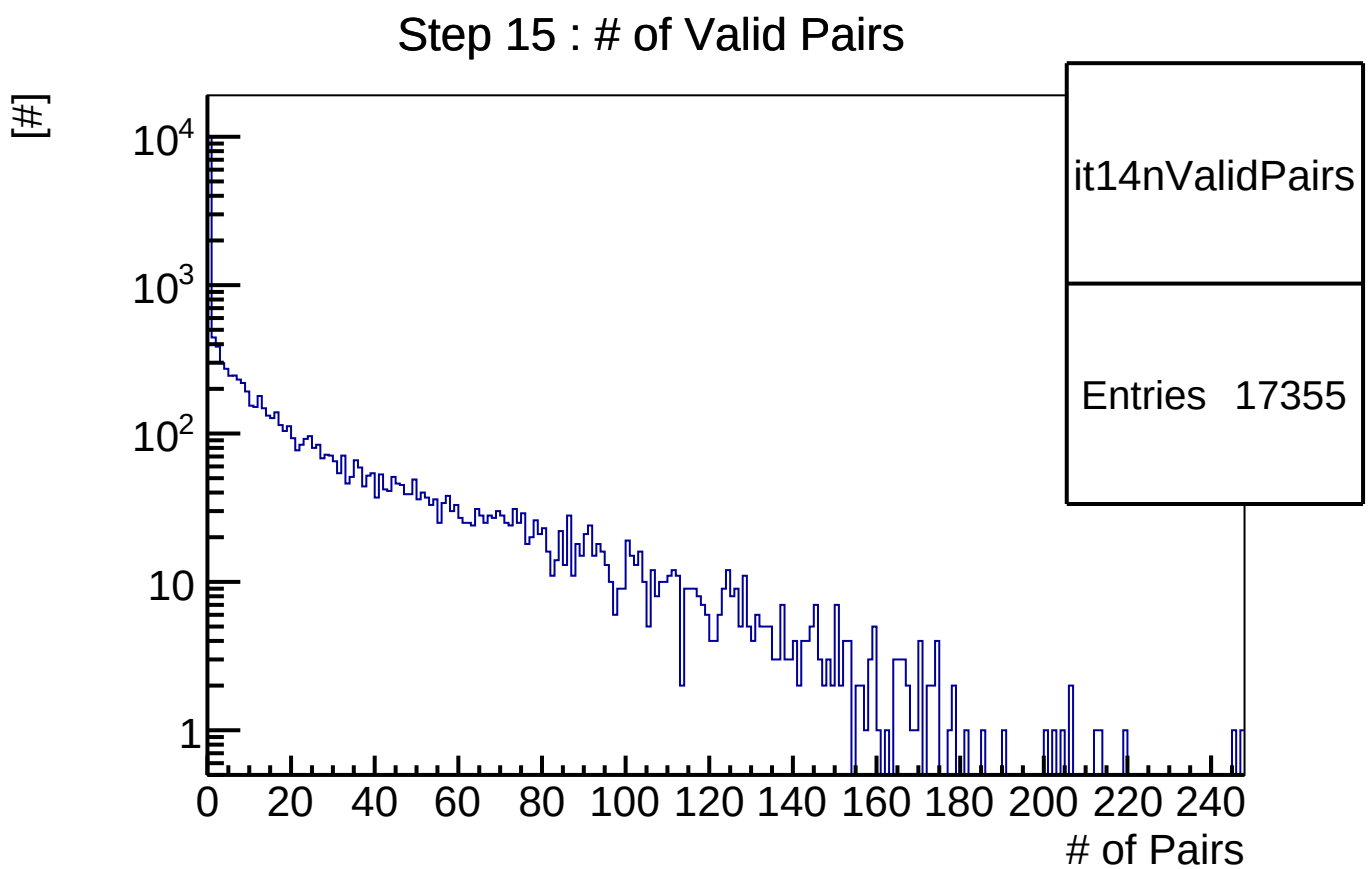
Step 15 : TPC vs. VPD z Vertex

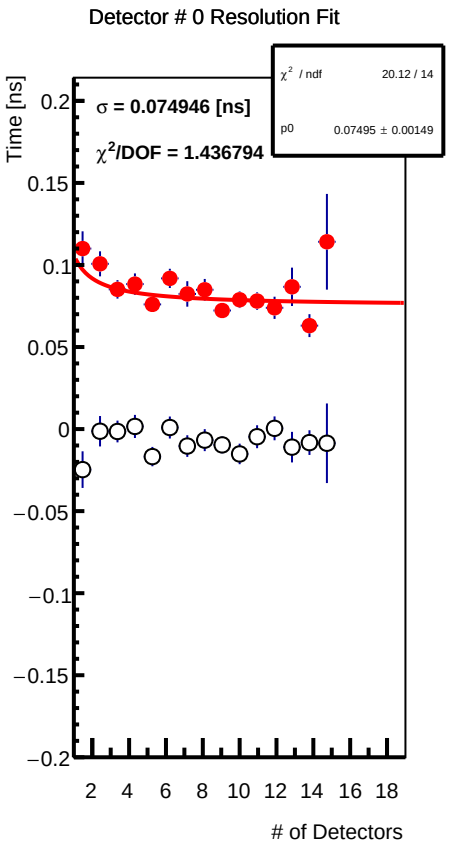


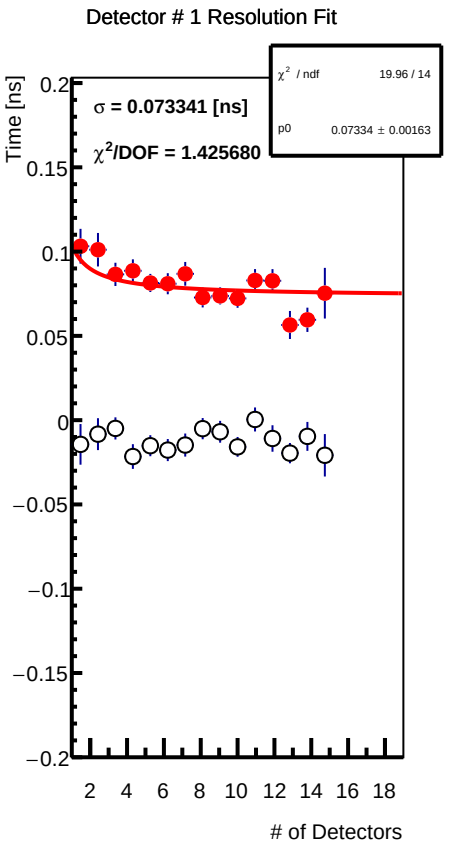
Step 15 : TPC vs. VPD z Vertex using <East> & <West>

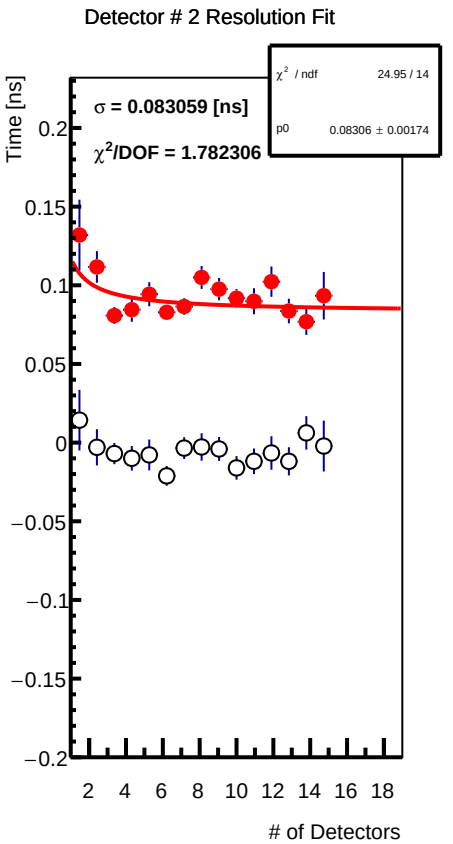


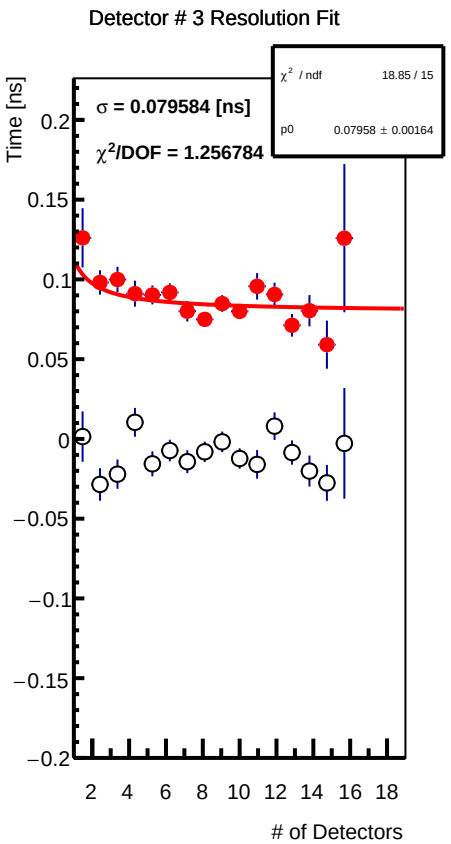

Step 15 : # of Accepted Detectors
[#]
East
West
it14nAcceptedEast
Entries 17355
10^4
10^3
10^2
0 2 4 6 8 10 12 14 16 18
# of Detectors

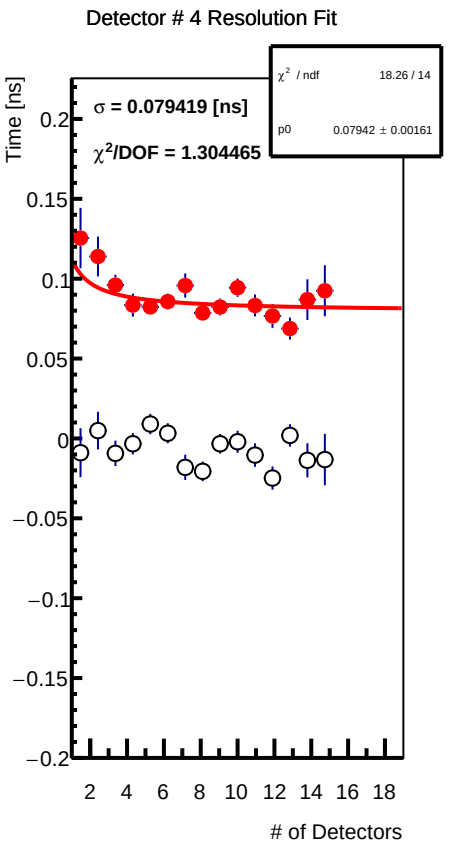

Step 15 : # of Valid Pairs
[#]
it14nValidPairs
Entries 17355
10^4
10^3
10^2
10
1
0 20 40 60 80 100 120 140 160 180 200 220 240
# of Pairs

