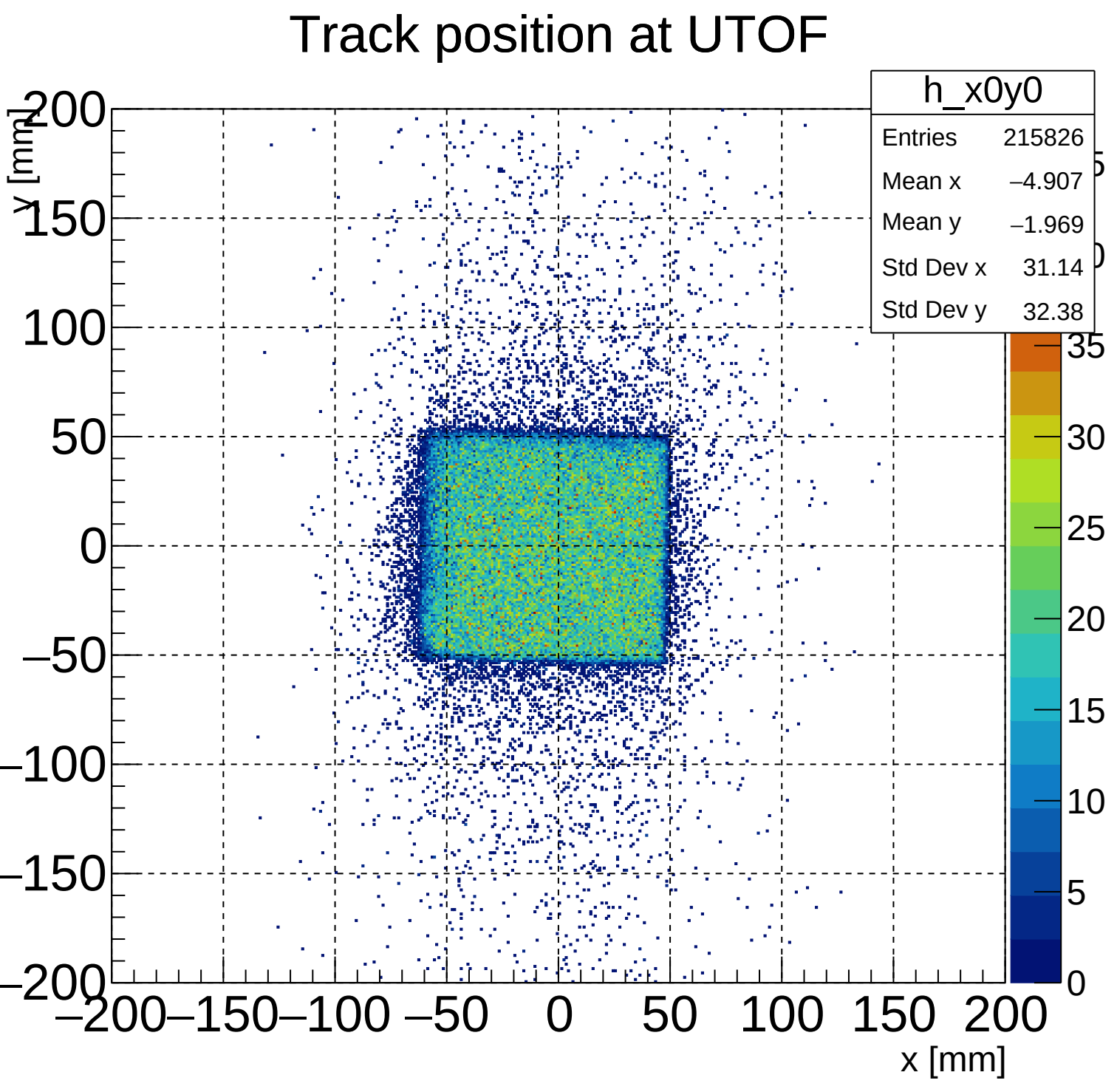
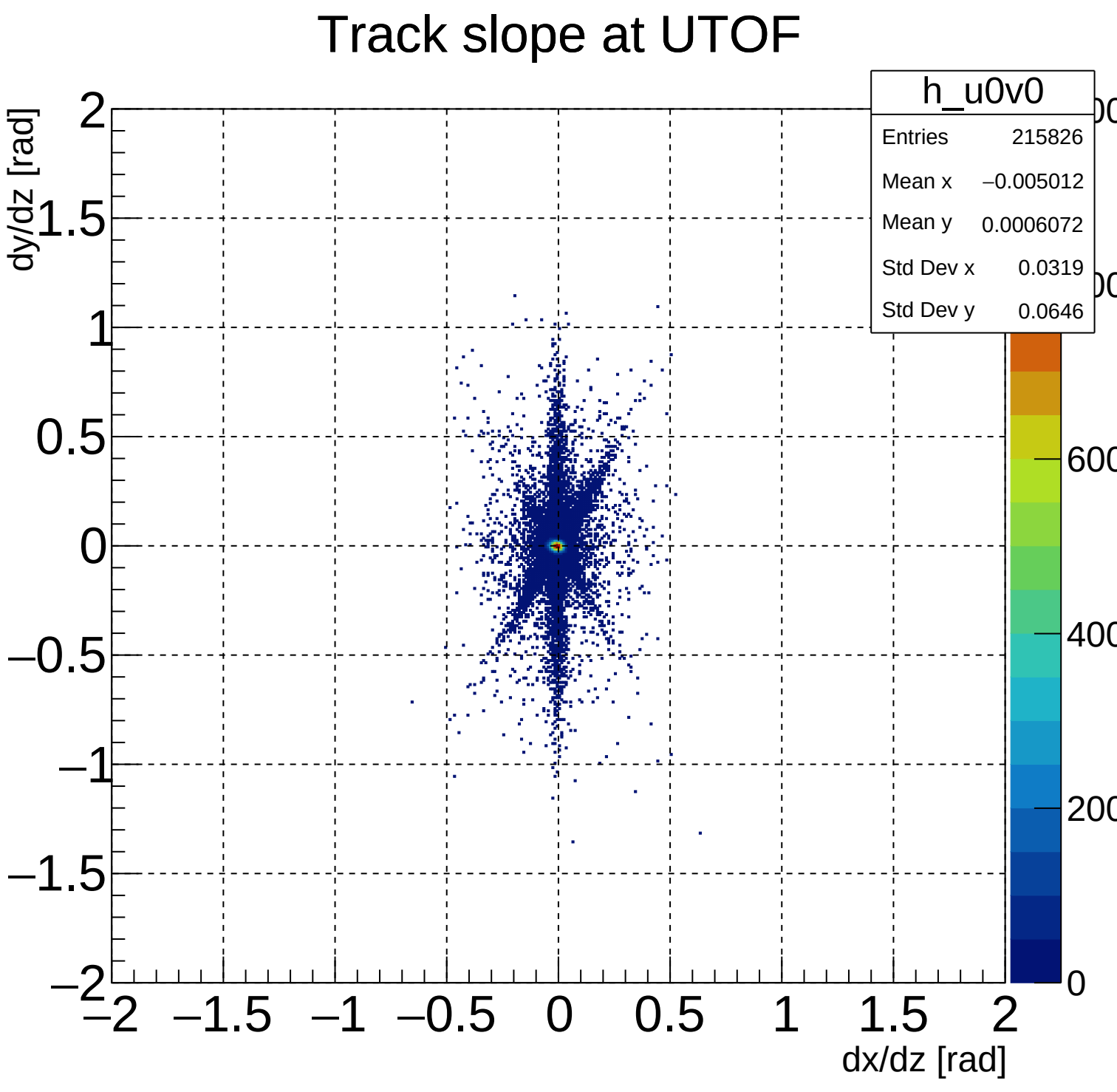
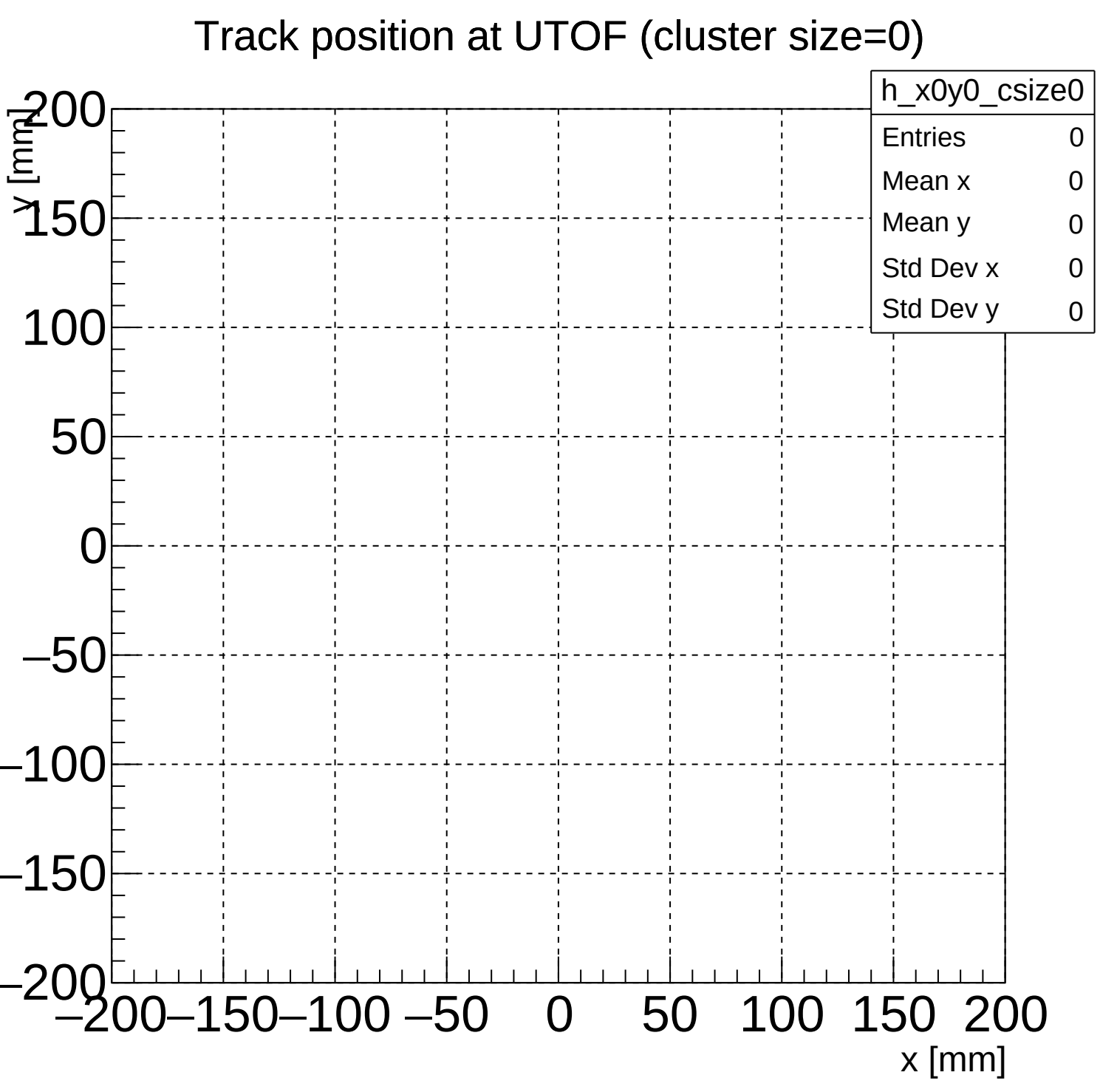
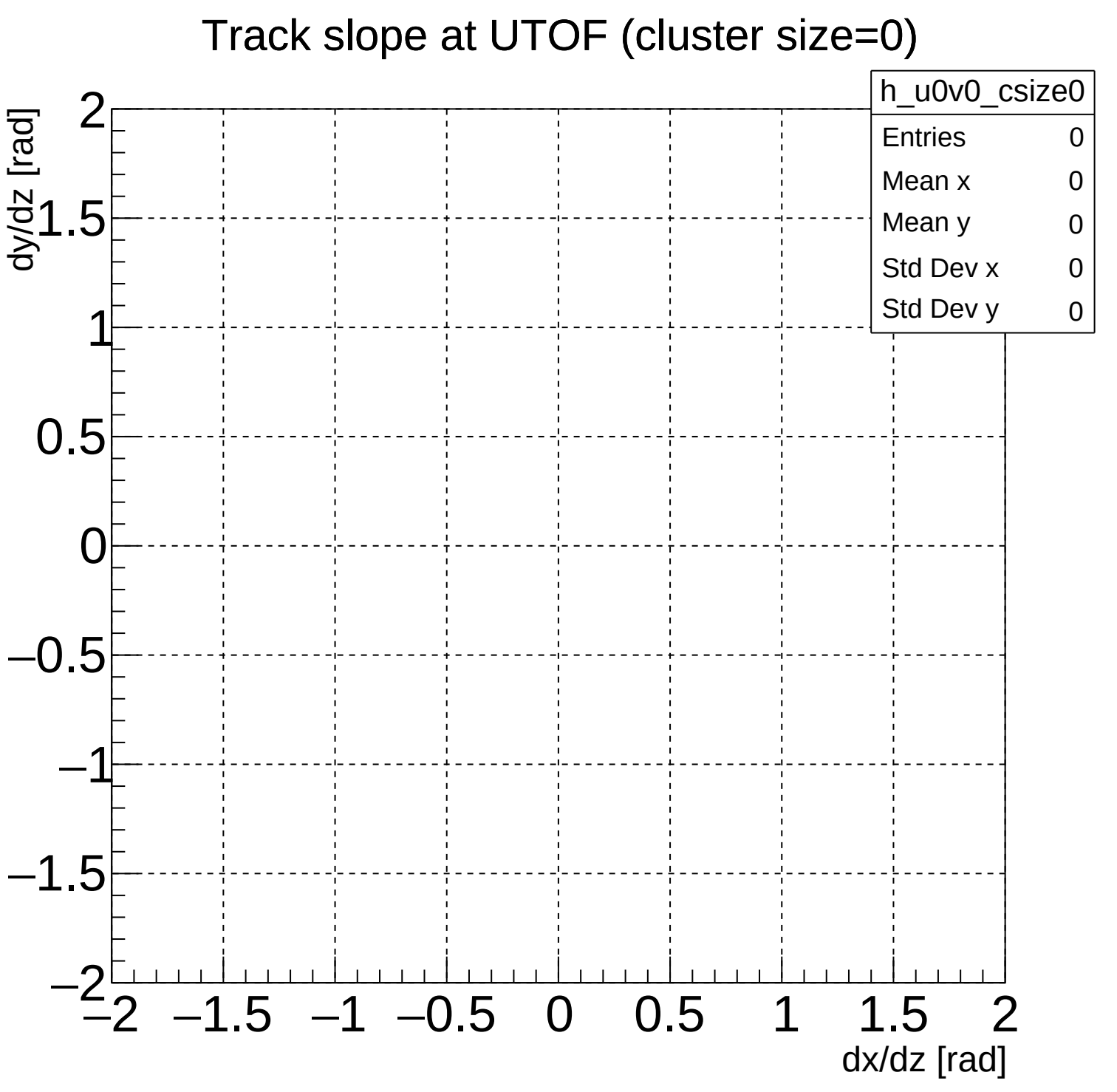
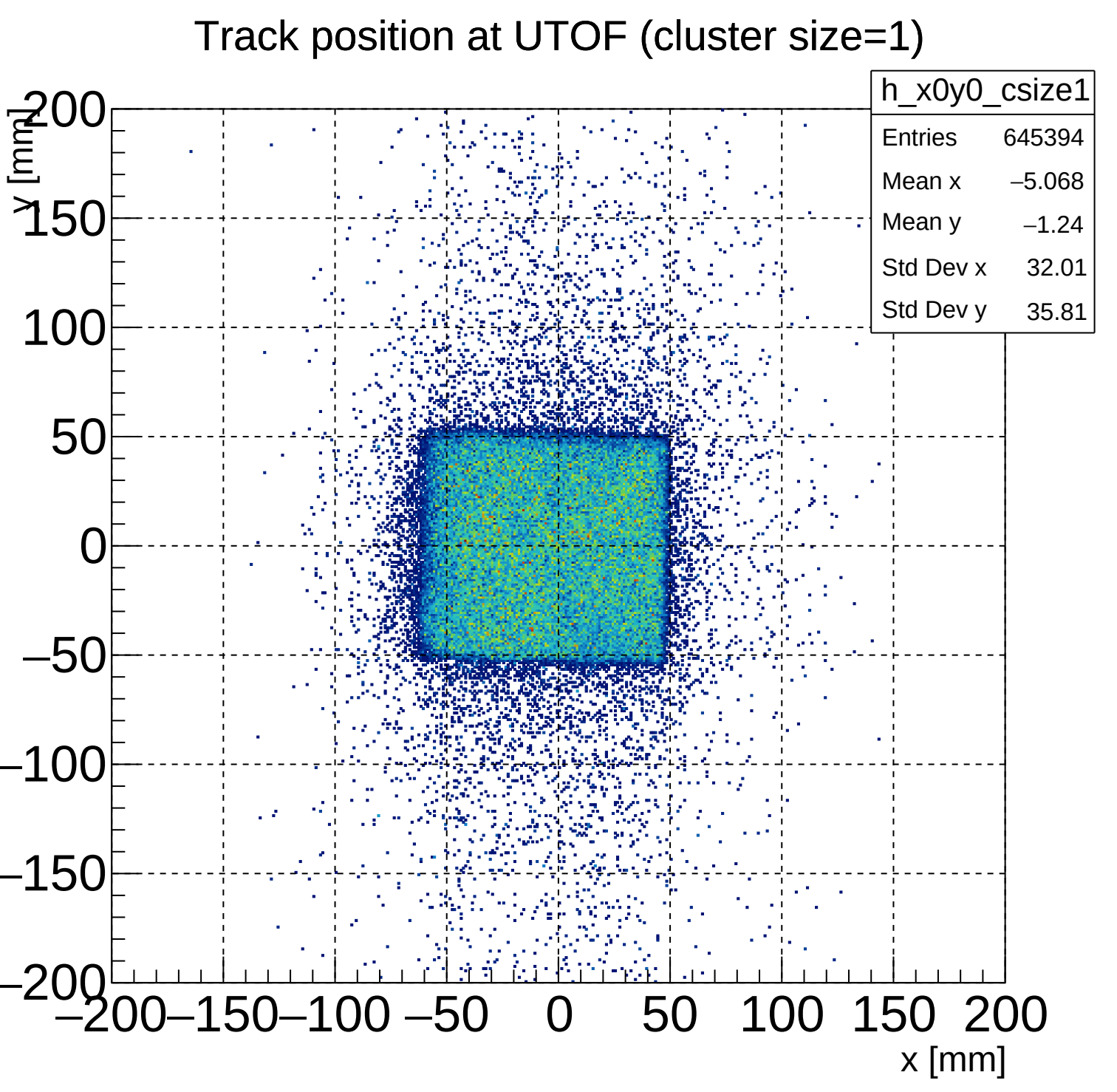
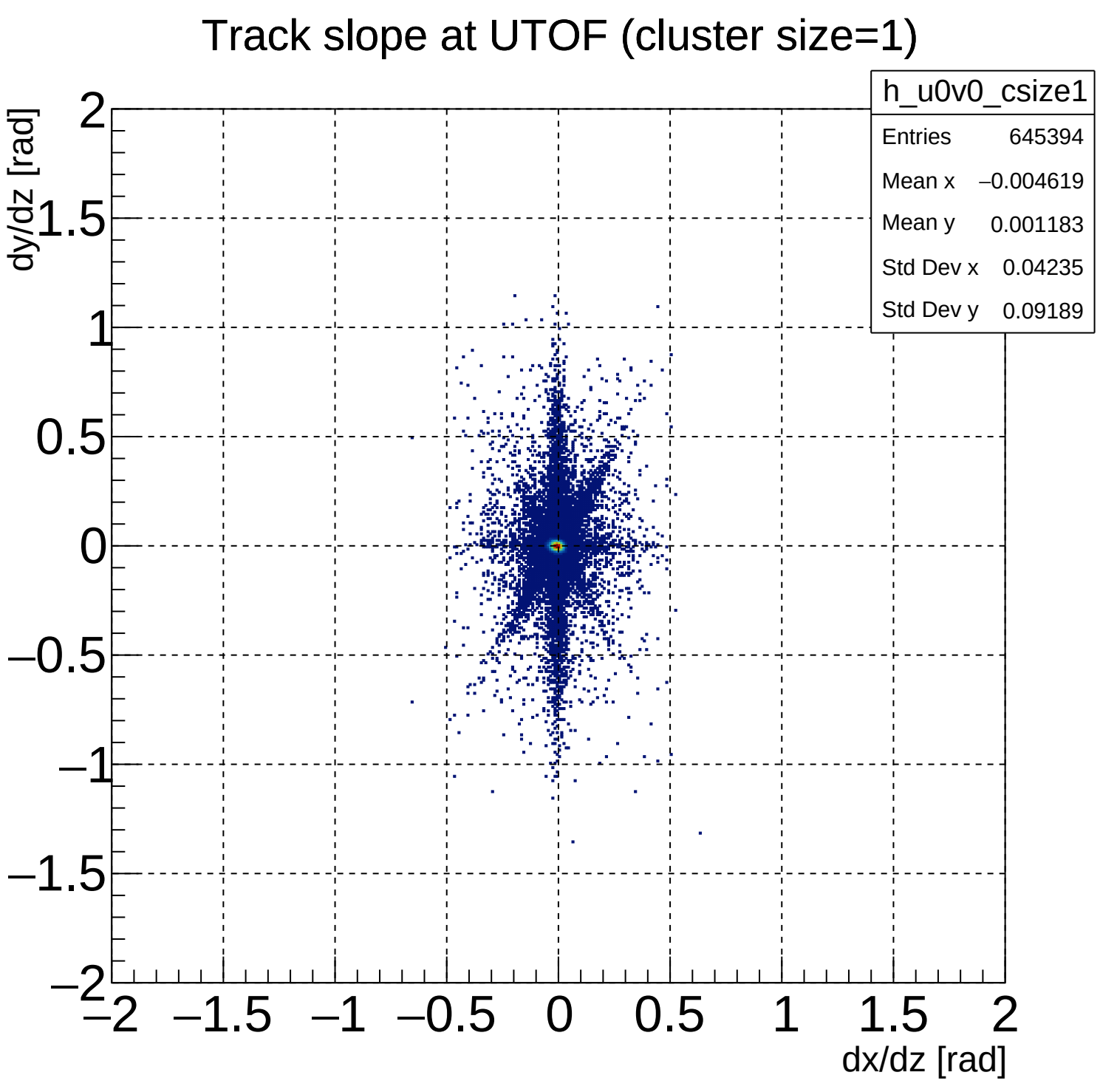

Track position at UTOF
h_x0y0
Entries 215826
Mean x −4.907
Mean y −1.969
Std Dev x 31.14
Std Dev y 32.38
y [mm]
x [mm]
200
150
100
50
0
−50
−100
−150
−200
35
30
25
20
15
10
5
0

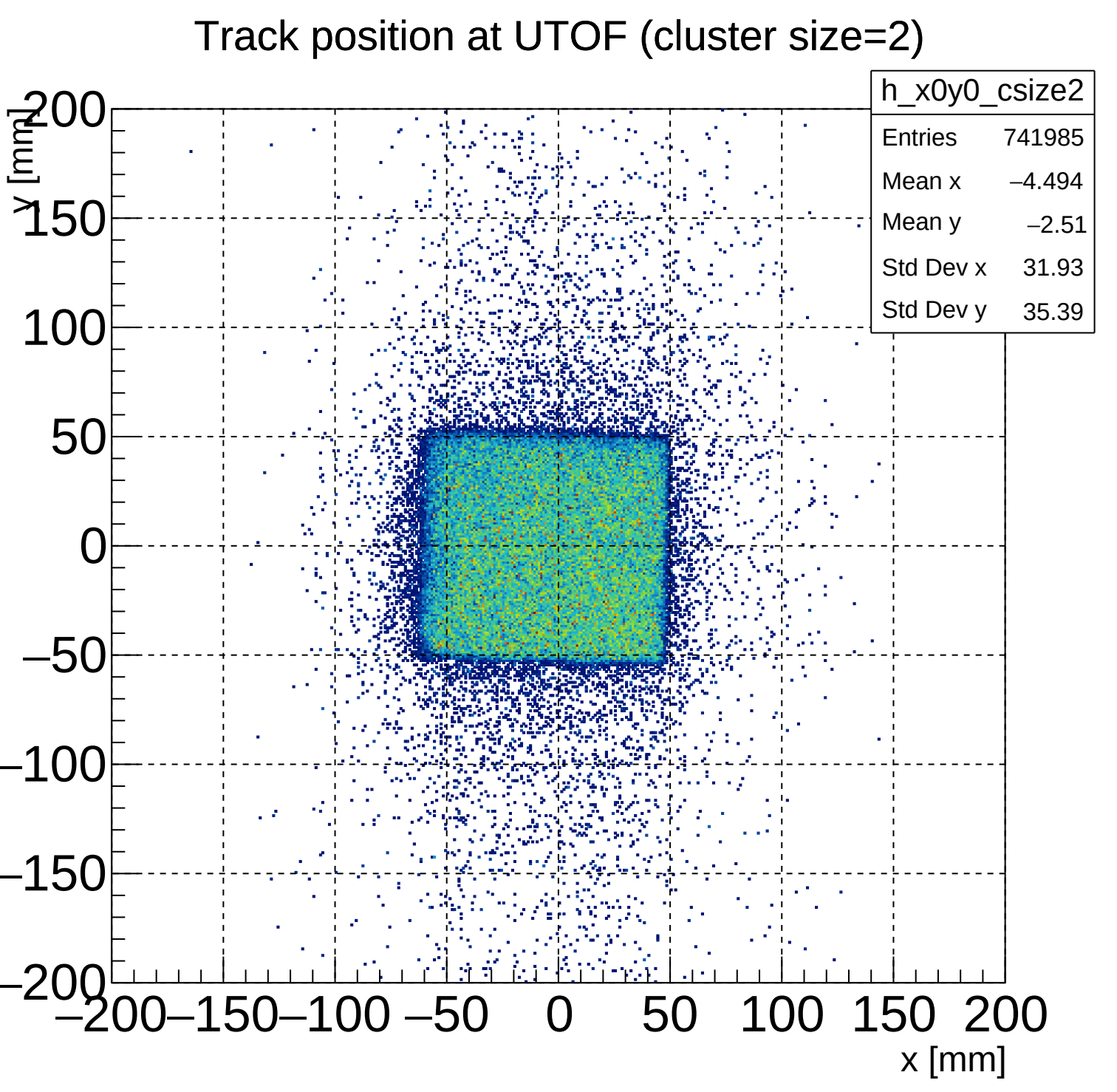

Track slope at UTOF
h_u0v0
Entries 215826
Mean x −0.005012
Mean y 0.0006072
Std Dev x 0.0319
Std Dev y 0.0646
dy/dz [rad]
dx/dz [rad]
2
1.5
1
0.5
0
−0.5
−1
−1.5
−2
600
400
200
0

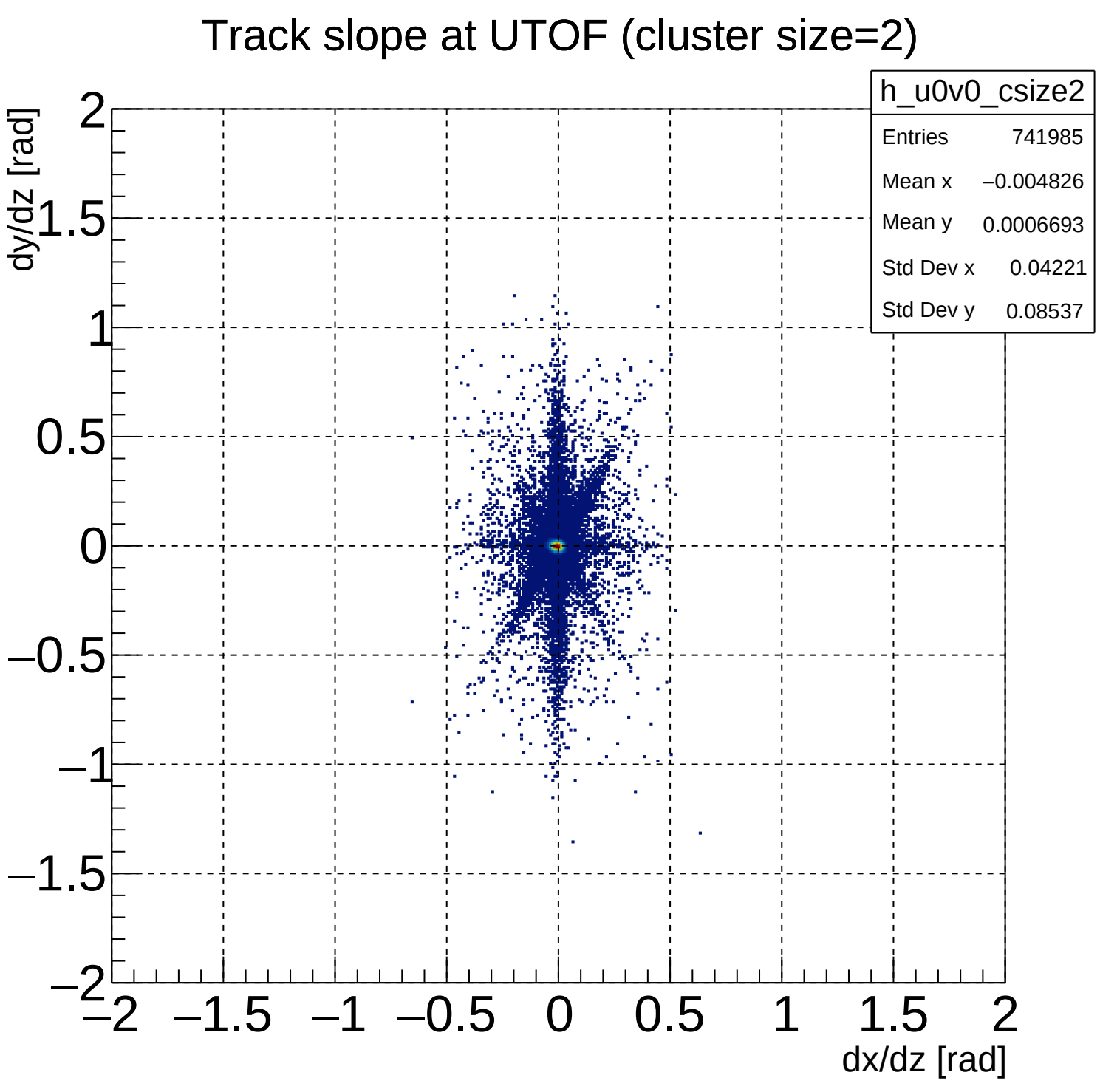

Track position at UTOF (cluster size=0)
h_x0y0_csize0
Entries 0
Mean x 0
Mean y 0
Std Dev x 0
Std Dev y 0
y [mm]
200
150
100
50
0
–50
–100
–150
–200
–200 –150 –100 –50 0 50 100 150 200
x [mm]

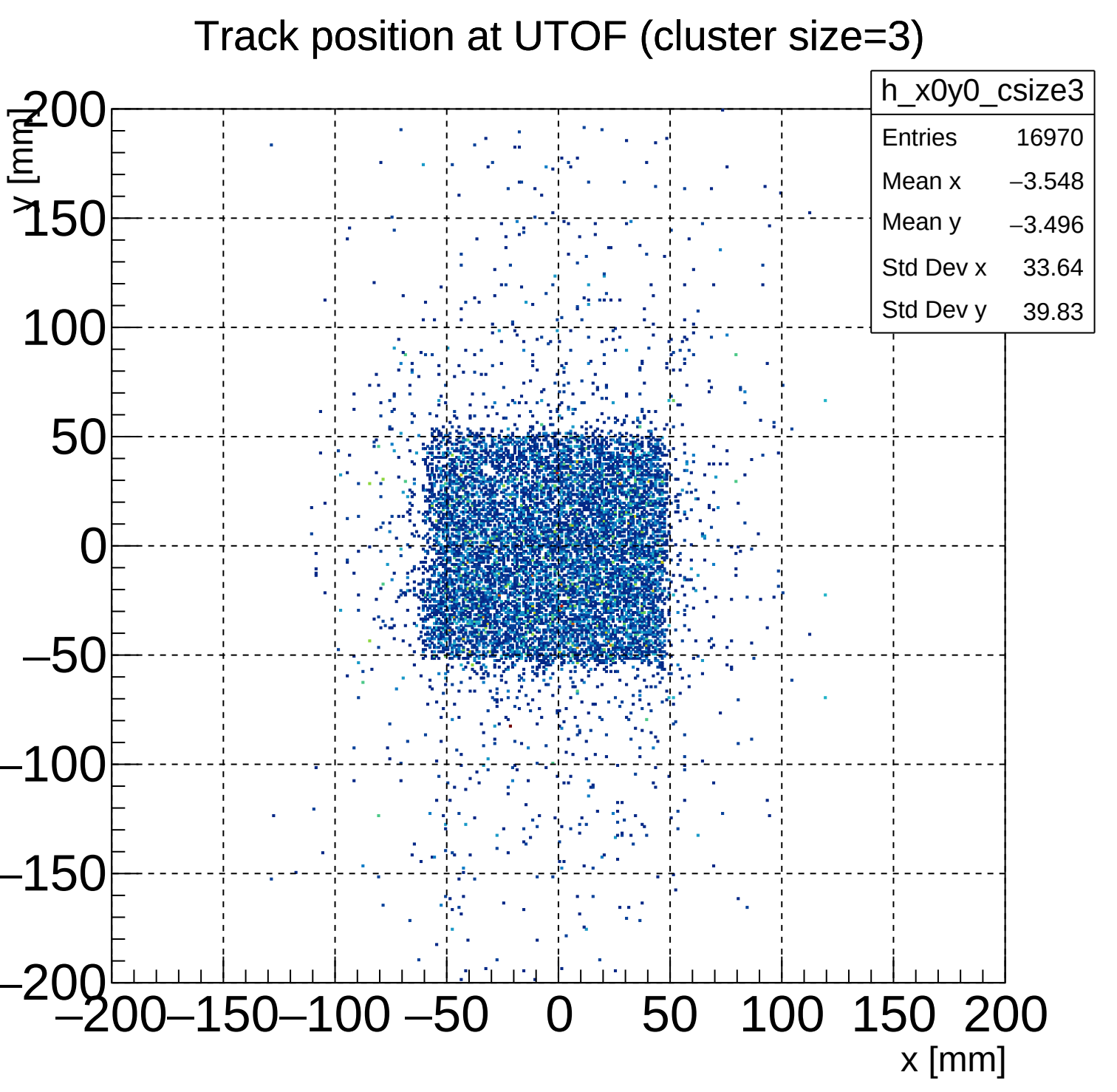

Track slope at UTOF (cluster size=0)
h_u0v0_csize0
Entries 0
Mean x 0
Mean y 0
Std Dev x 0
Std Dev y 0
dy/dz [rad]
dx/dz [rad]
2
1.5
1
0.5
0
–0.5
–1
–1.5
–2
–2 –1.5 –1 –0.5 0 0.5 1 1.5 2