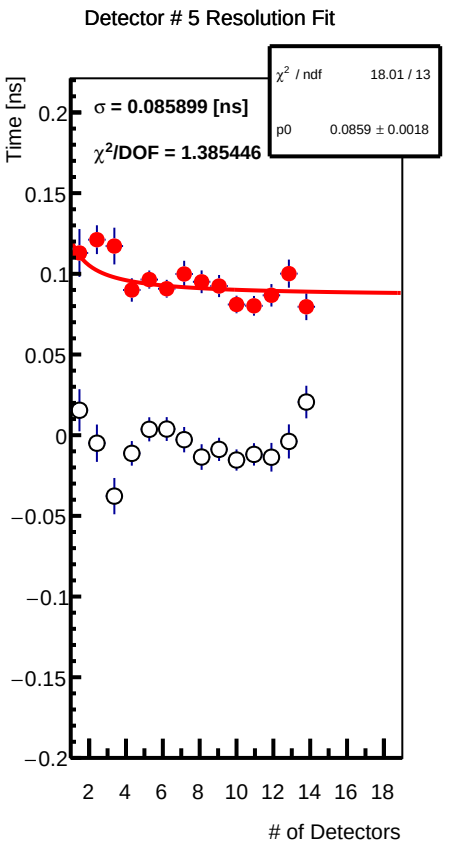

Detector # 0 Resolution Fit
σ = 0.074946 [ns]
χ²/DOF = 1.436794
χ² / ndf 20.12 / 14
p0 0.07495 ± 0.00149
Time [ns]
# of Detectors

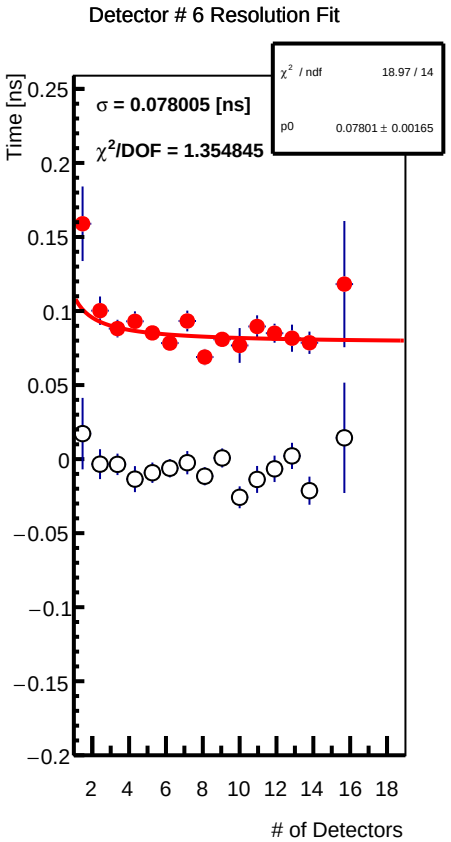

Detector # 1 Resolution Fit
σ = 0.073341 [ns]
χ²/DOF = 1.425680
χ² / ndf 19.96 / 14
p0 0.07334 ± 0.00163
Time [ns]
# of Detectors

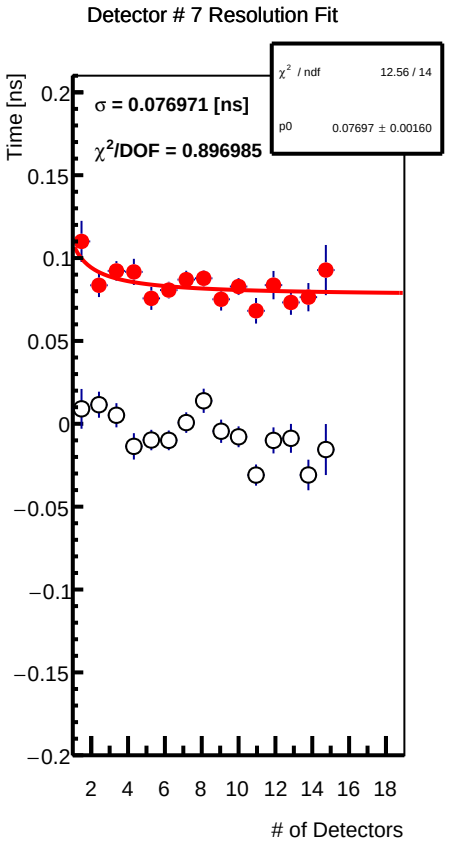

Detector # 2 Resolution Fit
σ = 0.083059 [ns]
χ²/DOF = 1.782306
χ² / ndf 24.95 / 14
p0 0.08306 ± 0.00174
Time [ns]
# of Detectors

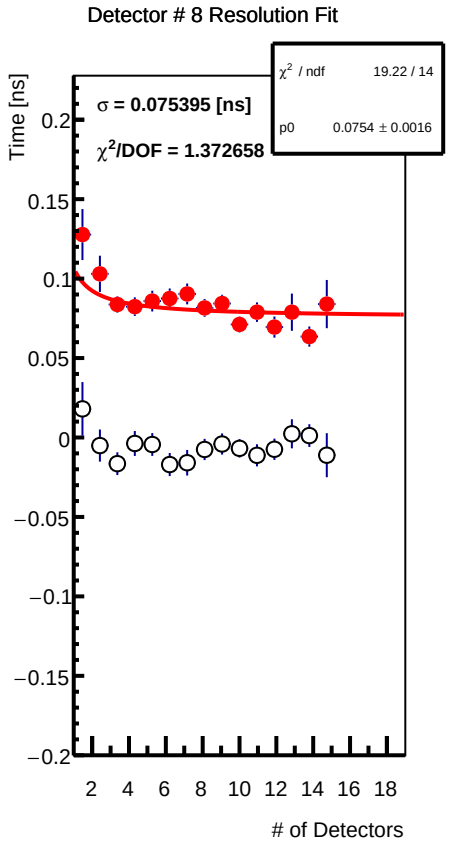

Detector # 3 Resolution Fit
σ = 0.079584 [ns]
χ²/DOF = 1.256784
χ² / ndf 18.85 / 15
p0 0.07958 ± 0.00164
Time [ns]
# of Detectors

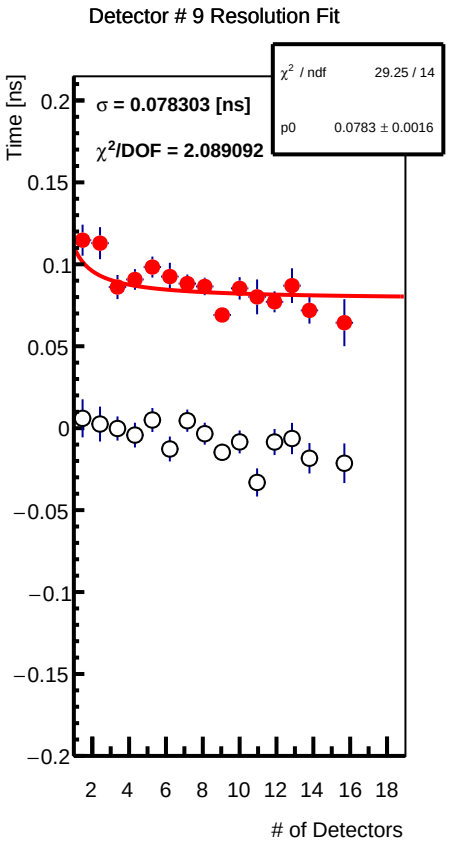

Detector # 4 Resolution Fit
σ = 0.079419 [ns]
χ²/DOF = 1.304465
χ² / ndf 18.26 / 14
p0 0.07942 ± 0.00161
Time [ns]
# of Detectors

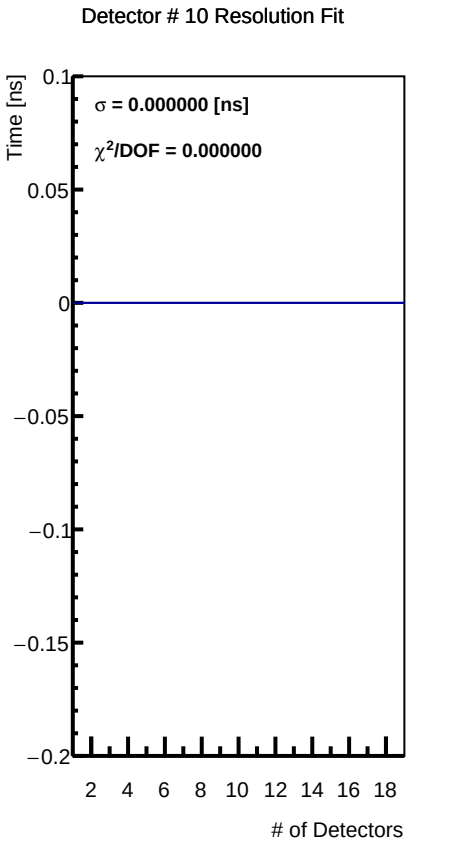

Detector # 5 Resolution Fit
σ = 0.085899 [ns]
χ²/DOF = 1.385446
χ² / ndf 18.01 / 13
p0 0.0859 ± 0.0018
Time [ns]
# of Detectors

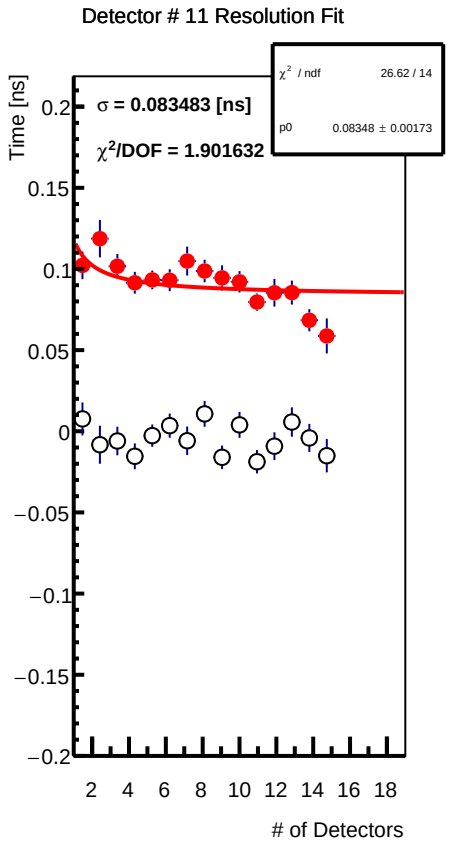

Detector # 6 Resolution Fit
σ = 0.078005 [ns]
χ²/DOF = 1.354845
χ² / ndf 18.97 / 14
p0 0.07801 ± 0.00165
Time [ns]
# of Detectors