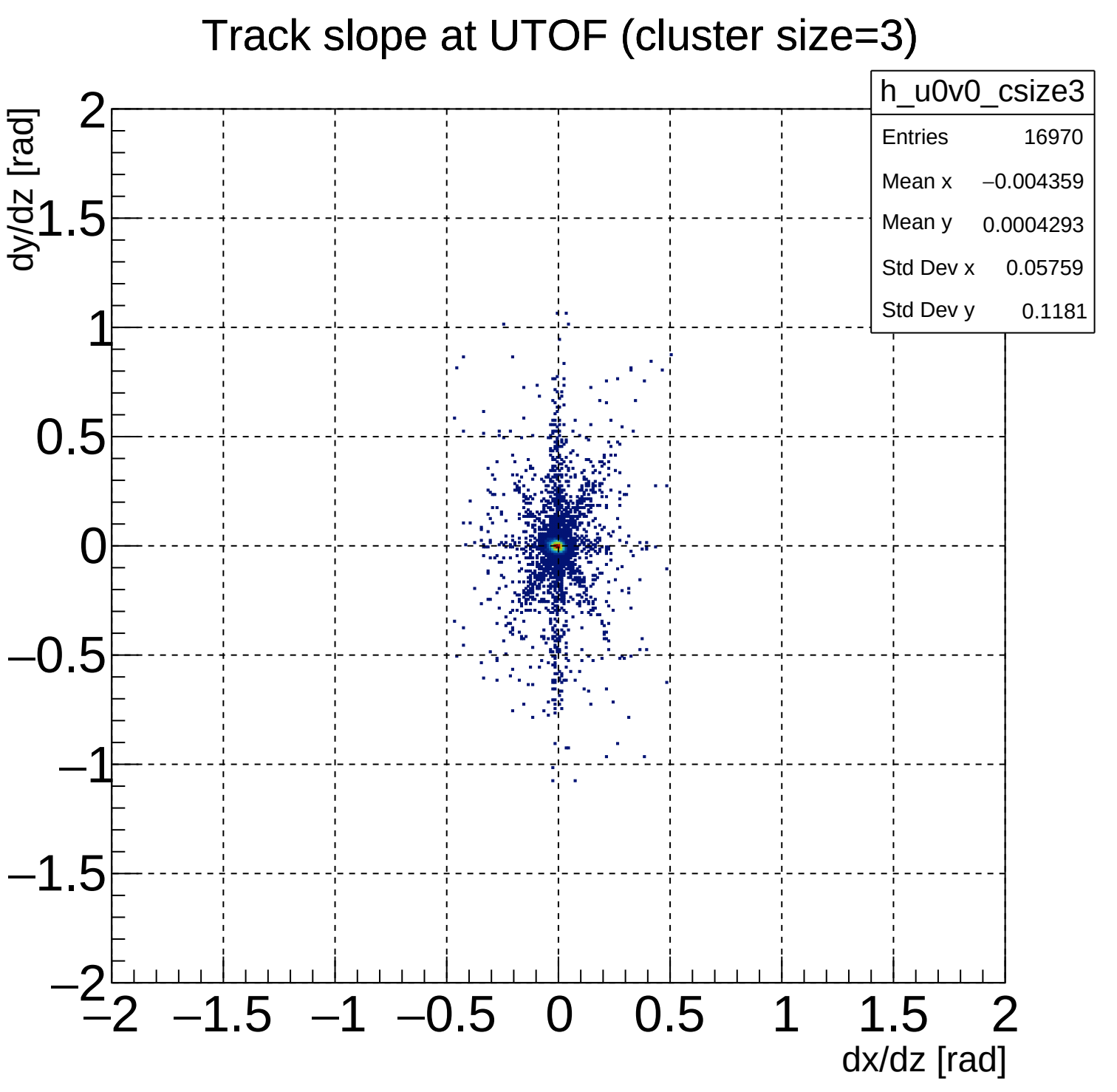

Track position at UTOF (cluster size=1)
h_x0y0_csize1
Entries 645394
Mean x –5.068
Mean y –1.24
Std Dev x 32.01
Std Dev y 35.81
y [mm]
200
150
100
50
0
–50
–100
–150
–200
–200 –150 –100 –50 0 50 100 150 200
x [mm]

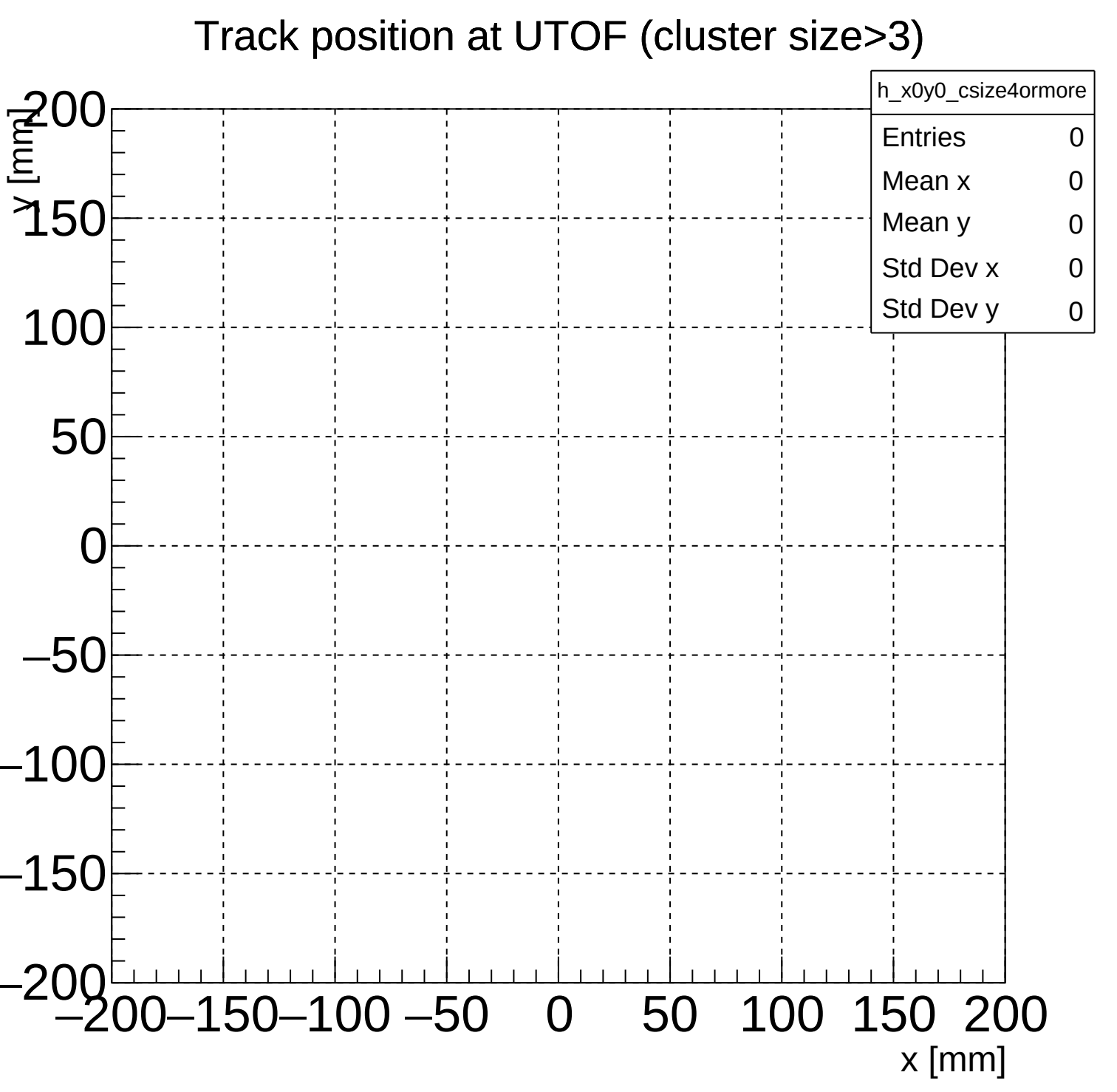

Track slope at UTOF (cluster size=1)
h_u0v0_csize1
Entries 645394
Mean x –0.004619
Mean y 0.001183
Std Dev x 0.04235
Std Dev y 0.09189
dy/dz [rad]
dx/dz [rad]
2
1.5
1
0.5
0
–0.5
–1
–1.5
–2
–2 –1.5 –1 –0.5 0 0.5 1 1.5 2

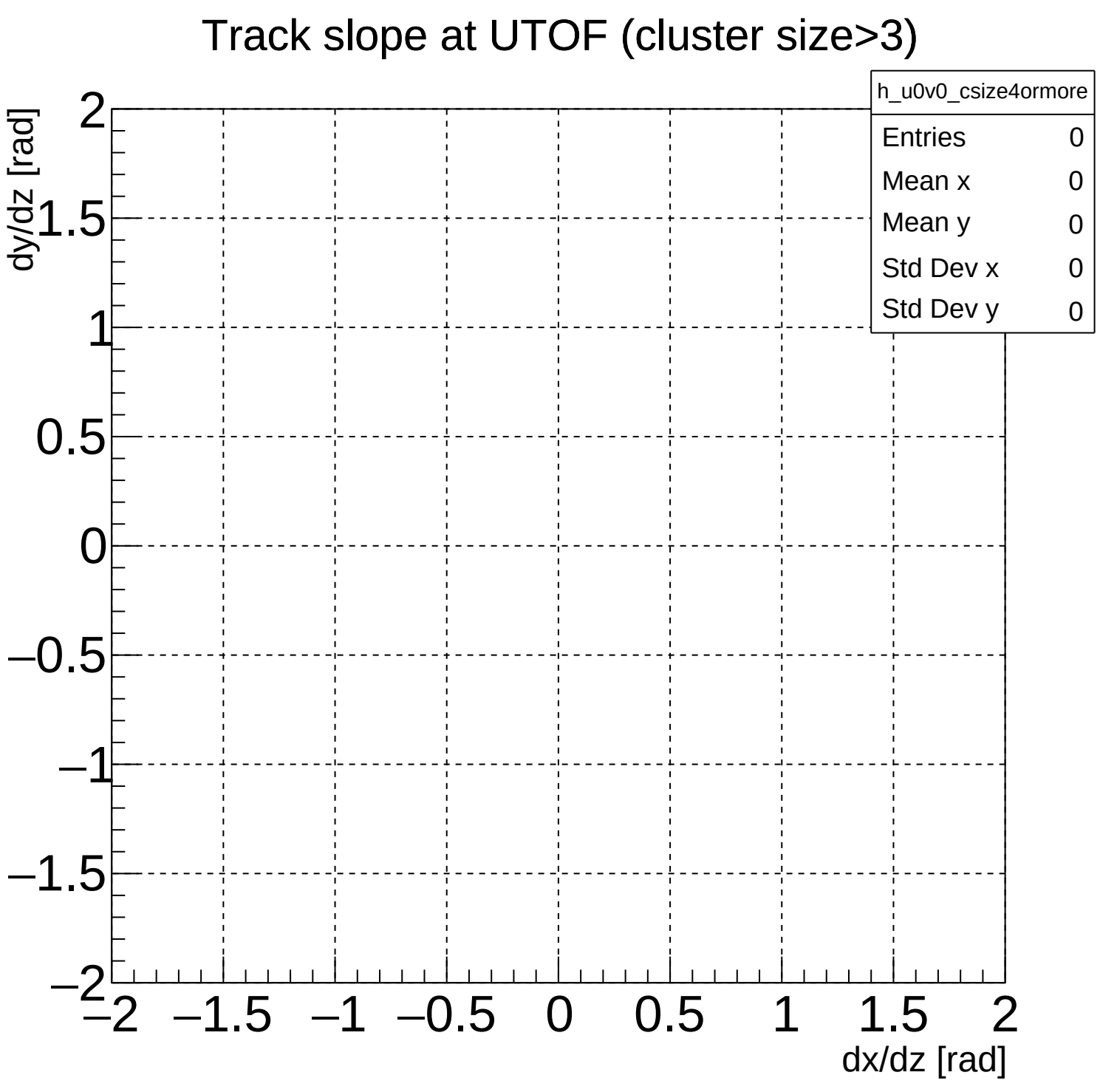

Track position at UTOF (cluster size=2)
h_x0y0_csize2
Entries 741985
Mean x –4.494
Mean y –2.51
Std Dev x 31.93
Std Dev y 35.39
y [mm]
200
150
100
50
0
–50
–100
–150
–200
–200 –150 –100 –50 0 50 100 150 200
x [mm]

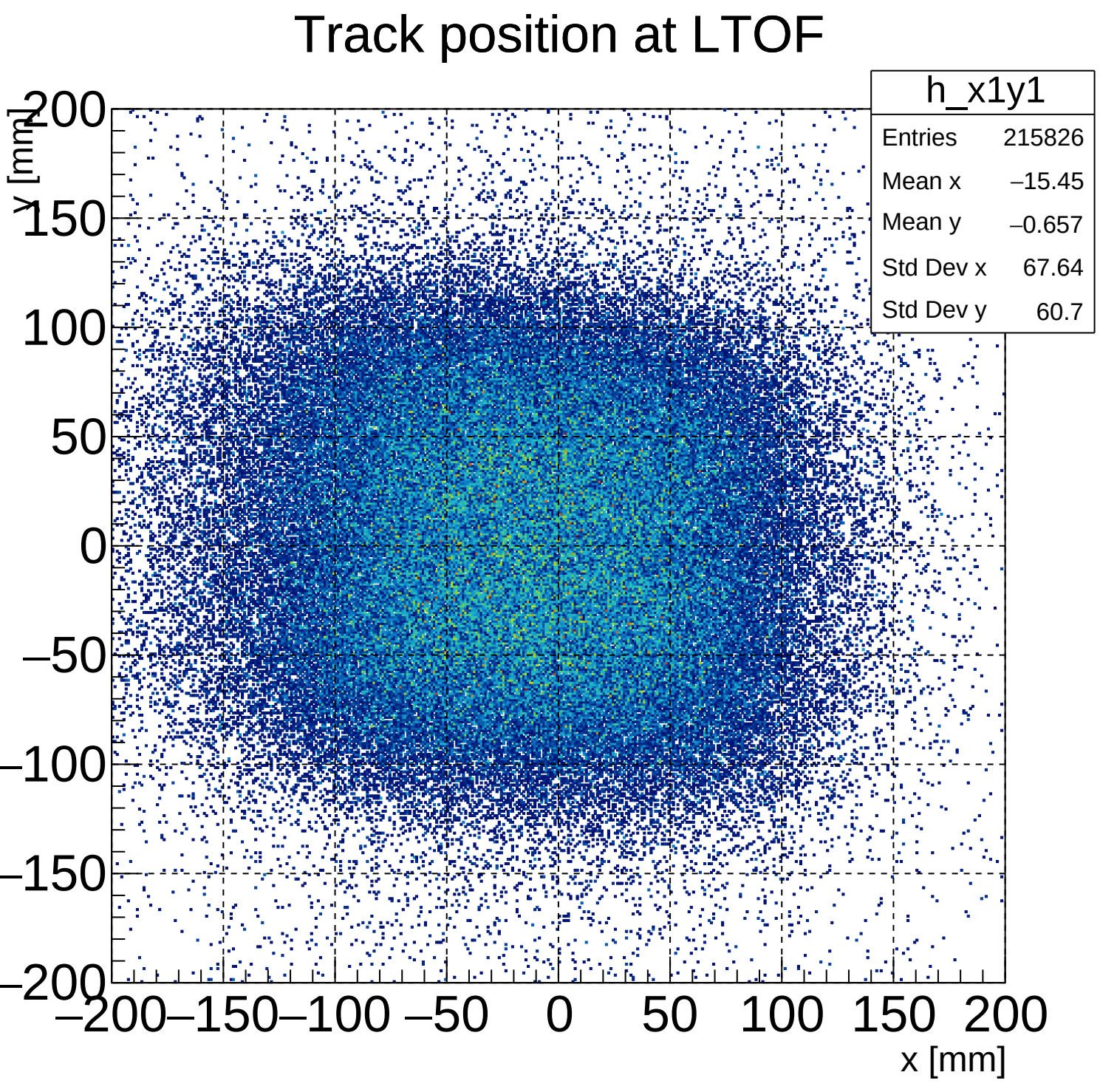

Track slope at UTOF (cluster size=2)
h_u0v0_csize2
Entries 741985
Mean x –0.004826
Mean y 0.0006693
Std Dev x 0.04221
Std Dev y 0.08537
dy/dz [rad]
dx/dz [rad]
2
1.5
1
0.5
0
–0.5
–1
–1.5
–2
–2 –1.5 –1 –0.5 0 0.5 1 1.5 2

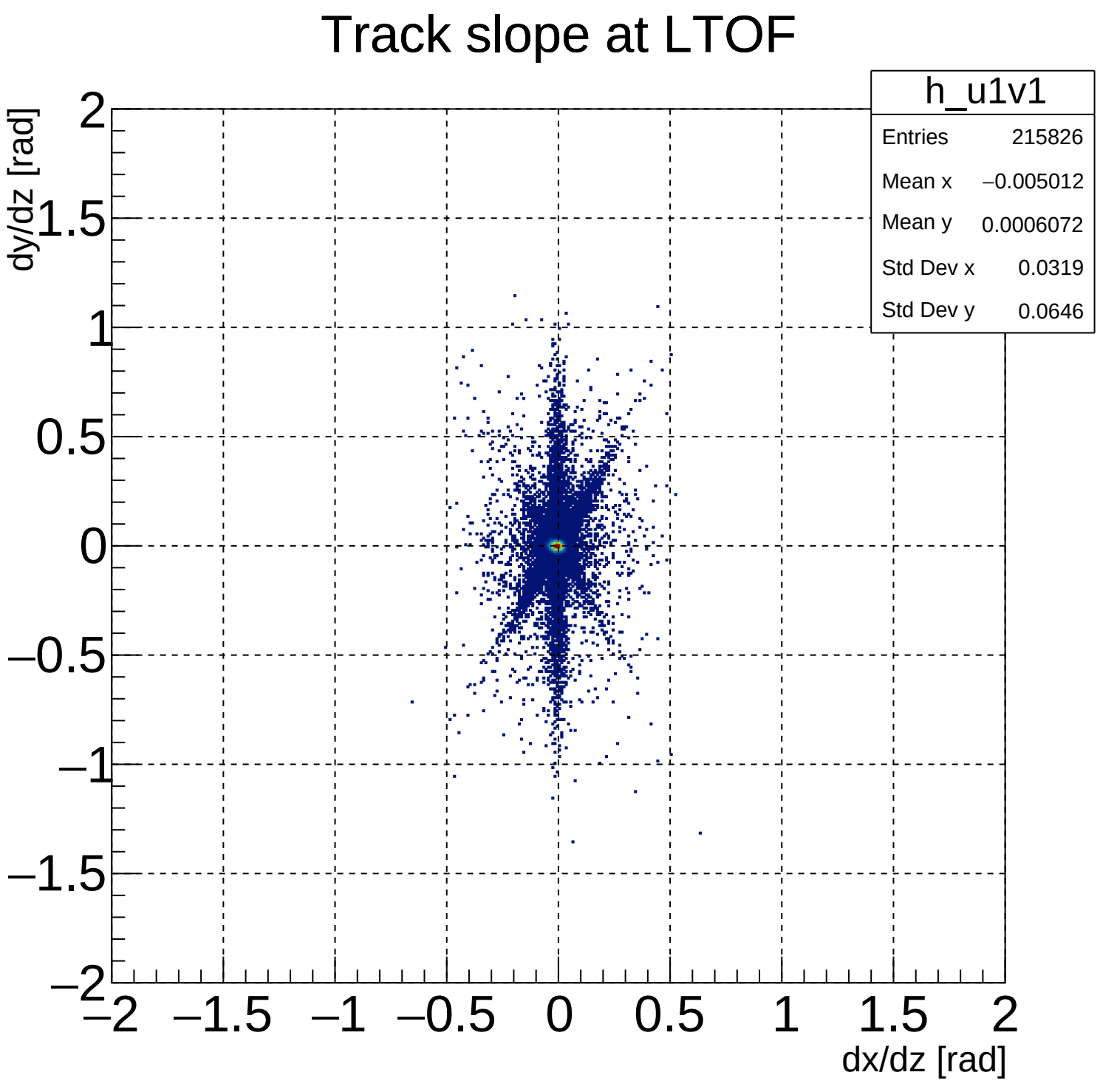

Track position at UTOF (cluster size=3)
h_x0y0_csize3
Entries 16970
Mean x −3.548
Mean y −3.496
Std Dev x 33.64
Std Dev y 39.83
y [mm]
200
150
100
50
0
−50
−100
−150
−200
−200 −150 −100 −50 0 50 100 150 200
x [mm]

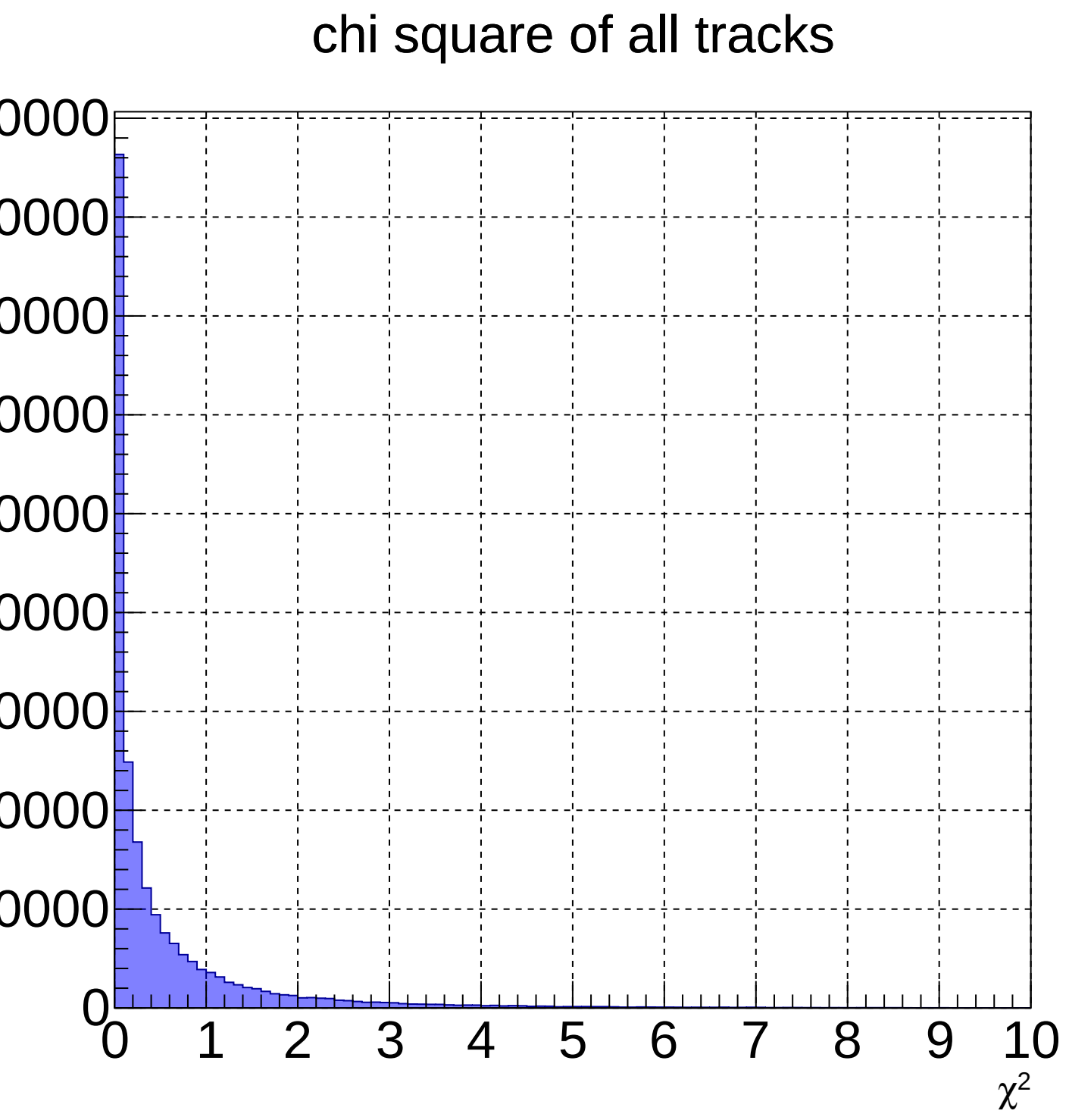

Track slope at UTOF (cluster size=3)
h_u0v0_csize3
Entries 16970
Mean x −0.004359
Mean y 0.0004293
Std Dev x 0.05759
Std Dev y 0.1181
dy/dz [rad]
dx/dz [rad]
2
1.5
1
0.5
0
−0.5
−1
−1.5
−2
−2 −1.5 −1 −0.5 0 0.5 1 1.5 2

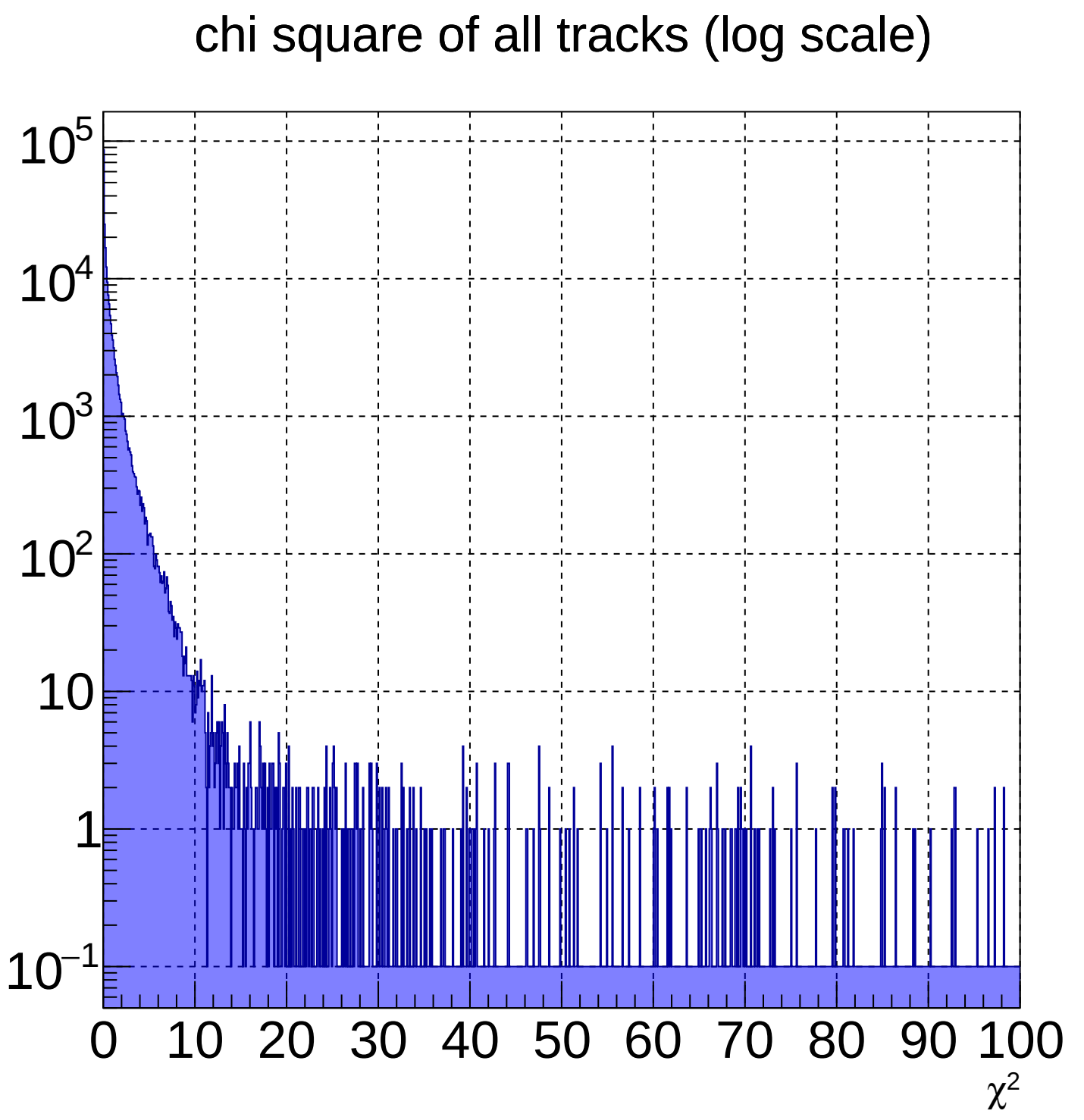

Track position at UTOF (cluster size>3)
h_x0y0_csize4ormore
Entries 0
Mean x 0
Mean y 0
Std Dev x 0
Std Dev y 0
y [mm]
200
150
100
50
0
–50
–100
–150
–200
–200 –150 –100 –50 0 50 100 150 200
x [mm]

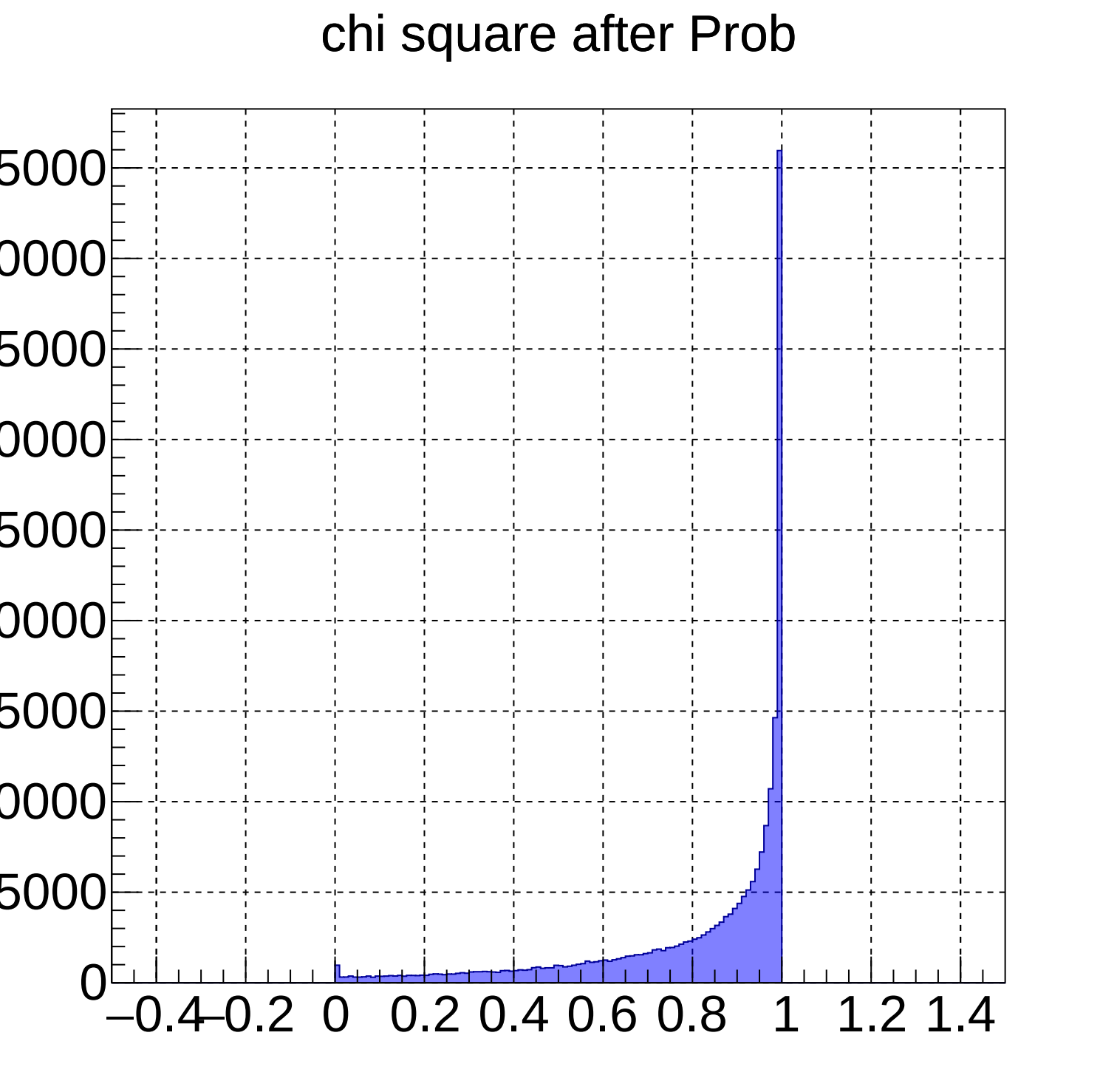

Track slope at UTOF (cluster size>3)
h_u0v0_csize4ormore
Entries 0
Mean x 0
Mean y 0
Std Dev x 0
Std Dev y 0
dy/dz [rad]
dx/dz [rad]
2
1.5
1
0.5
0
–0.5
–1
–1.5
–2
–2 –1.5 –1 –0.5 0 0.5 1 1.5 2