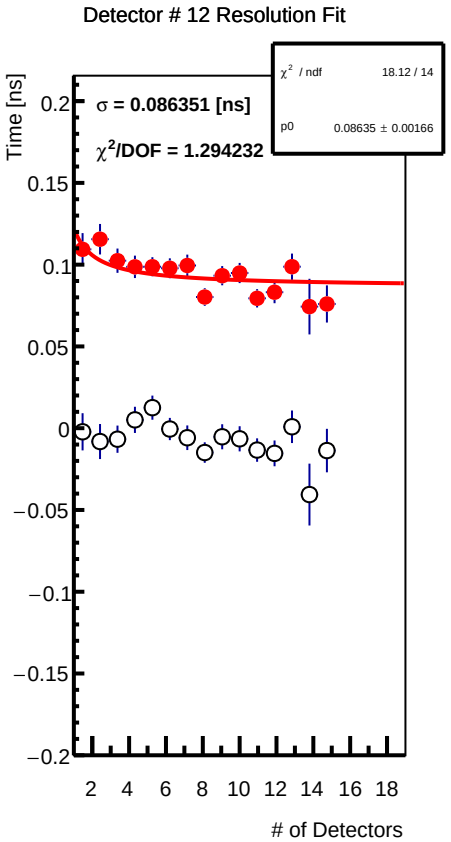

Detector # 7 Resolution Fit
σ = 0.076971 [ns]
χ²/DOF = 0.896985
χ² / ndf 12.56 / 14
p0 0.07697 ± 0.00160
Time [ns]
# of Detectors

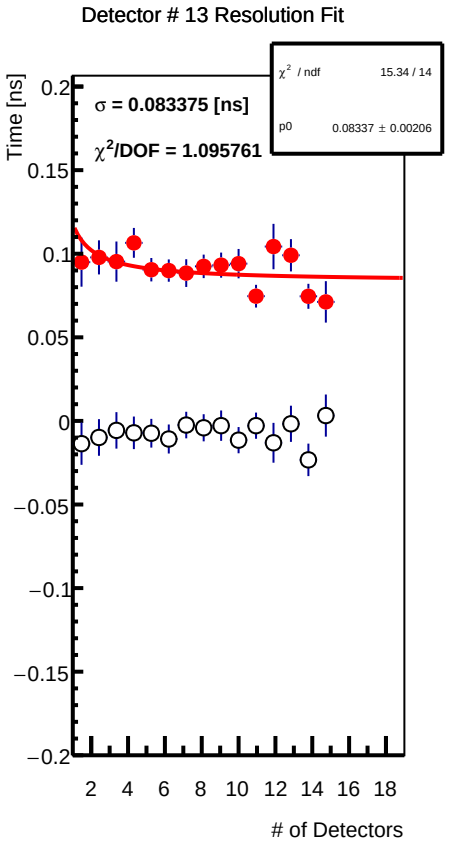

Detector # 8 Resolution Fit
σ = 0.075395 [ns]
χ²/DOF = 1.372658
χ² / ndf 19.22 / 14
p0 0.0754 ± 0.0016
Time [ns]
# of Detectors

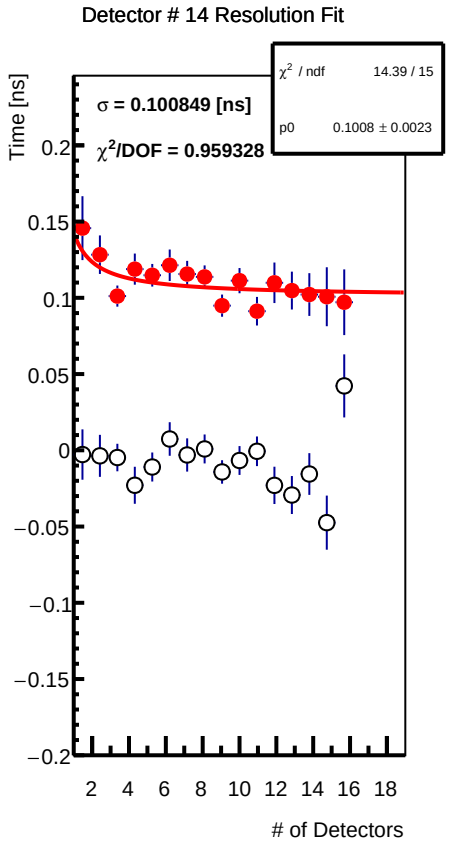

Detector # 9 Resolution Fit
σ = 0.078303 [ns]
χ²/DOF = 2.089092
χ² / ndf 29.25 / 14
p0 0.0783 ± 0.0016
Time [ns]
# of Detectors

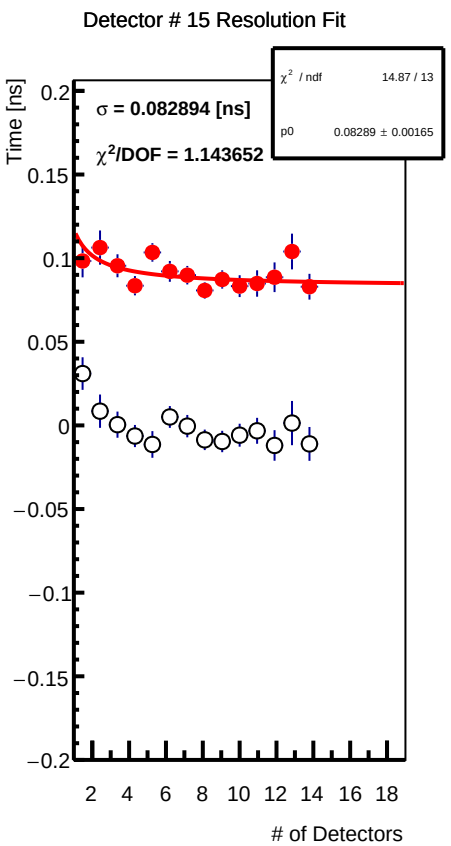

Detector # 10 Resolution Fit
σ = 0.000000 [ns]
χ²/DOF = 0.000000
Time [ns]
# of Detectors

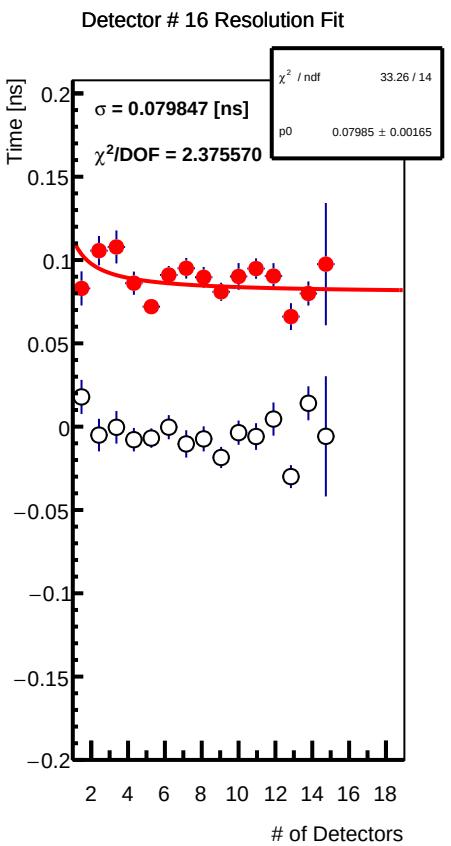

Detector # 11 Resolution Fit
σ = 0.083483 [ns]
χ²/DOF = 1.901632
χ² / ndf 26.62 / 14
p0 0.08348 ± 0.00173
Time [ns]
# of Detectors

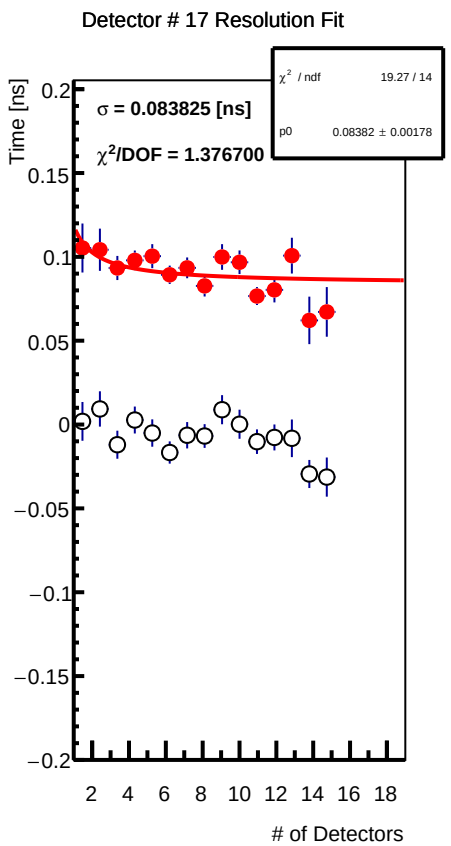

Detector # 12 Resolution Fit
σ = 0.086351 [ns]
χ²/DOF = 1.294232
χ² / ndf 18.12 / 14
p0 0.08635 ± 0.00166
Time [ns]
# of Detectors

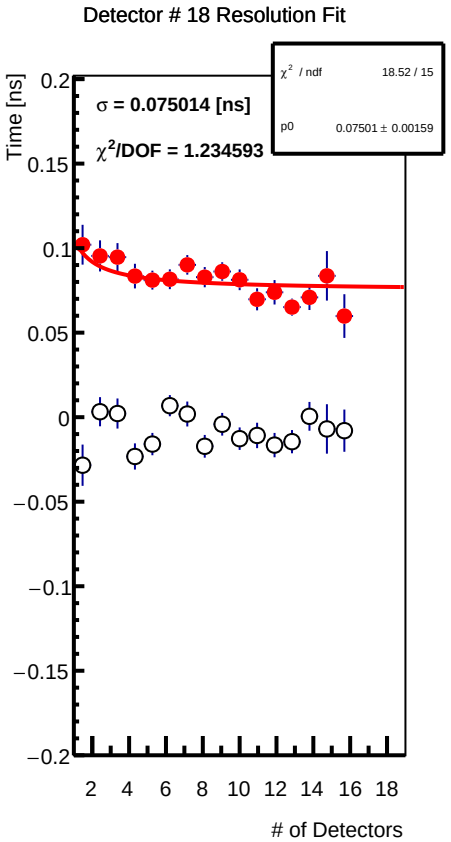

Detector # 13 Resolution Fit
σ = 0.083375 [ns]
χ²/DOF = 1.095761
χ² / ndf 15.34 / 14
p0 0.08337 ± 0.00206
Time [ns]
# of Detectors

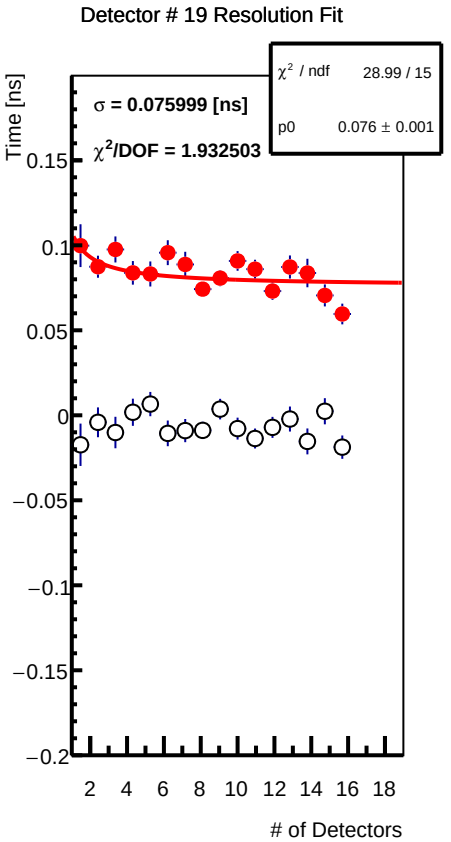

Detector # 14 Resolution Fit
σ = 0.100849 [ns]
χ²/DOF = 0.959328
χ² / ndf 14.39 / 15
p0 0.1008 ± 0.0023
Time [ns]
# of Detectors