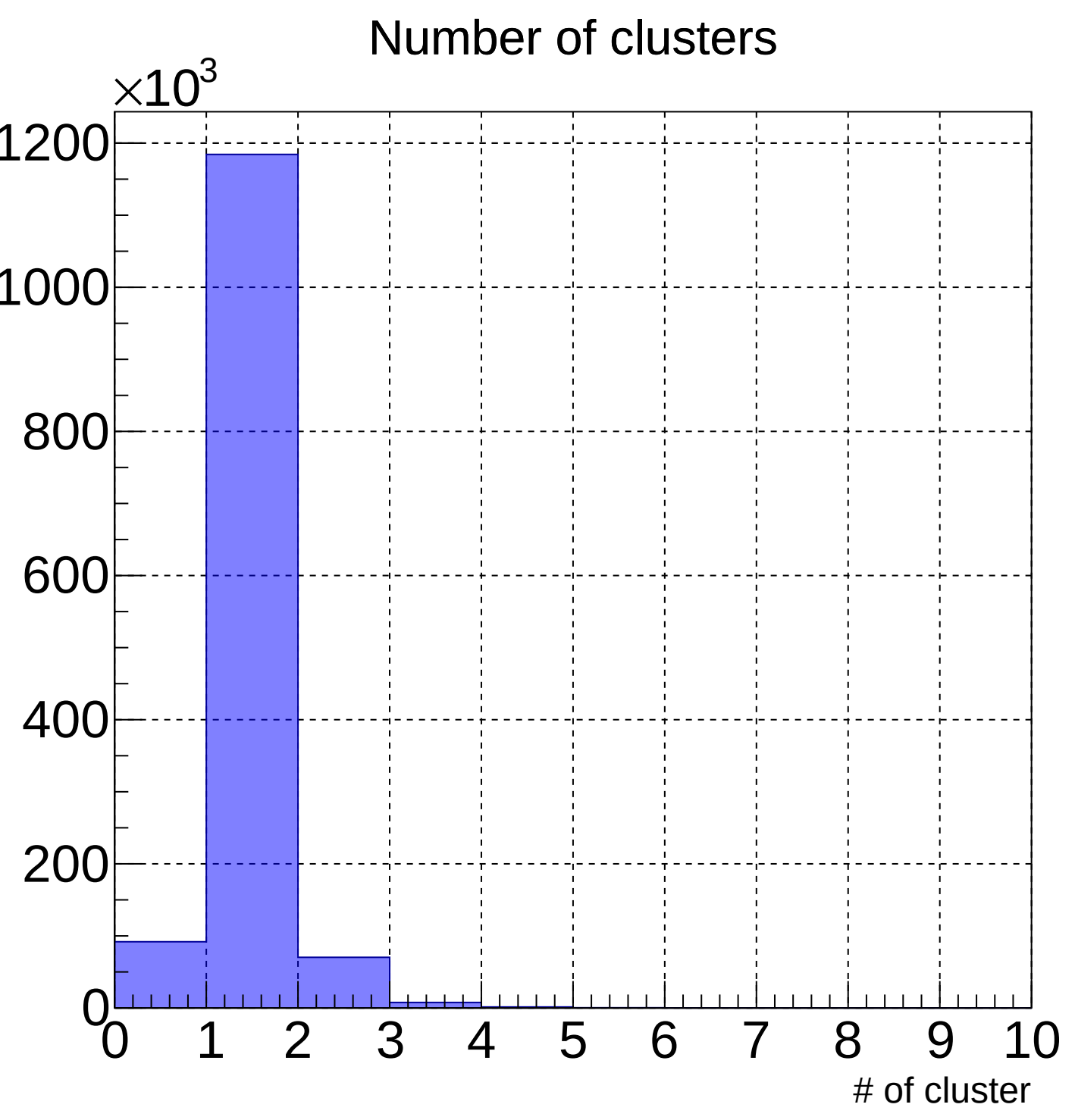

Track position at LTOF
h_x1y1
Entries 215826
Mean x −15.45
Mean y −0.657
Std Dev x 67.64
Std Dev y 60.7
y [mm]
200
150
100
50
0
−50
−100
−150
−200
−200 −150 −100 −50 0 50 100 150 200
x [mm]

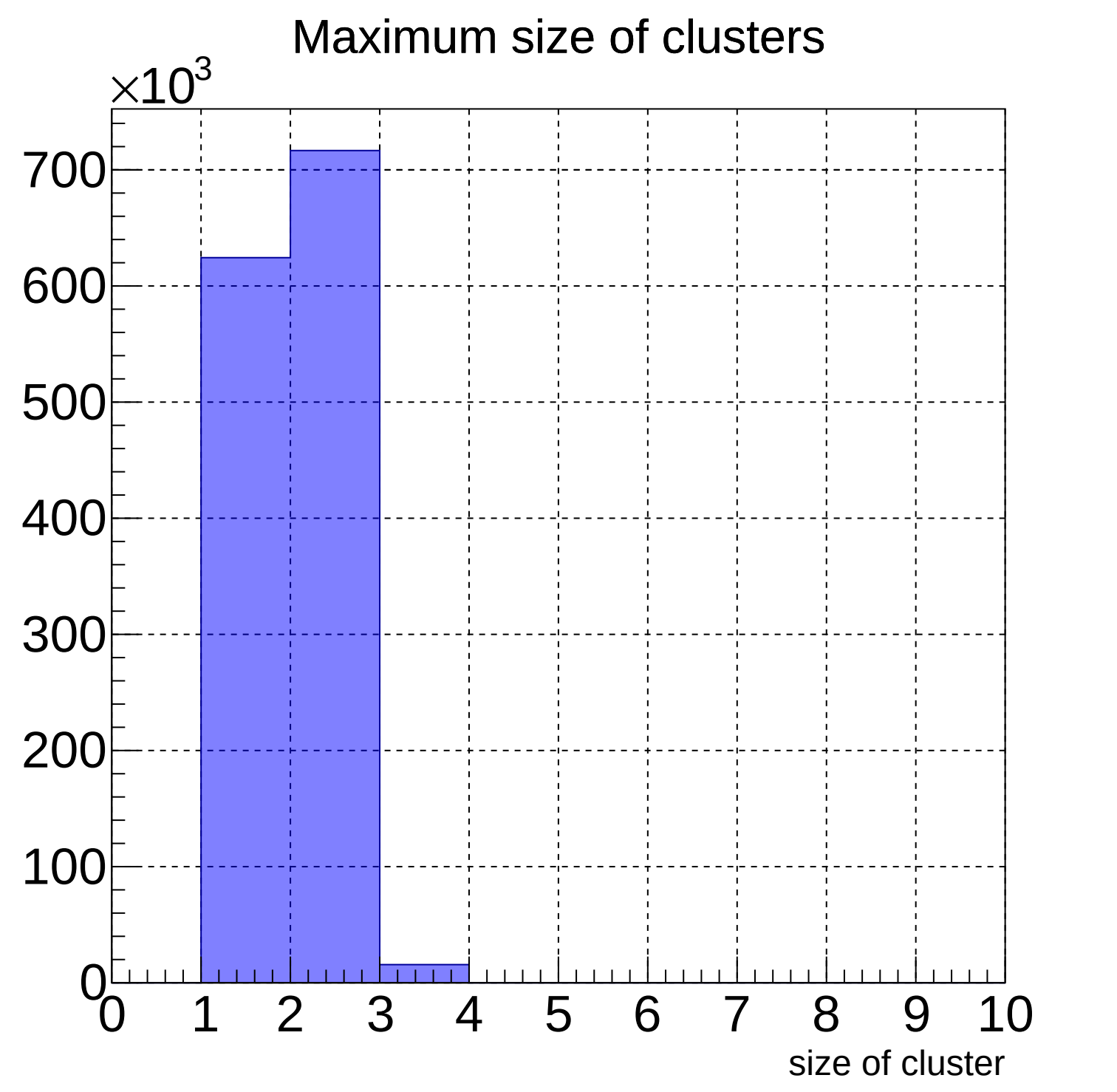

Track slope at LTOF
h_u1v1
Entries 215826
Mean x –0.005012
Mean y 0.0006072
Std Dev x 0.0319
Std Dev y 0.0646
dy/dz [rad]
dx/dz [rad]
2
1.5
1
0.5
0
–0.5
–1
–1.5
–2
–2 –1.5 –1 –0.5 0 0.5 1 1.5 2

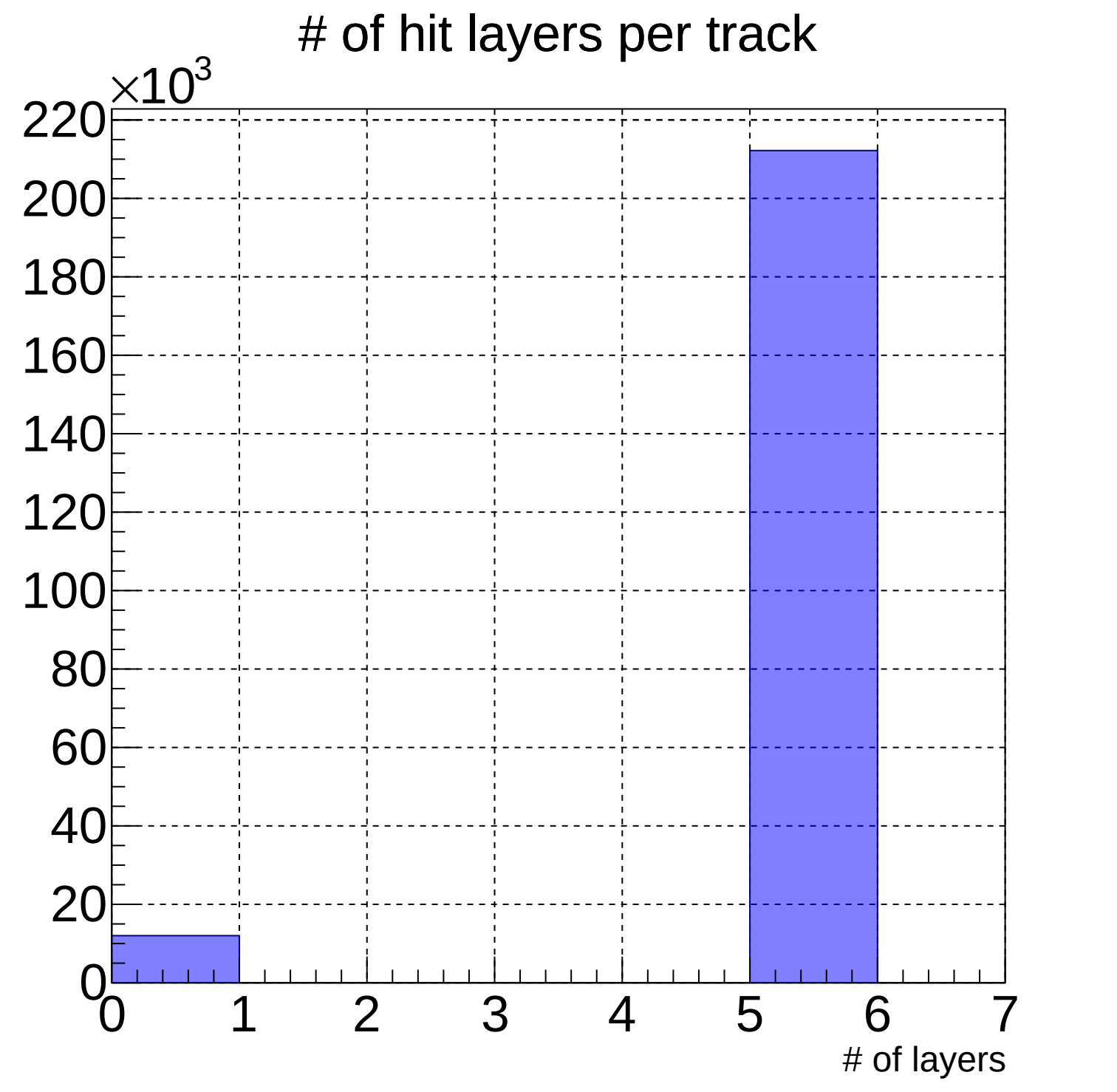

chi square of all tracks
0000
0000
0000
0000
0000
0000
0000
0000
0
0
1
2
3
4
5
6
7
8
9
10
χ²

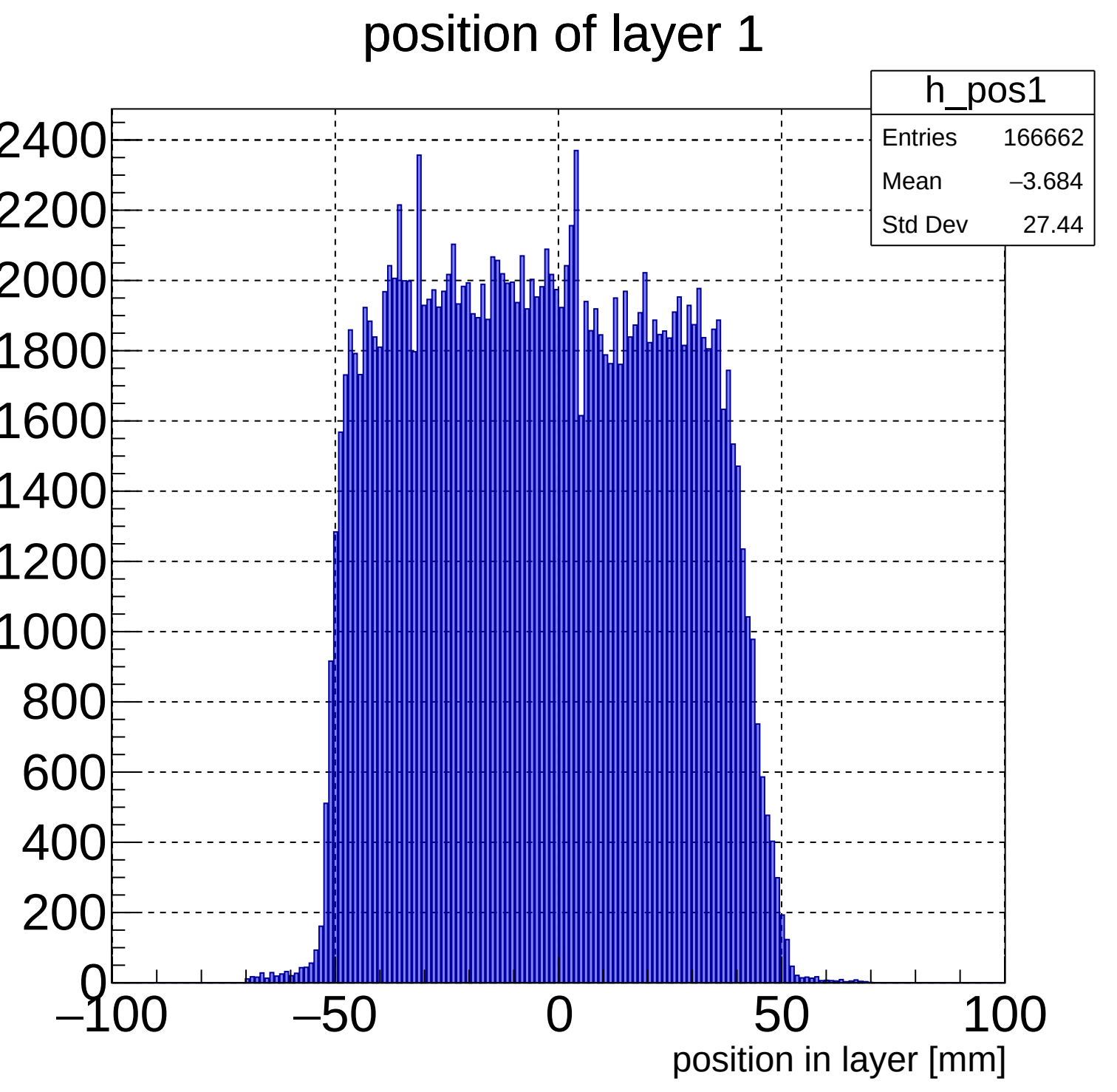

chi square of all tracks (log scale)
10^5
10^4
10^3
10^2
10
1
10^{-1}
0
10
20
30
40
50
60
70
80
90
100
χ^2

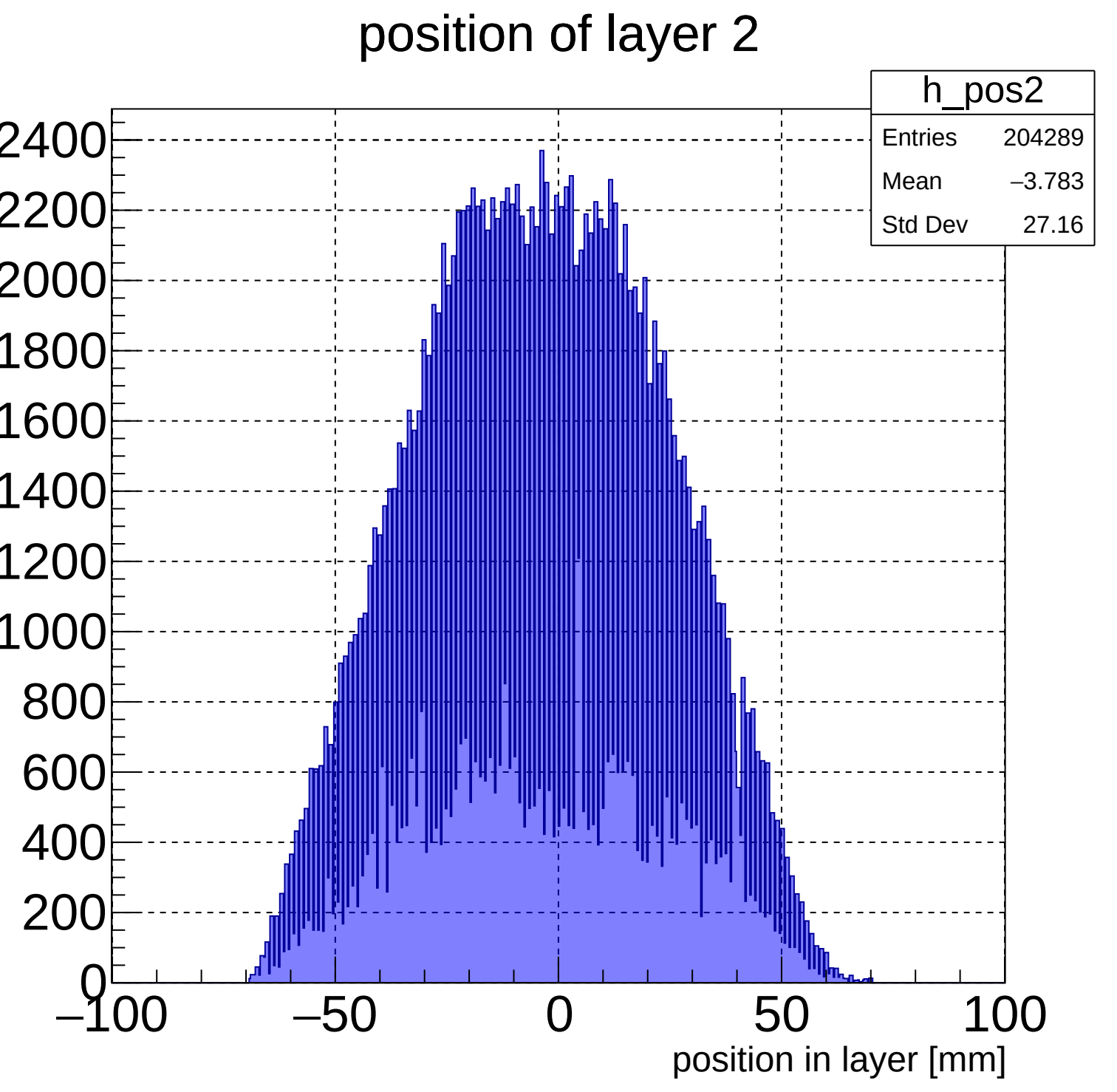

chi square after Prob
5000
0000
5000
0000
5000
0000
5000
0000
5000
0
–0.4
–0.2
0
0.2
0.4
0.6
0.8
1
1.2
1.4

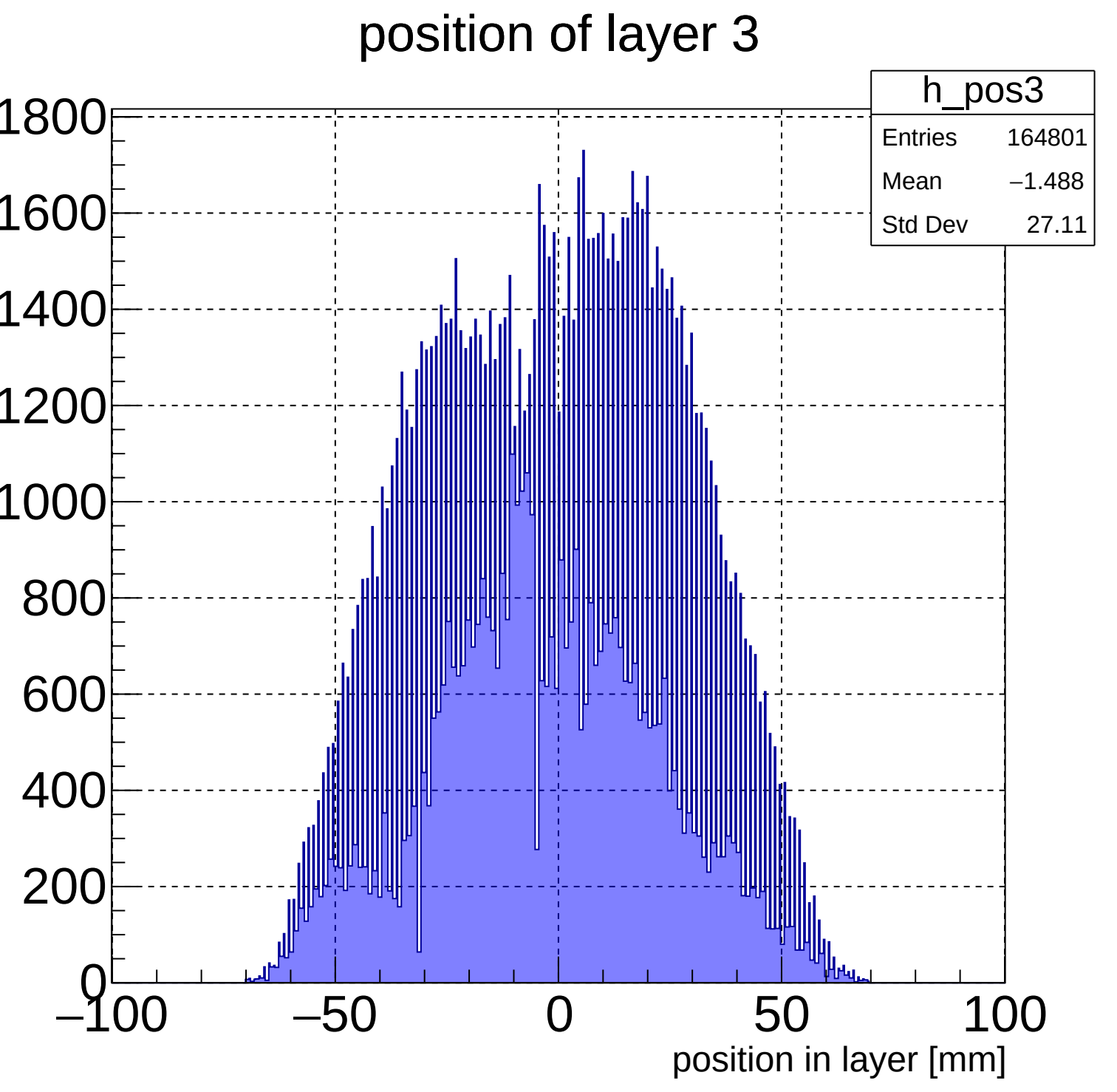

Number of clusters
×10^3
1200
1000
800
600
400
200
0
0
1
2
3
4
5
6
7
8
9
10
# of cluster

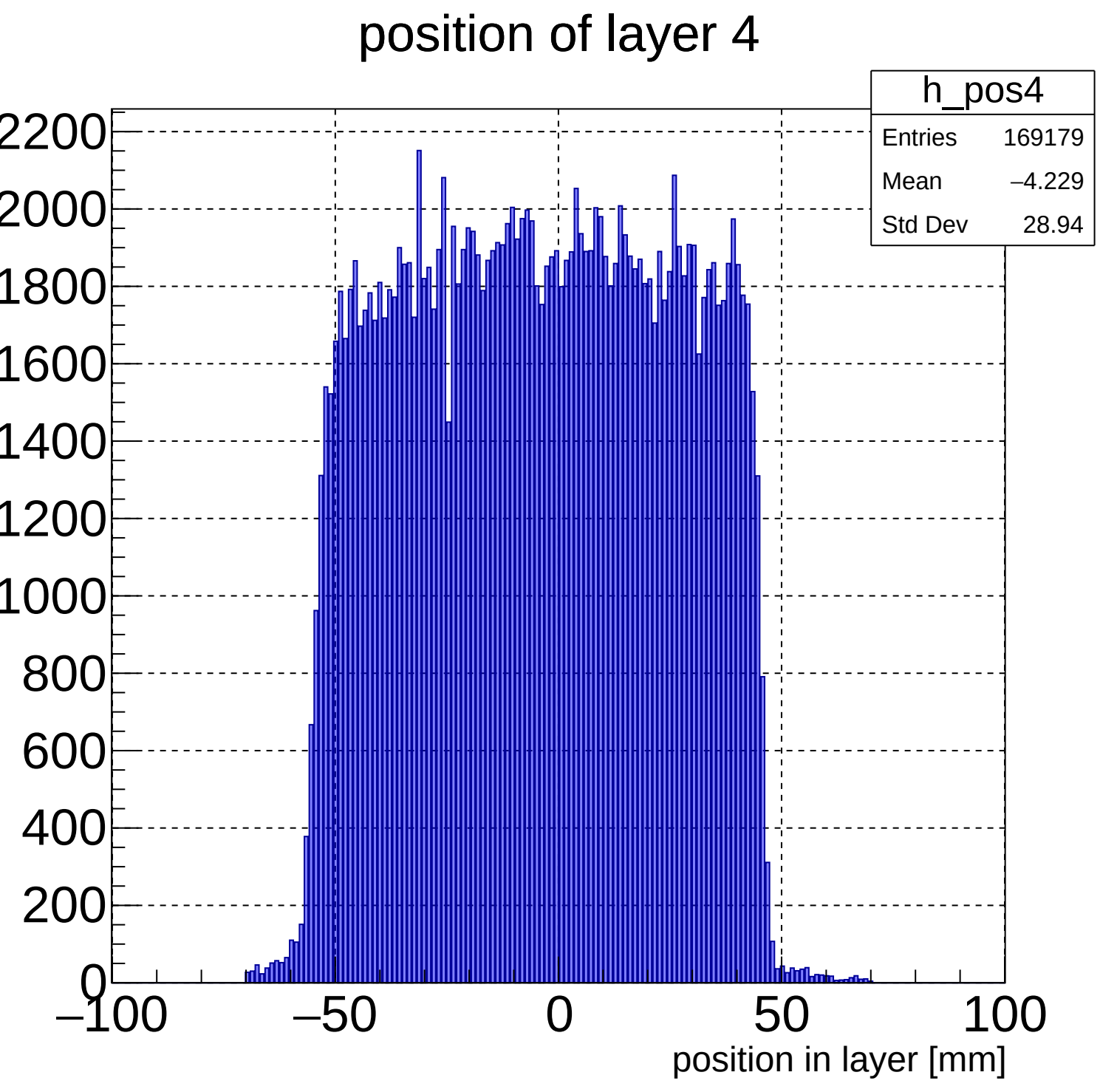

Maximum size of clusters
×10^3
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
8
9
10
size of cluster

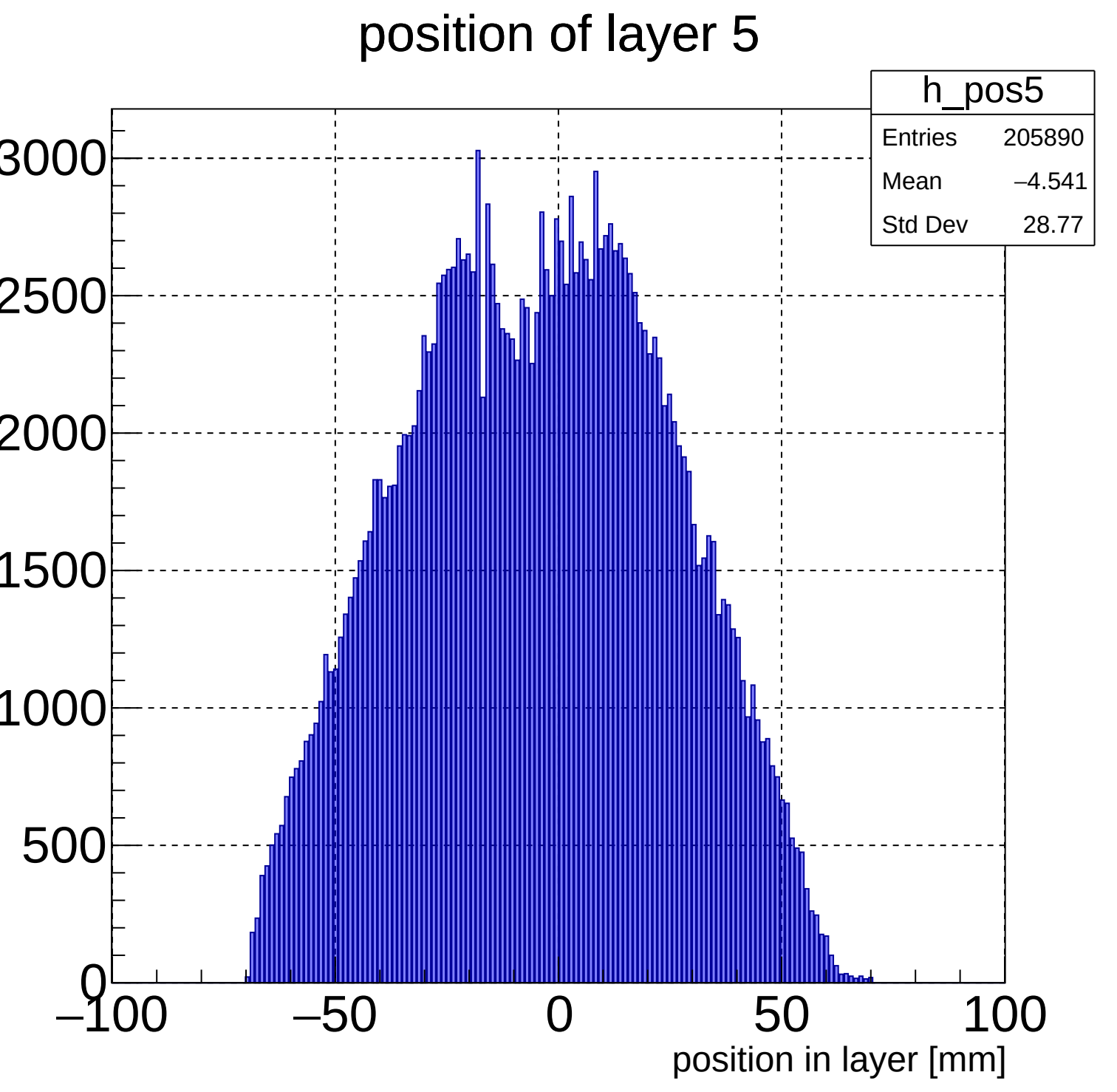

# of hit layers per track
×10^3
220
200
180
160
140
120
100
80
60
40
20
0
0
1
2
3
4
5
6
7
# of layers

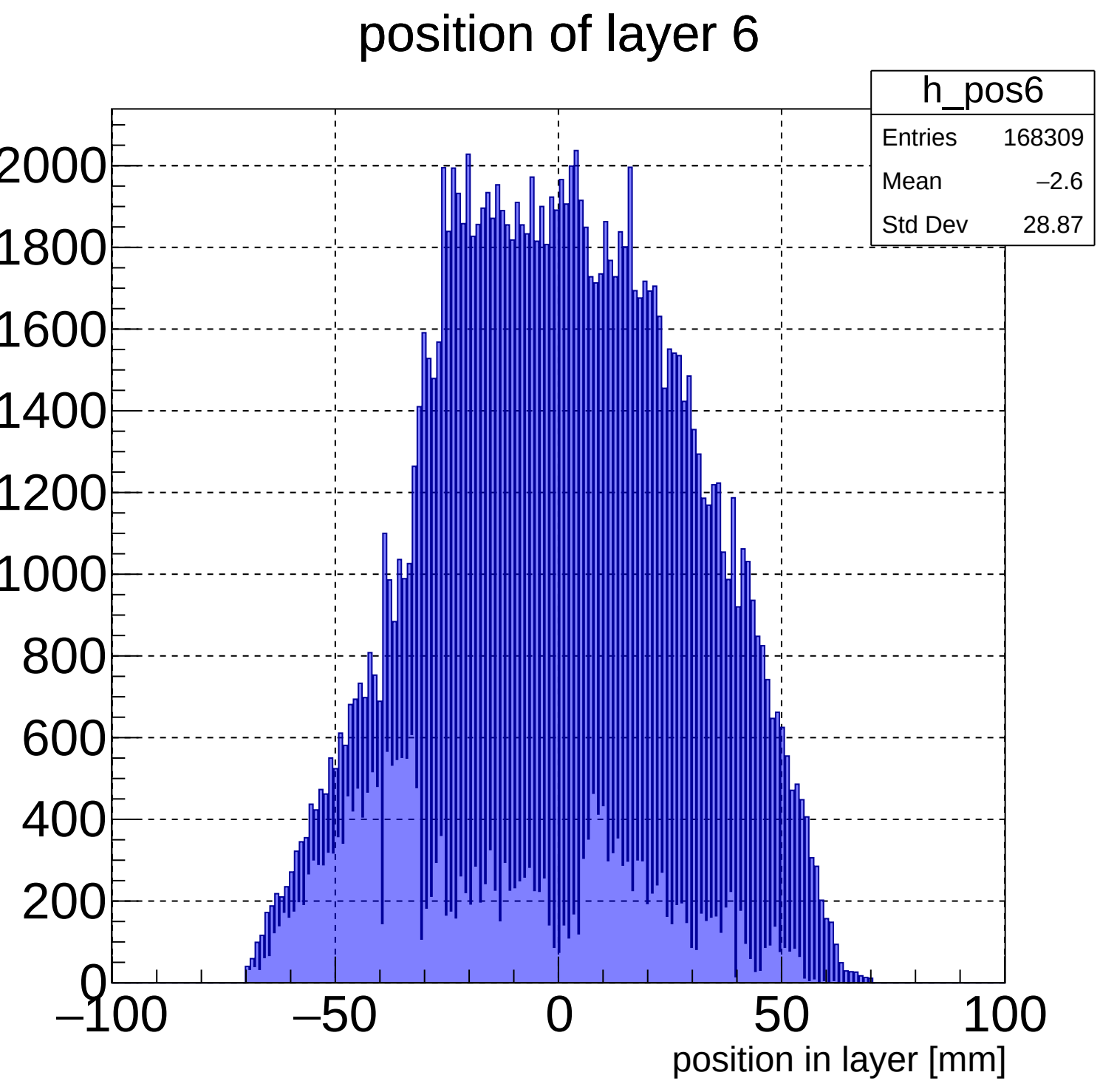

position of layer 1
h_pos1
Entries 166662
Mean –3.684
Std Dev 27.44
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
–100
–50
0
50
100
position in layer [mm]