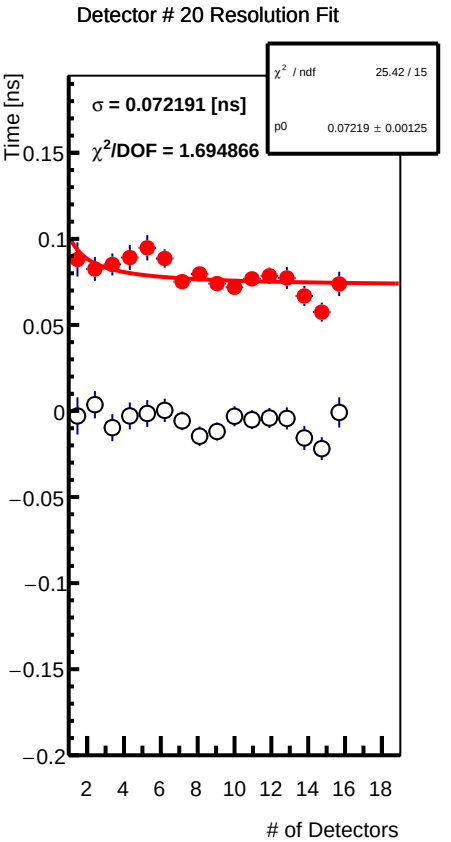

Detector # 15 Resolution Fit
σ = 0.082894 [ns]
χ²/DOF = 1.143652
χ² / ndf 14.87 / 13
p0 0.08289 ± 0.00165
Time [ns]
# of Detectors

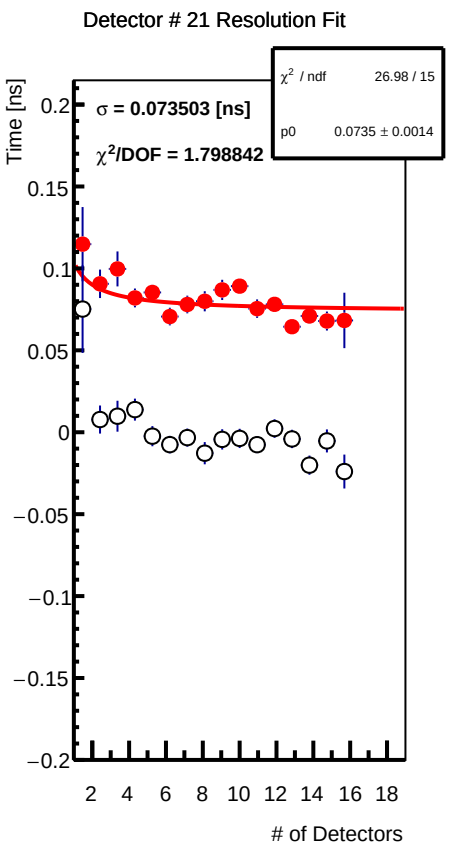

Detector # 16 Resolution Fit
σ = 0.079847 [ns]
χ²/DOF = 2.375570
χ² / ndf 33.26 / 14
p0 0.07985 ± 0.00165
Time [ns]
# of Detectors

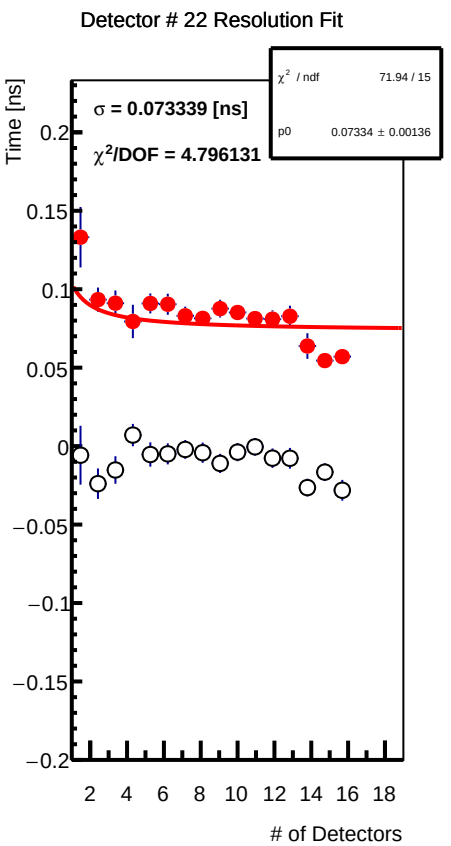

Detector # 17 Resolution Fit
σ = 0.083825 [ns]
χ²/DOF = 1.376700
χ² / ndf 19.27 / 14
p0 0.08382 ± 0.00178
Time [ns]
# of Detectors

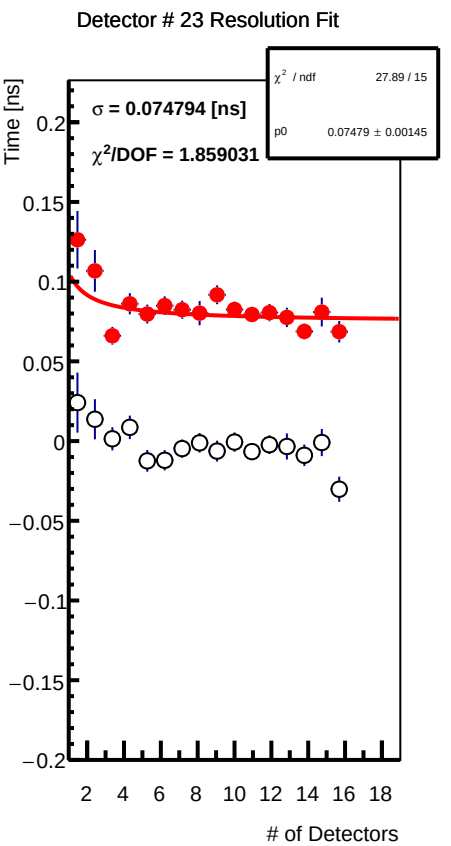

Detector # 18 Resolution Fit
σ = 0.075014 [ns]
χ²/DOF = 1.234593
χ² / ndf 18.52 / 15
p0 0.07501 ± 0.00159
Time [ns]
# of Detectors

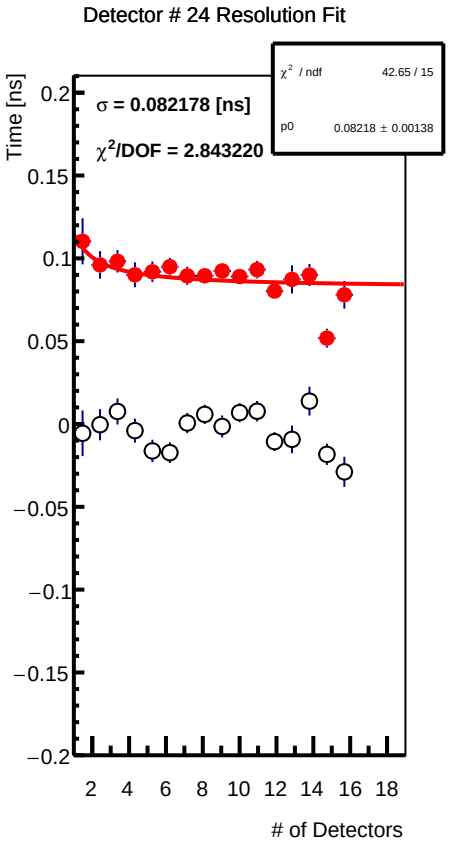

Detector # 19 Resolution Fit
σ = 0.075999 [ns]
χ²/DOF = 1.932503
χ² / ndf 28.99 / 15
p0 0.076 ± 0.001
Time [ns]
# of Detectors

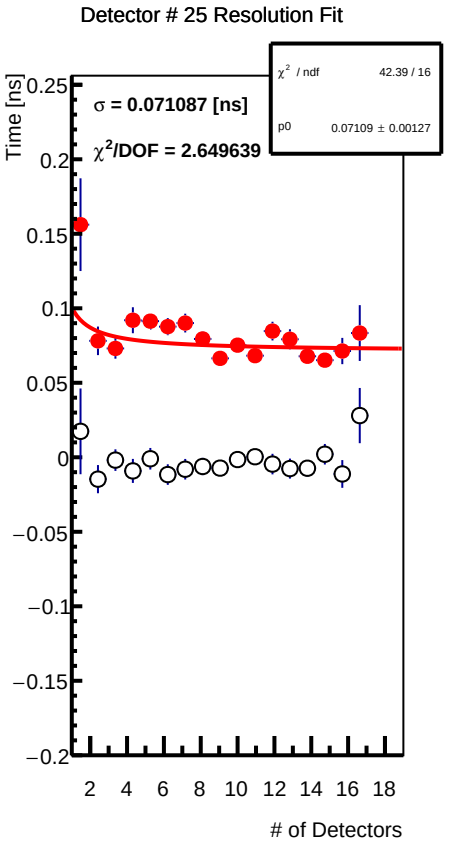

Detector # 20 Resolution Fit
σ = 0.072191 [ns]
χ²/DOF = 1.694866
χ² / ndf 25.42 / 15
p0 0.07219 ± 0.00125
Time [ns]
# of Detectors

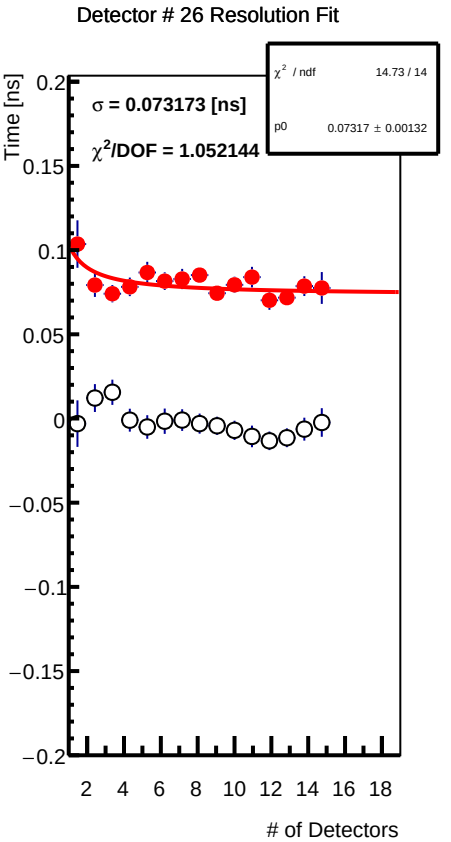

Detector # 21 Resolution Fit
σ = 0.073503 [ns]
χ²/DOF = 1.798842
χ² / ndf 26.98 / 15
p0 0.0735 ± 0.0014
Time [ns]
# of Detectors