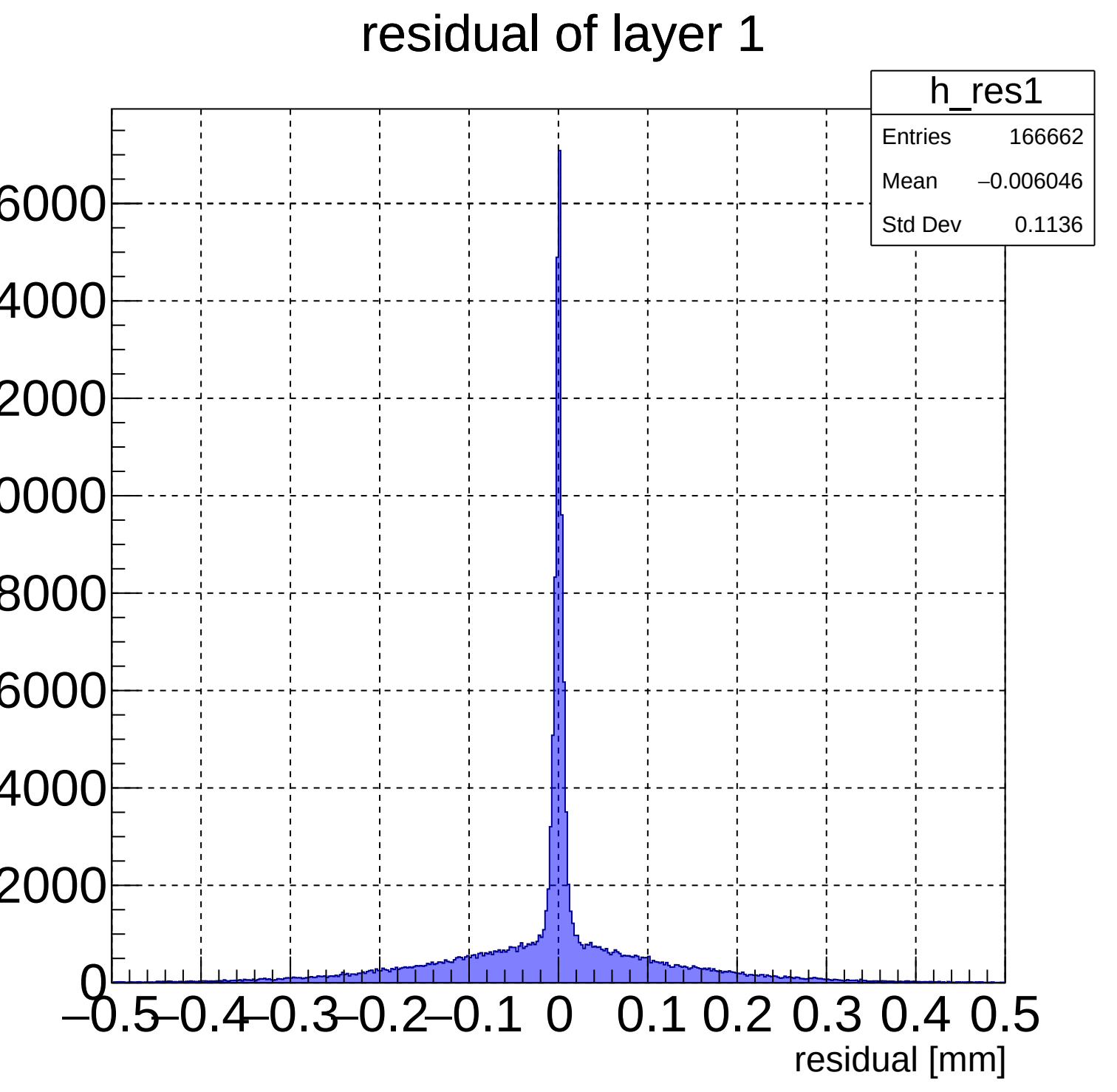

position of layer 2
h_pos2
Entries 204289
Mean –3.783
Std Dev 27.16
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
–100
–50
0
50
100
position in layer [mm]

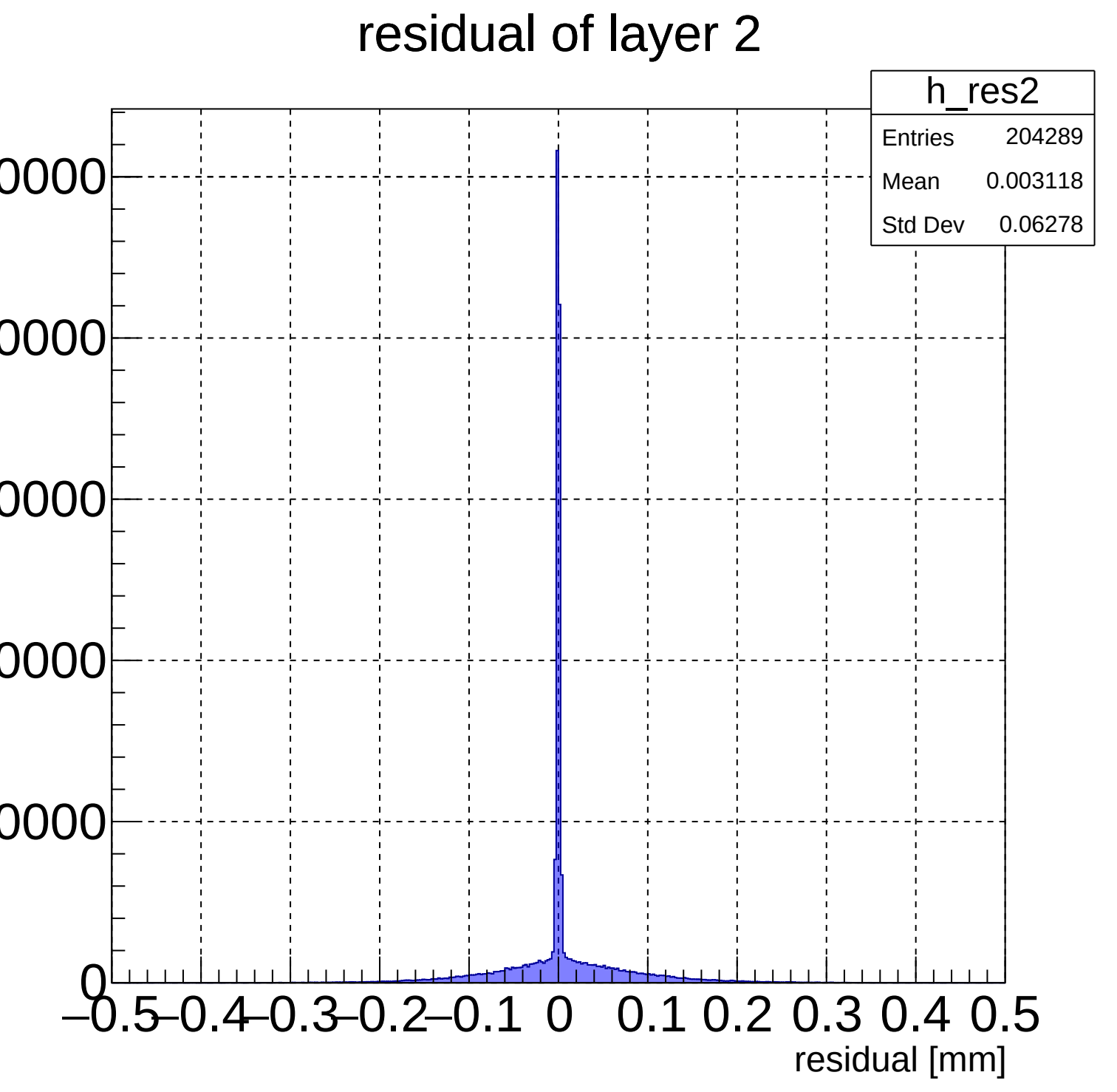

position of layer 3
h_pos3
Entries 164801
Mean −1.488
Std Dev 27.11
1800
1600
1400
1200
1000
800
600
400
200
0
−100
−50
0
50
100
position in layer [mm]

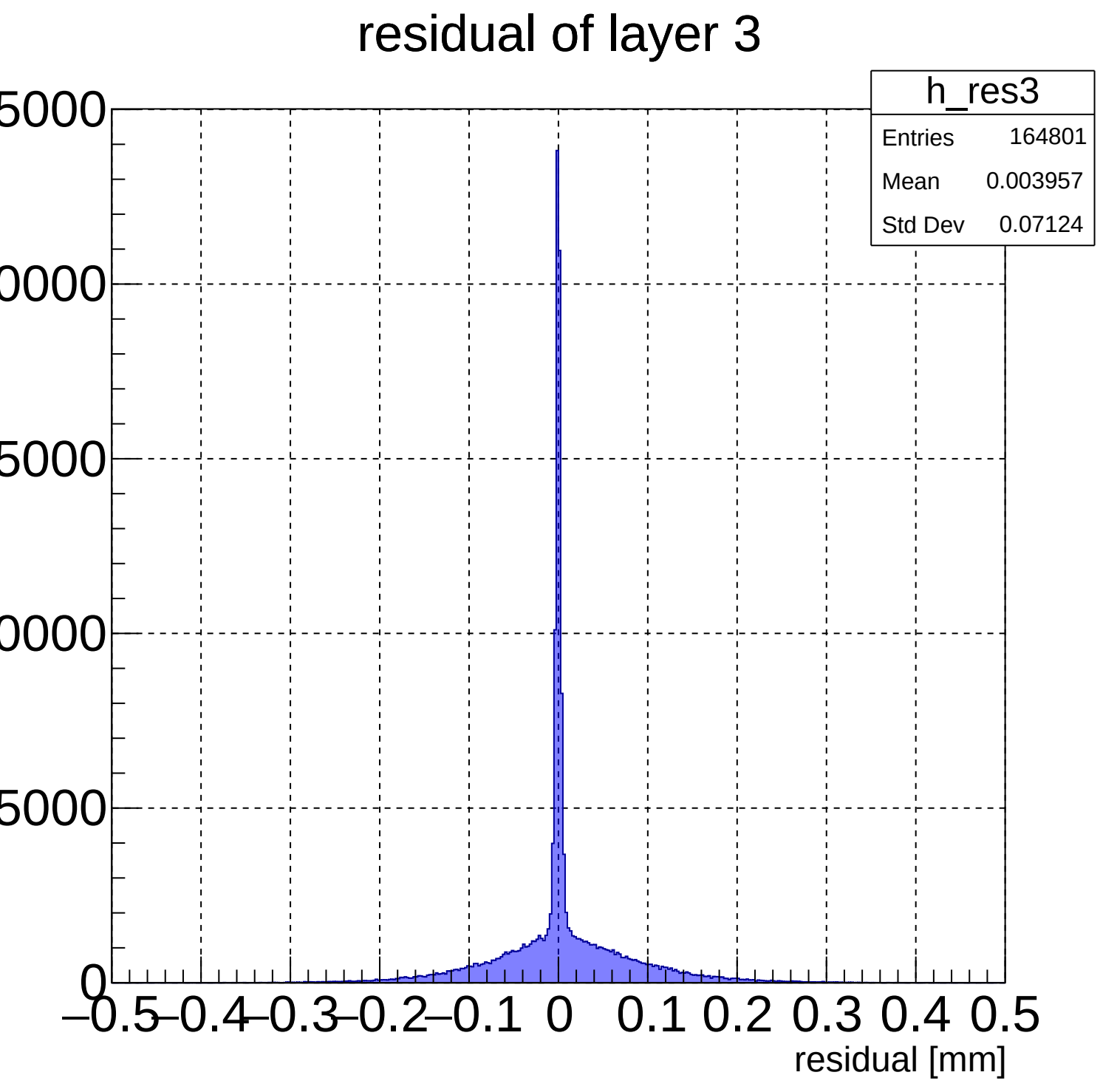

position of layer 4
h_pos4
Entries 169179
Mean –4.229
Std Dev 28.94
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
–100
–50
0
50
100
position in layer [mm]

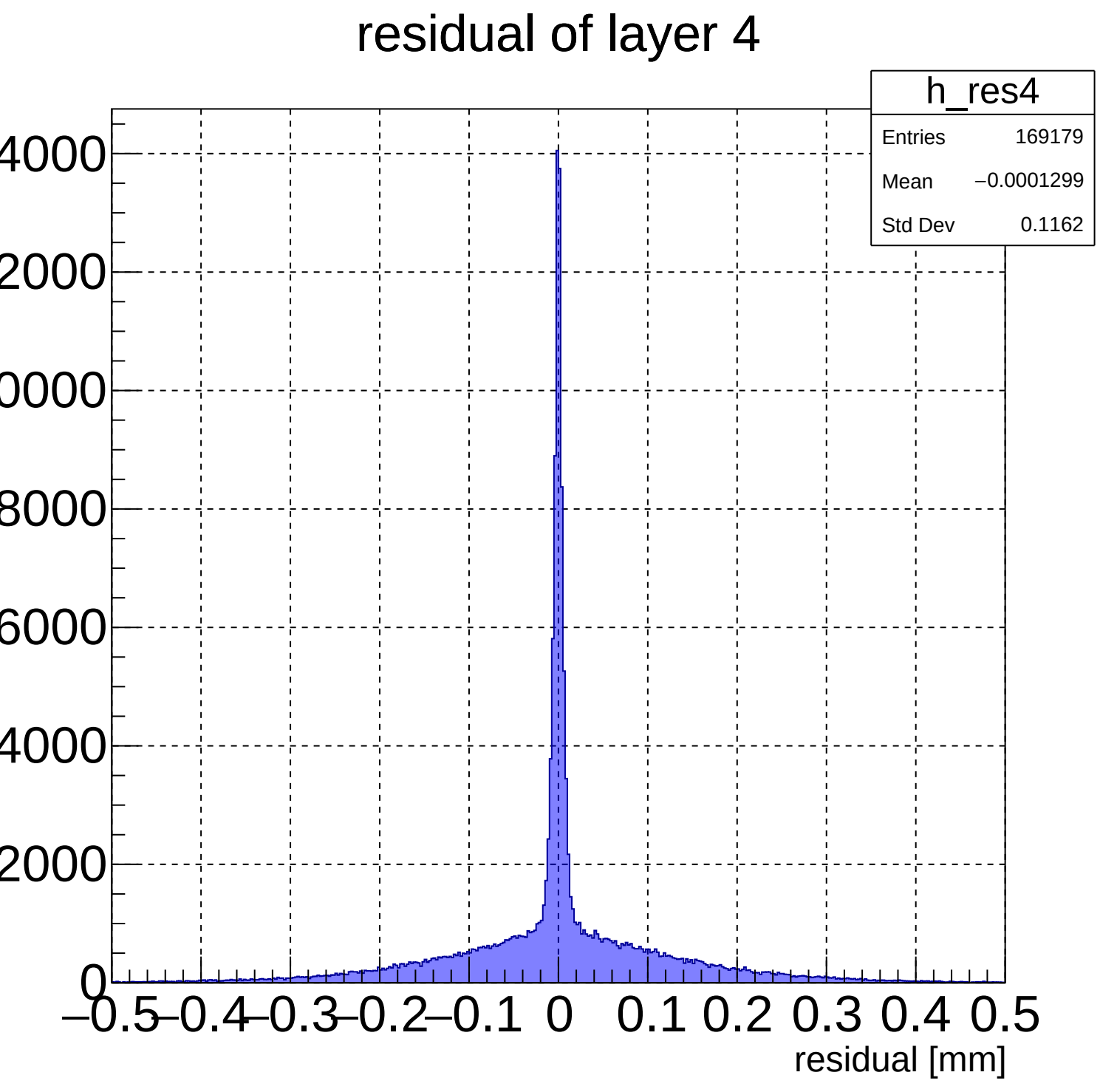

position of layer 5
h_pos5
Entries 205890
Mean –4.541
Std Dev 28.77
3000
2500
2000
1500
1000
500
0
–100
–50
0
50
100
position in layer [mm]