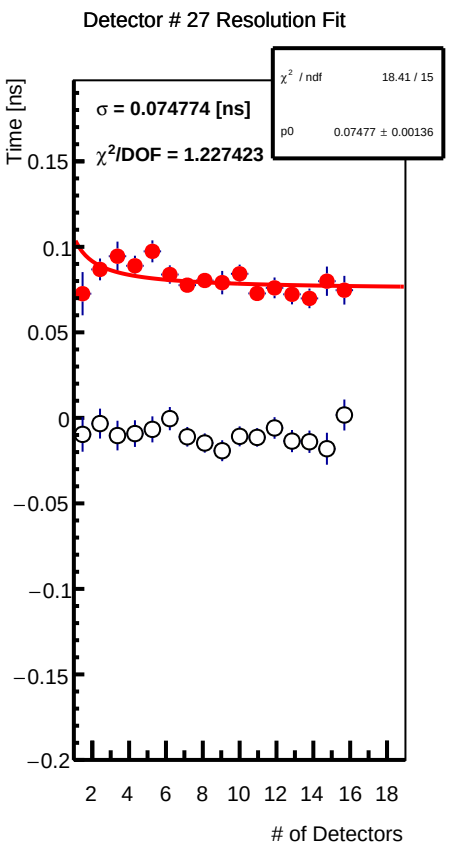

Detector # 22 Resolution Fit
σ = 0.073339 [ns]
χ²/DOF = 4.796131
χ² / ndf 71.94 / 15
p0 0.07334 ± 0.00136
Time [ns]
# of Detectors

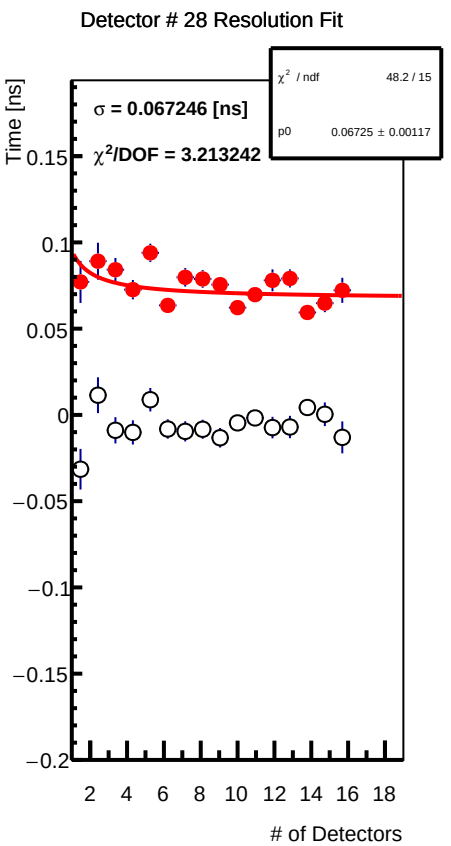

Detector # 23 Resolution Fit
σ = 0.074794 [ns]
χ²/DOF = 1.859031
χ² / ndf 27.89 / 15
p0 0.07479 ± 0.00145
Time [ns]
# of Detectors

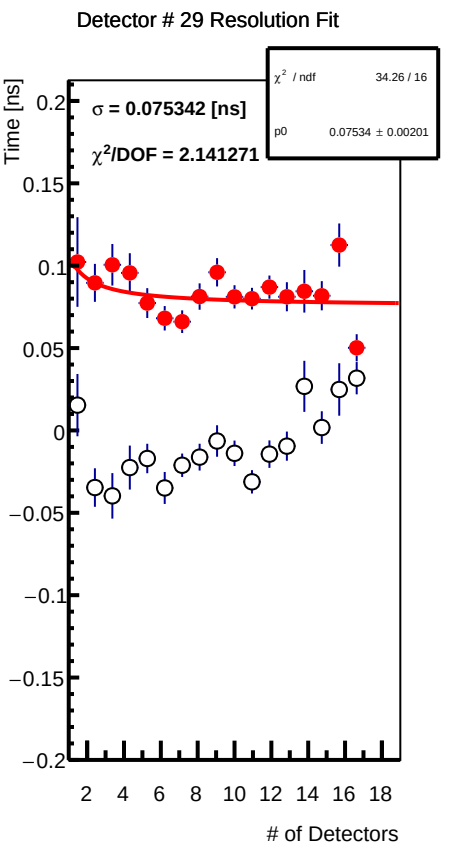

Detector # 24 Resolution Fit
σ = 0.082178 [ns]
χ²/DOF = 2.843220
χ² / ndf 42.65 / 15
p0 0.08218 ± 0.00138
Time [ns]
# of Detectors

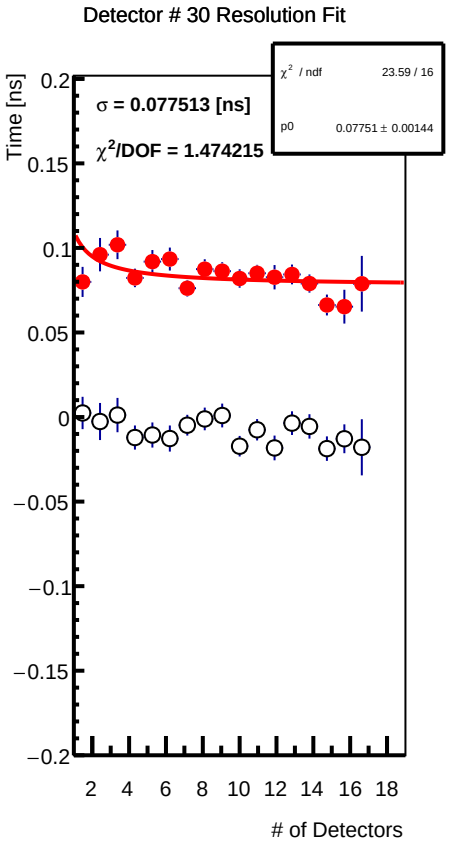

Detector # 25 Resolution Fit
σ = 0.071087 [ns]
χ²/DOF = 2.649639
χ² / ndf 42.39 / 16
p0 0.07109 ± 0.00127
Time [ns]
# of Detectors

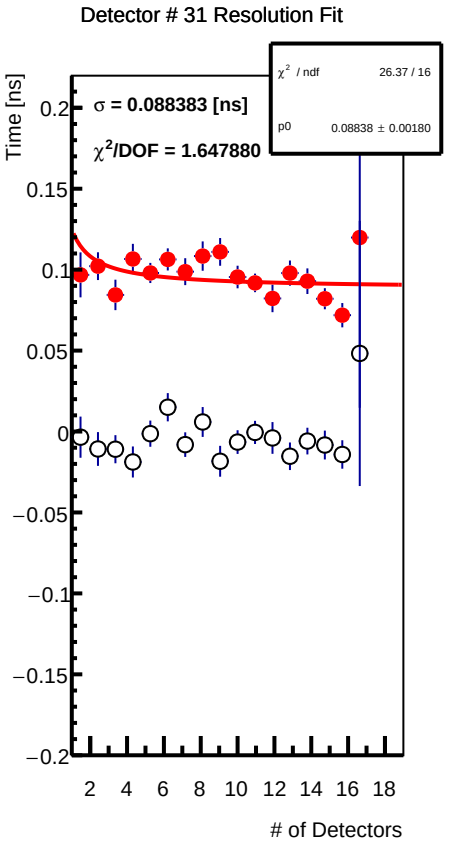

Detector # 26 Resolution Fit
σ = 0.073173 [ns]
χ²/DOF = 1.052144
χ² / ndf 14.73 / 14
p0 0.07317 ± 0.00132
Time [ns]
# of Detectors

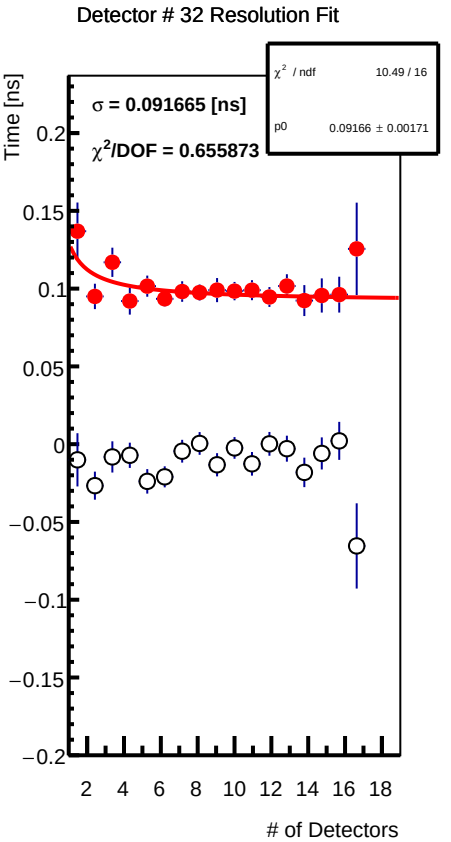

Detector # 27 Resolution Fit
σ = 0.074774 [ns]
χ²/DOF = 1.227423
χ² / ndf 18.41 / 15
p0 0.07477 ± 0.00136
Time [ns]
# of Detectors

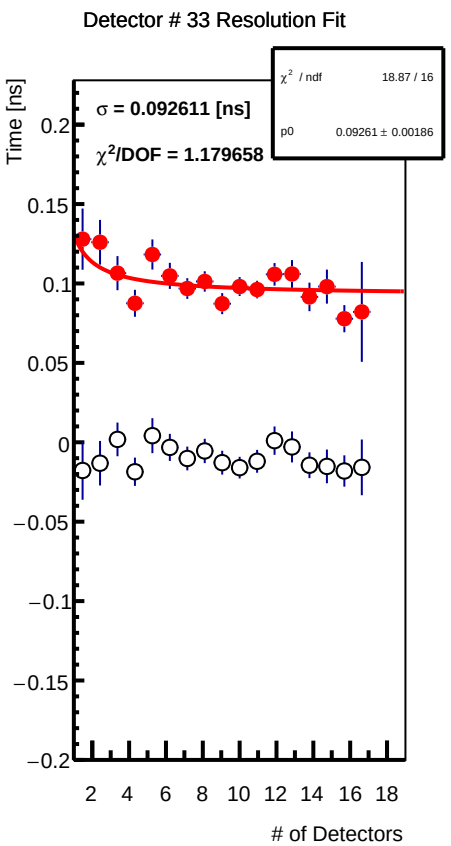

Detector # 28 Resolution Fit
σ = 0.067246 [ns]
χ²/DOF = 3.213242
χ² / ndf 48.2 / 15
p0 0.06725 ± 0.00117
Time [ns]
# of Detectors

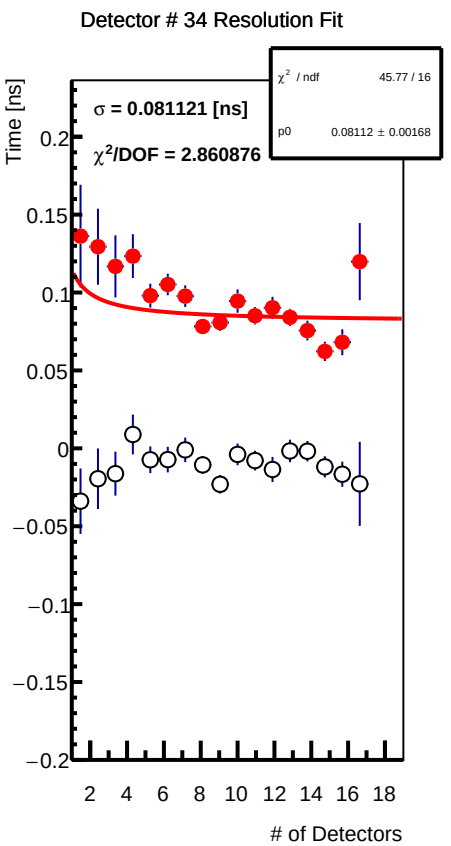

Detector # 29 Resolution Fit
σ = 0.075342 [ns]
χ²/DOF = 2.141271
χ² / ndf 34.26 / 16
p0 0.07534 ± 0.00201
Time [ns]
# of Detectors

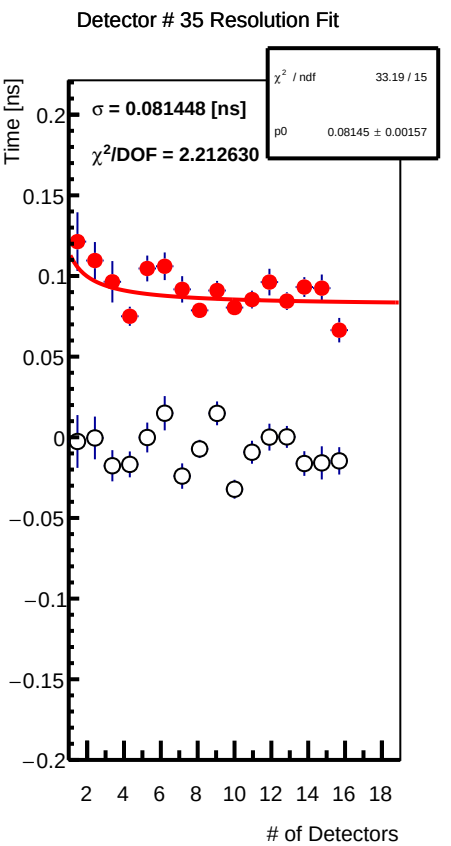

Detector # 30 Resolution Fit
σ = 0.077513 [ns]
χ²/DOF = 1.474215
χ² / ndf 23.59 / 16
p0 0.07751 ± 0.00144
Time [ns]
# of Detectors


Detector # 31 Resolution Fit
σ = 0.088383 [ns]
χ²/DOF = 1.647880
χ² / ndf 26.37 / 16
p0 0.08838 ± 0.00180
Time [ns]
# of Detectors

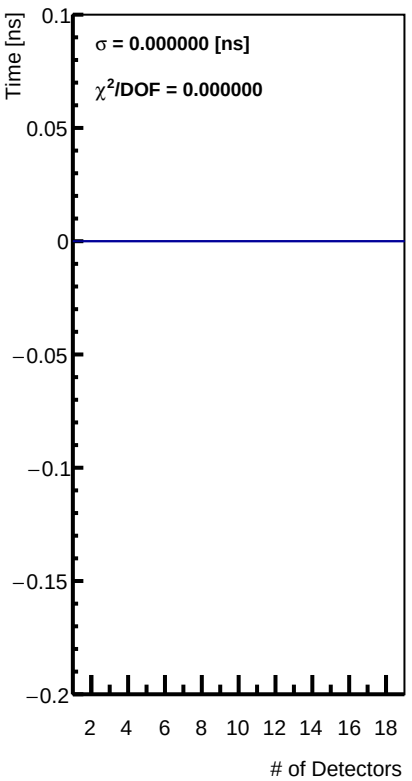

Detector # 32 Resolution Fit
σ = 0.091665 [ns]
χ²/DOF = 0.655873
χ² / ndf 10.49 / 16
p0 0.09166 ± 0.00171
Time [ns]
# of Detectors


Detector # 33 Resolution Fit
σ = 0.092611 [ns]
χ²/DOF = 1.179658
χ² / ndf 18.87 / 16
p0 0.09261 ± 0.00186
Time [ns]
# of Detectors

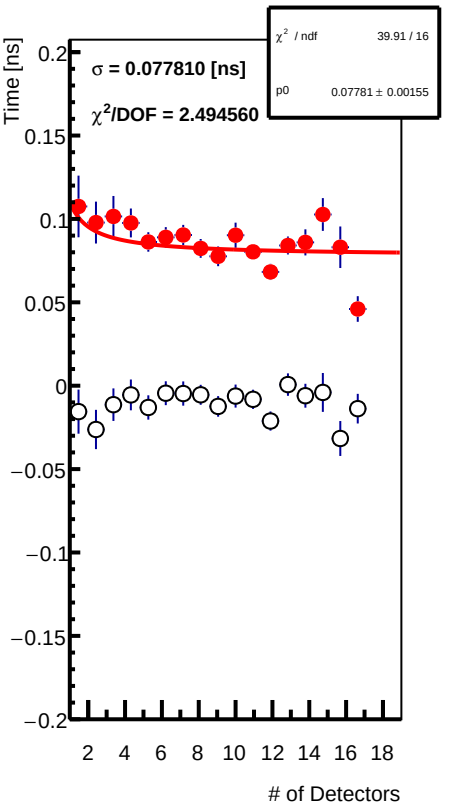

Detector # 34 Resolution Fit
σ = 0.081121 [ns]
χ²/DOF = 2.860876
χ² / ndf 45.77 / 16
p0 0.08112 ± 0.00168
Time [ns]
# of Detectors

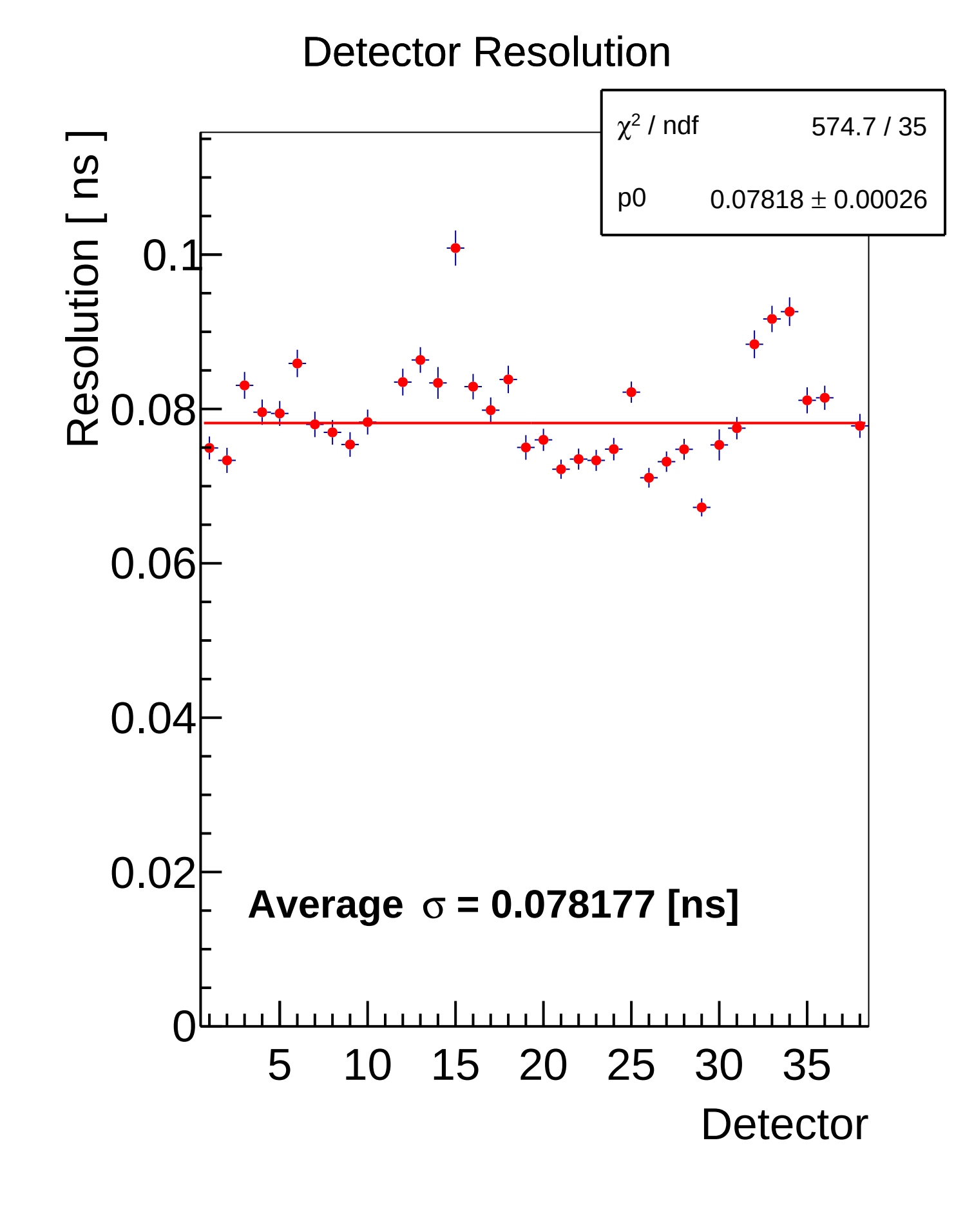

Detector # 35 Resolution Fit
σ = 0.081448 [ns]
χ²/DOF = 2.212630
χ² / ndf 33.19 / 15
p0 0.08145 ± 0.00157
Time [ns]
# of Detectors

Detector # 36 Resolution Fit

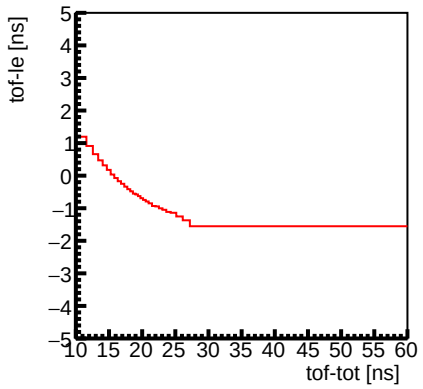


Detector # 37 Resolution Fit

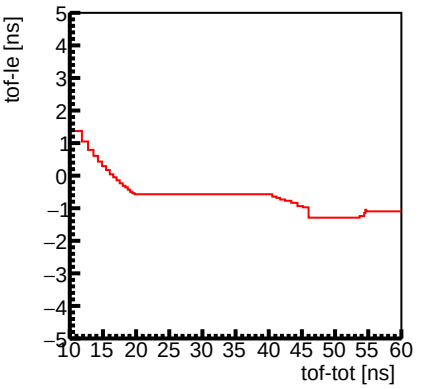



Detector Resolution
χ^2 / ndf 574.7 / 35
p0 0.07818 ± 0.00026
Resolution [ns]
0.1
0.08
0.06
0.04
0.02
0
Average σ = 0.078177 [ns]
5
10
15
20
25
30
35
Detector

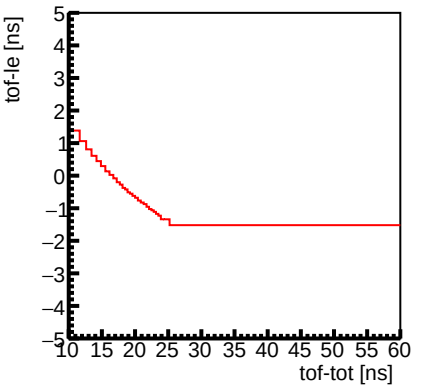
Channel 1 : Slewing Correction



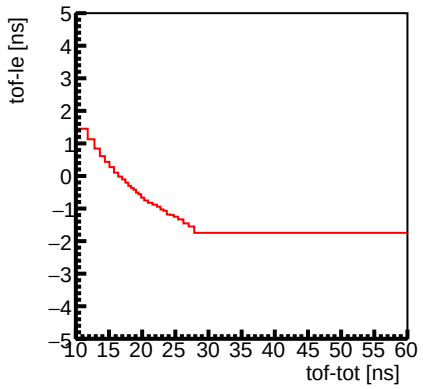
Channel 2 : Slewing Correction



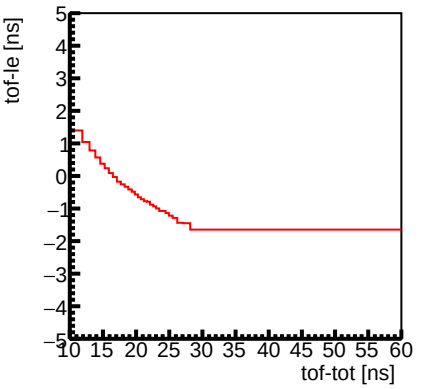
Channel 3 : Slewing Correction



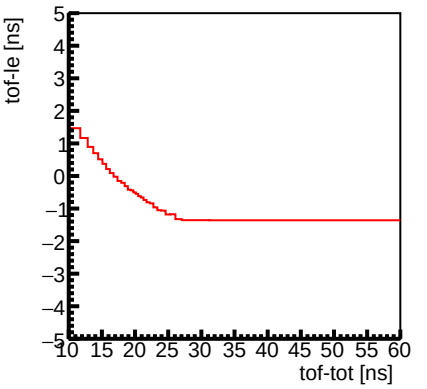
Channel 4 : Slewing Correction



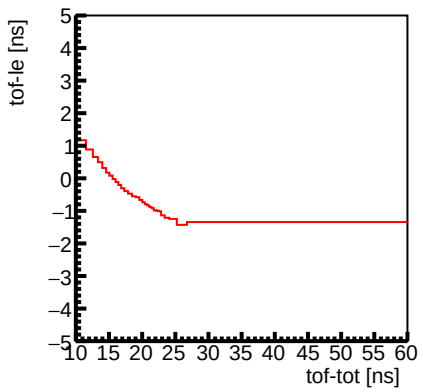
Channel 5 : Slewing Correction



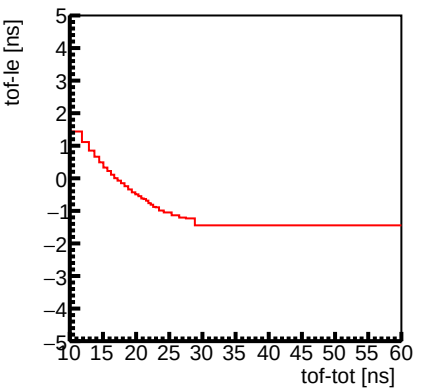
Channel 6 : Slewing Correction



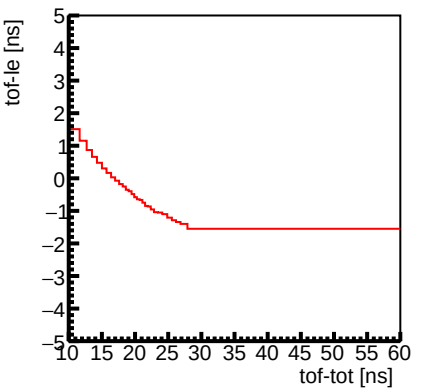
Channel 7 : Slewing Correction



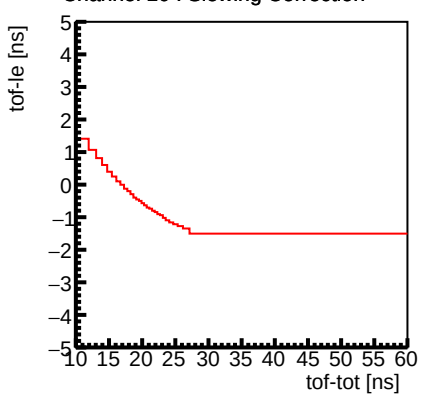
Channel 8 : Slewing Correction



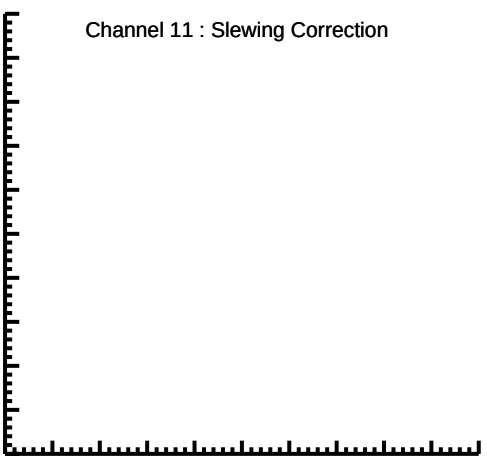
Channel 9 : Slewing Correction



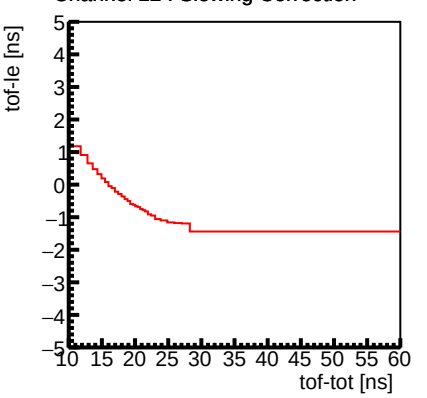
Channel 10 : Slewing Correction



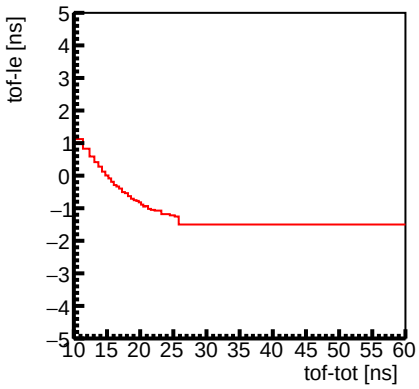
Channel 11 : Slewing Correction



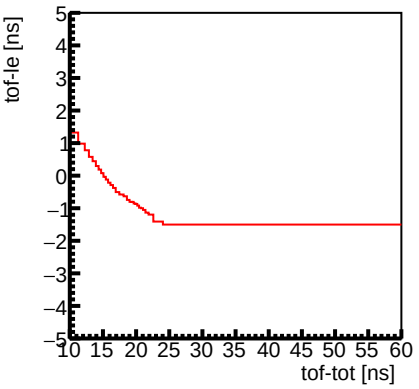
Channel 12 : Slewing Correction



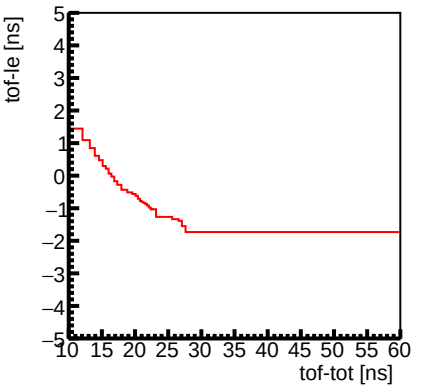
Channel 13 : Slewing Correction



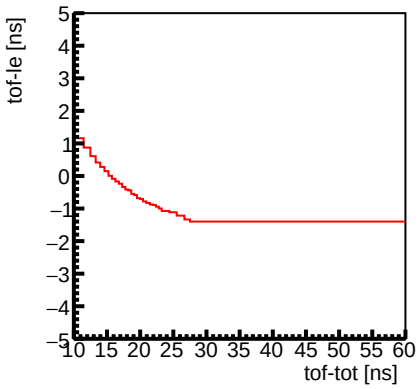
Channel 14 : Slewing Correction



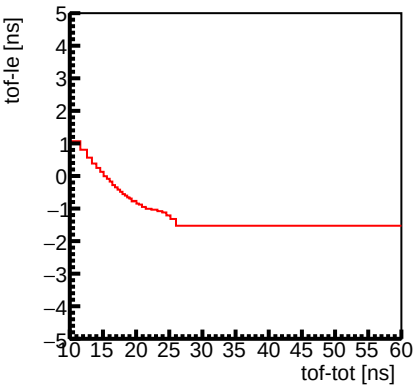
Channel 15 : Slewing Correction



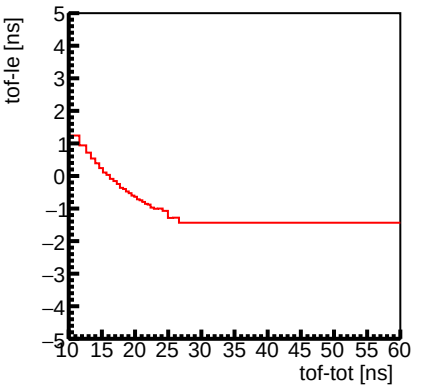
Channel 16 : Slewing Correction



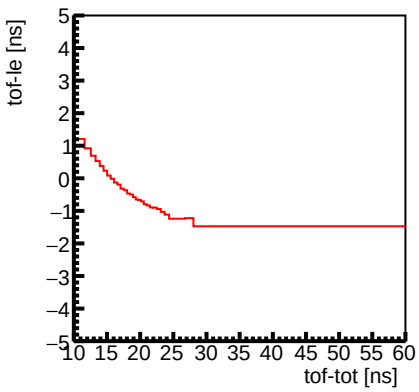
Channel 17 : Slewing Correction

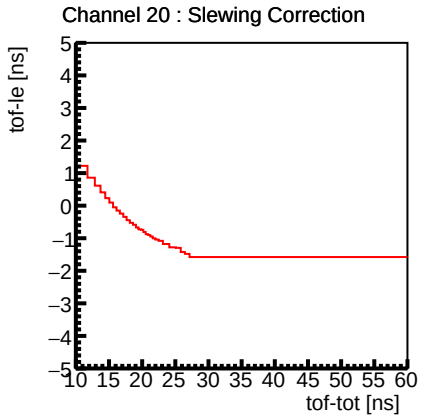


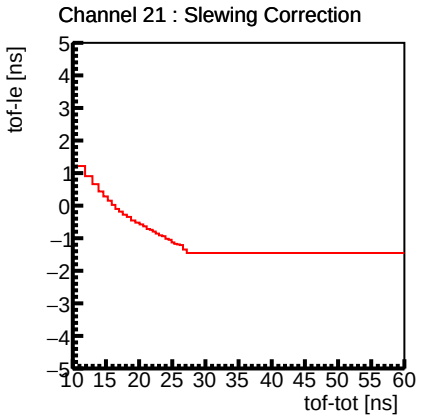
Channel 18 : Slewing Correction

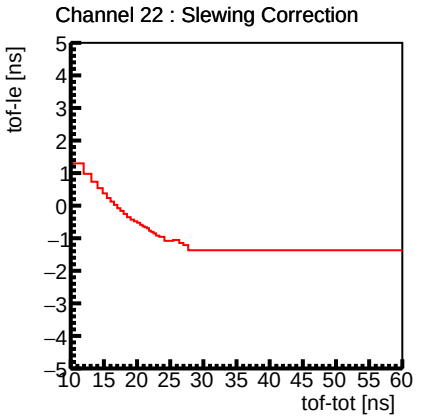


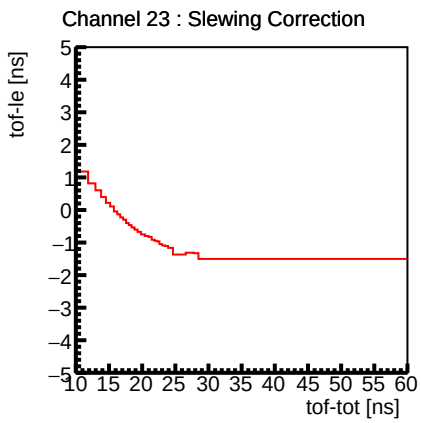
Channel 19 : Slewing Correction

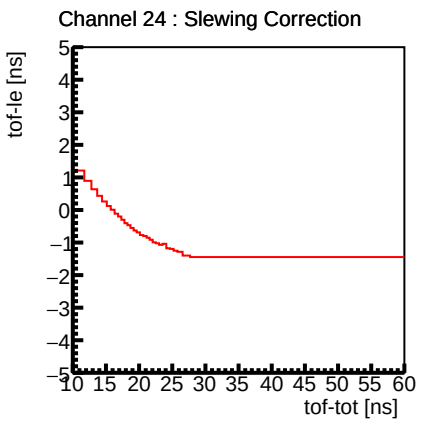


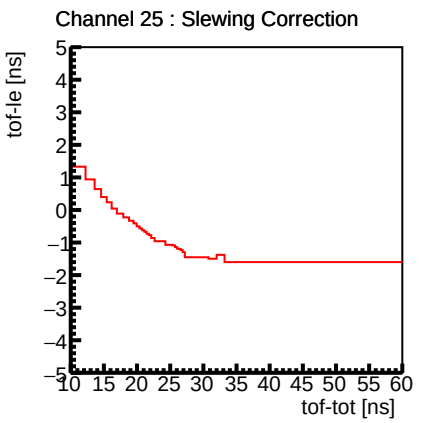

Channel 20 : Slewing Correction
tof-le [ns]
tof-tot [ns]

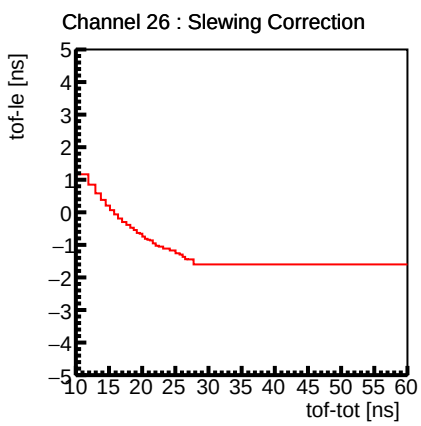

Channel 21 : Slewing Correction
tof-le [ns]
tof-tot [ns]

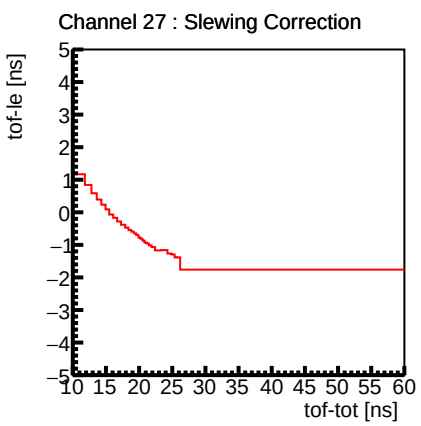

Channel 22 : Slewing Correction
tof-le [ns]
tof-tot [ns]

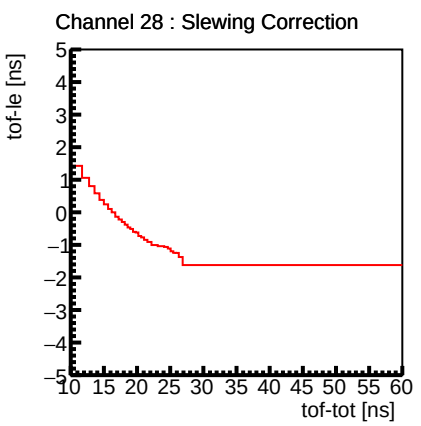

Channel 23 : Slewing Correction
tof-le [ns]
tof-tot [ns]

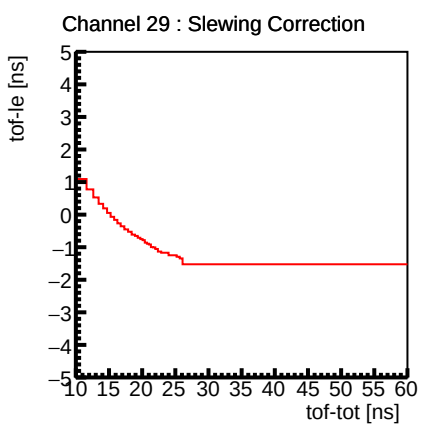

Channel 24 : Slewing Correction
tof-le [ns]
tof-tot [ns]

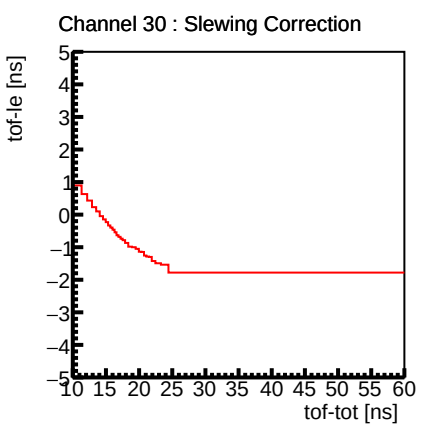

Channel 25 : Slewing Correction
tof-le [ns]
tof-tot [ns]

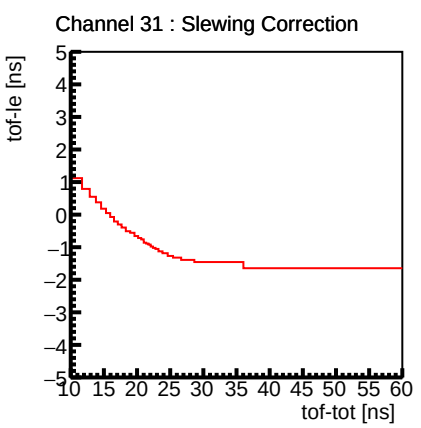

Channel 26 : Slewing Correction
tof-le [ns]
tof-tot [ns]


Channel 27 : Slewing Correction
tof-le [ns]
tof-tot [ns]

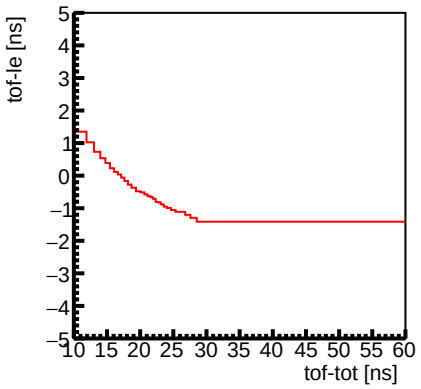

Channel 28 : Slewing Correction
tof-le [ns]
tof-tot [ns]


Channel 29 : Slewing Correction
tof-le [ns]
tof-tot [ns]

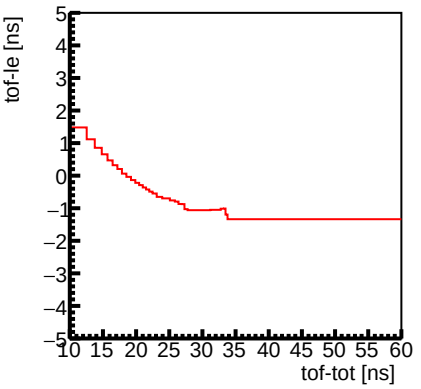

Channel 30 : Slewing Correction
tof-le [ns]
tof-tot [ns]


Channel 31 : Slewing Correction
tof-le [ns]
tof-tot [ns]

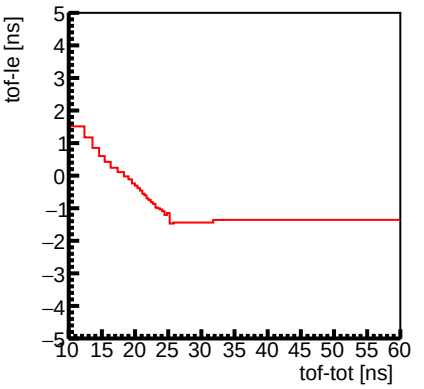
Channel 32 : Slewing Correction



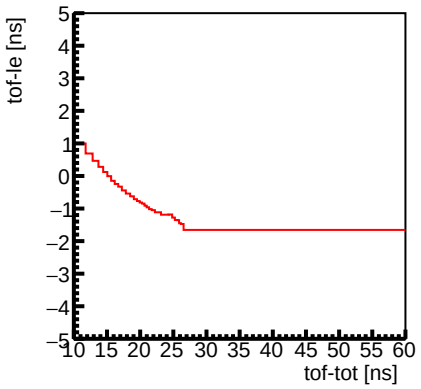
Channel 33 : Slewing Correction



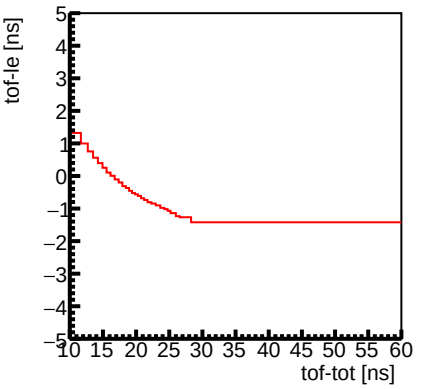
Channel 34 : Slewing Correction



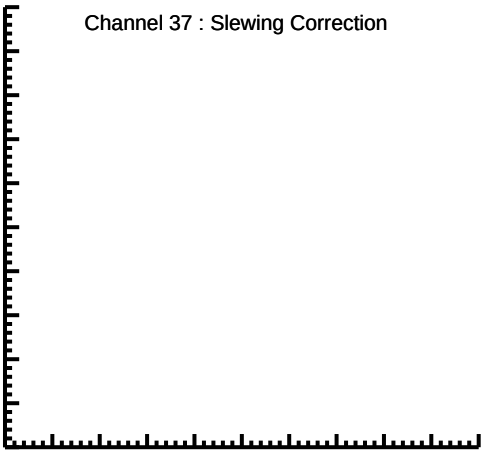
Channel 35 : Slewing Correction



Channel 36 : Slewing Correction



Channel 37 : Slewing Correction



Channel 38 : Slewing Correction