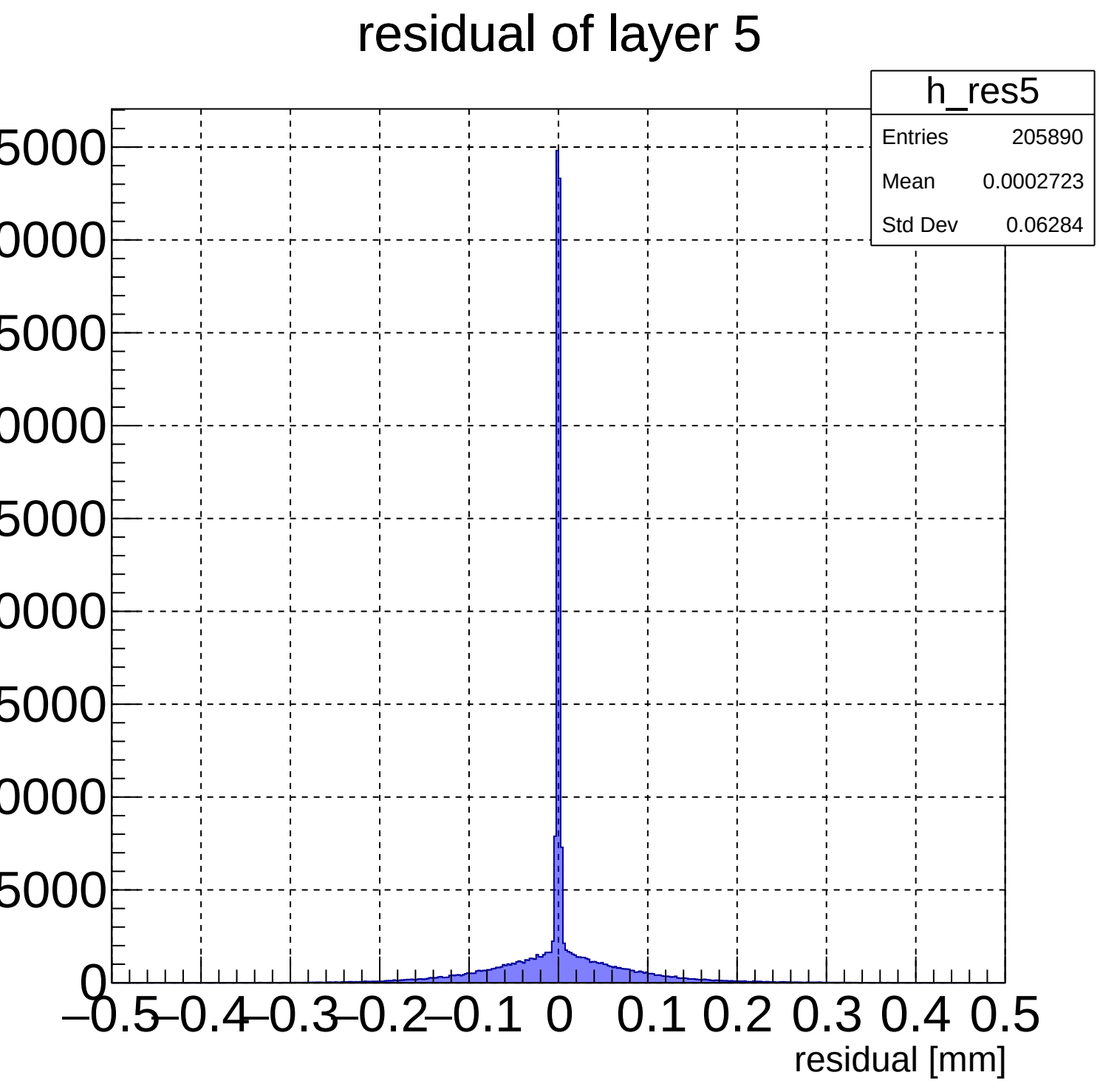

position of layer 6
h_pos6
Entries 168309
Mean –2.6
Std Dev 28.87
2000
1800
1600
1400
1200
1000
800
600
400
200
0
–100
–50
0
50
100
position in layer [mm]

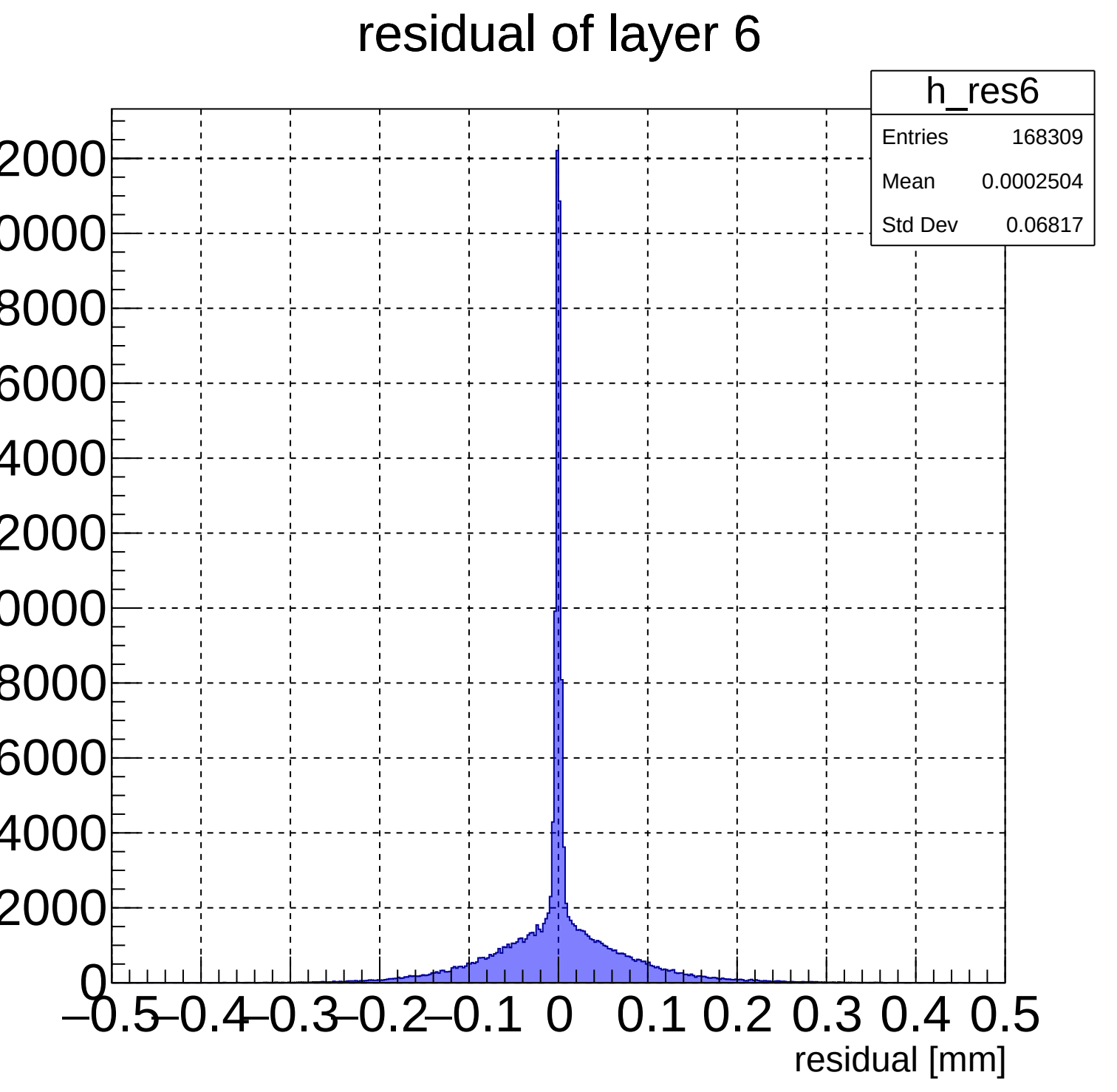

residual of layer 1
h_res1
Entries 166662
Mean –0.006046
Std Dev 0.1136
6000
4000
2000
0000
8000
6000
4000
2000
0
–0.5 –0.4 –0.3 –0.2 –0.1 0 0.1 0.2 0.3 0.4 0.5
residual [mm]

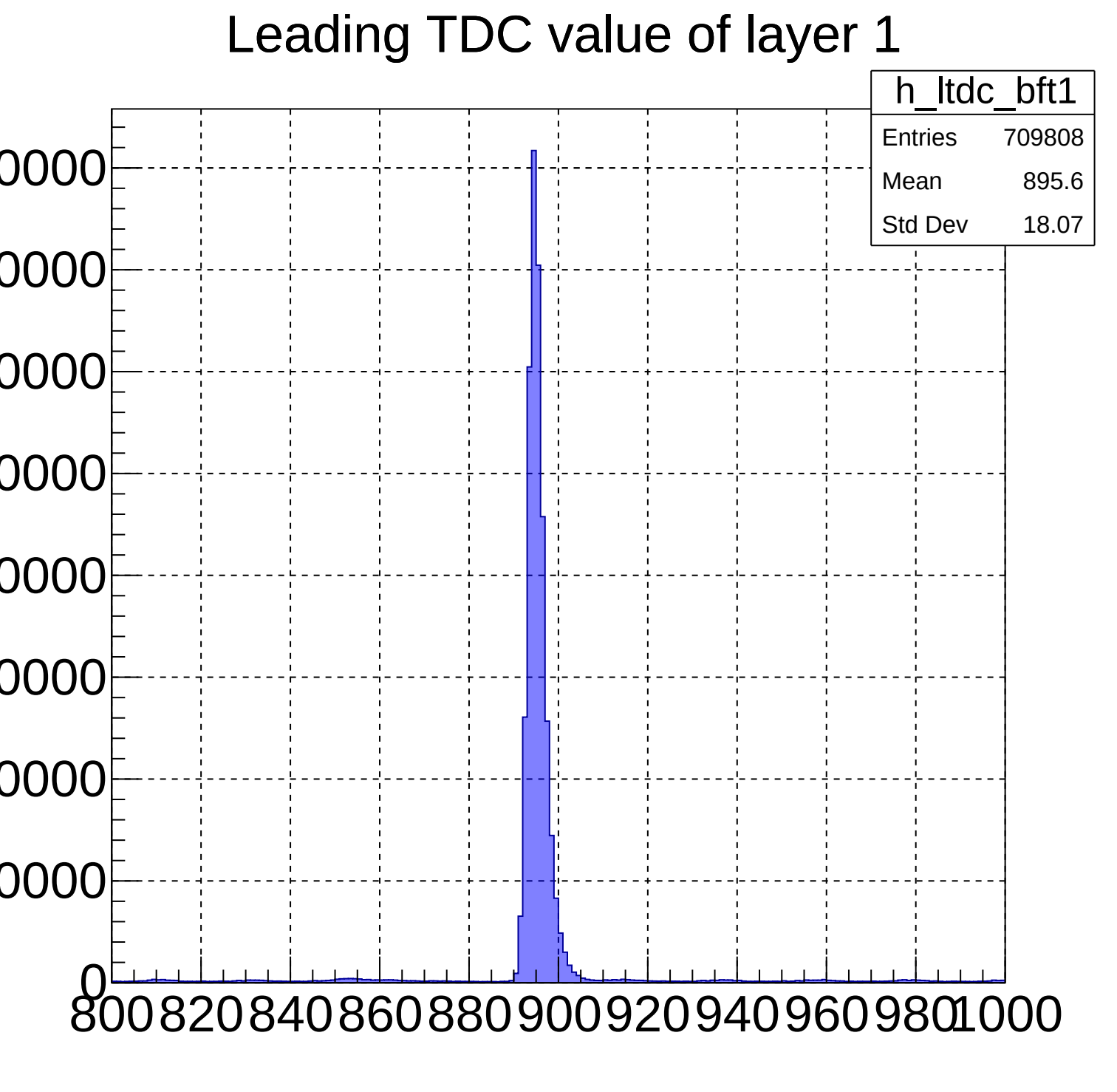

residual of layer 2
h_res2
Entries 204289
Mean 0.003118
Std Dev 0.06278
0000
0000
0000
0000
0
–0.5 –0.4 –0.3 –0.2 –0.1 0 0.1 0.2 0.3 0.4 0.5
residual [mm]

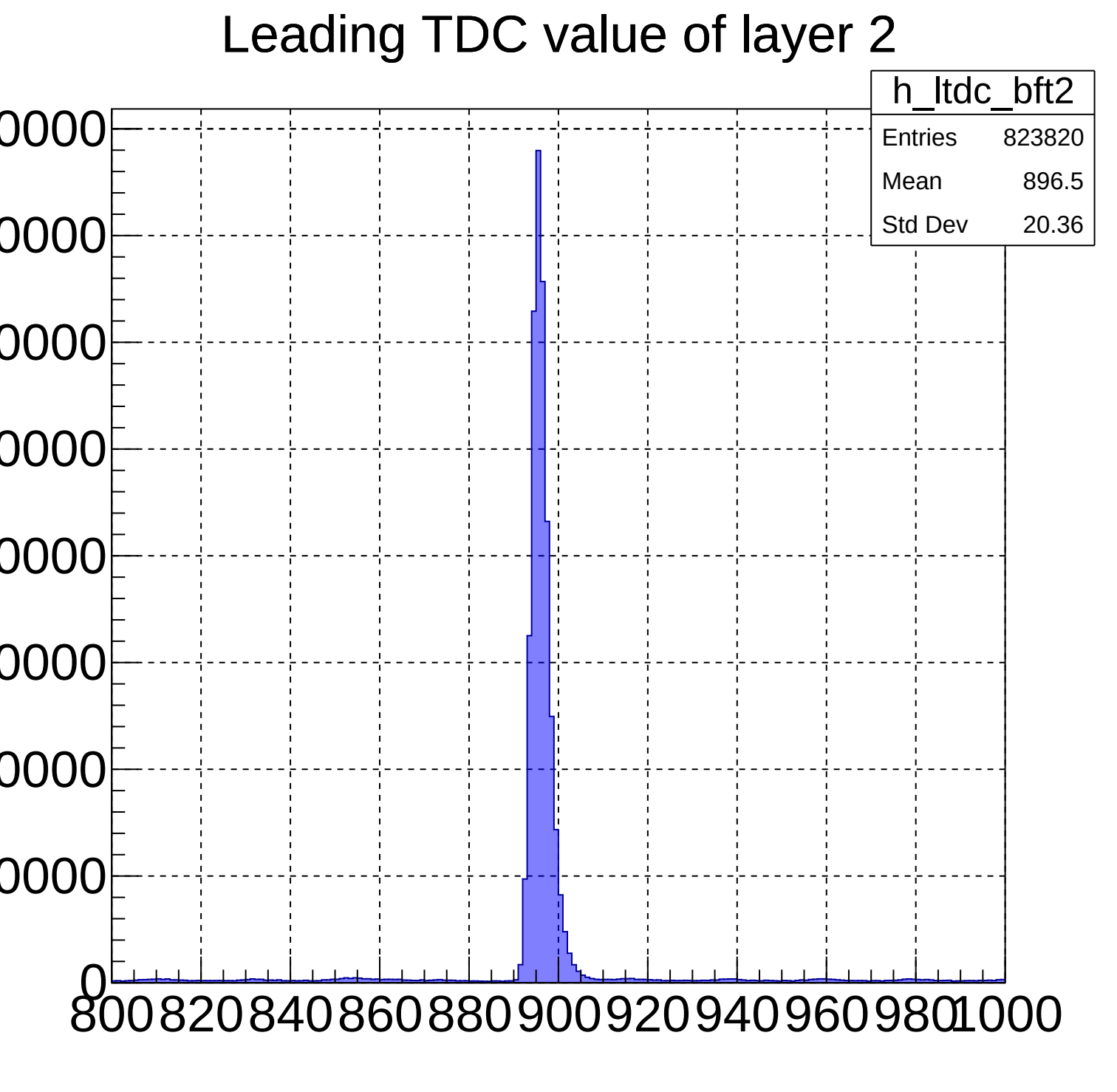

residual of layer 3
h_res3
Entries 164801
Mean 0.003957
Std Dev 0.07124
5000
0000
5000
0000
5000
0
–0.5 –0.4 –0.3 –0.2 –0.1 0 0.1 0.2 0.3 0.4 0.5
residual [mm]

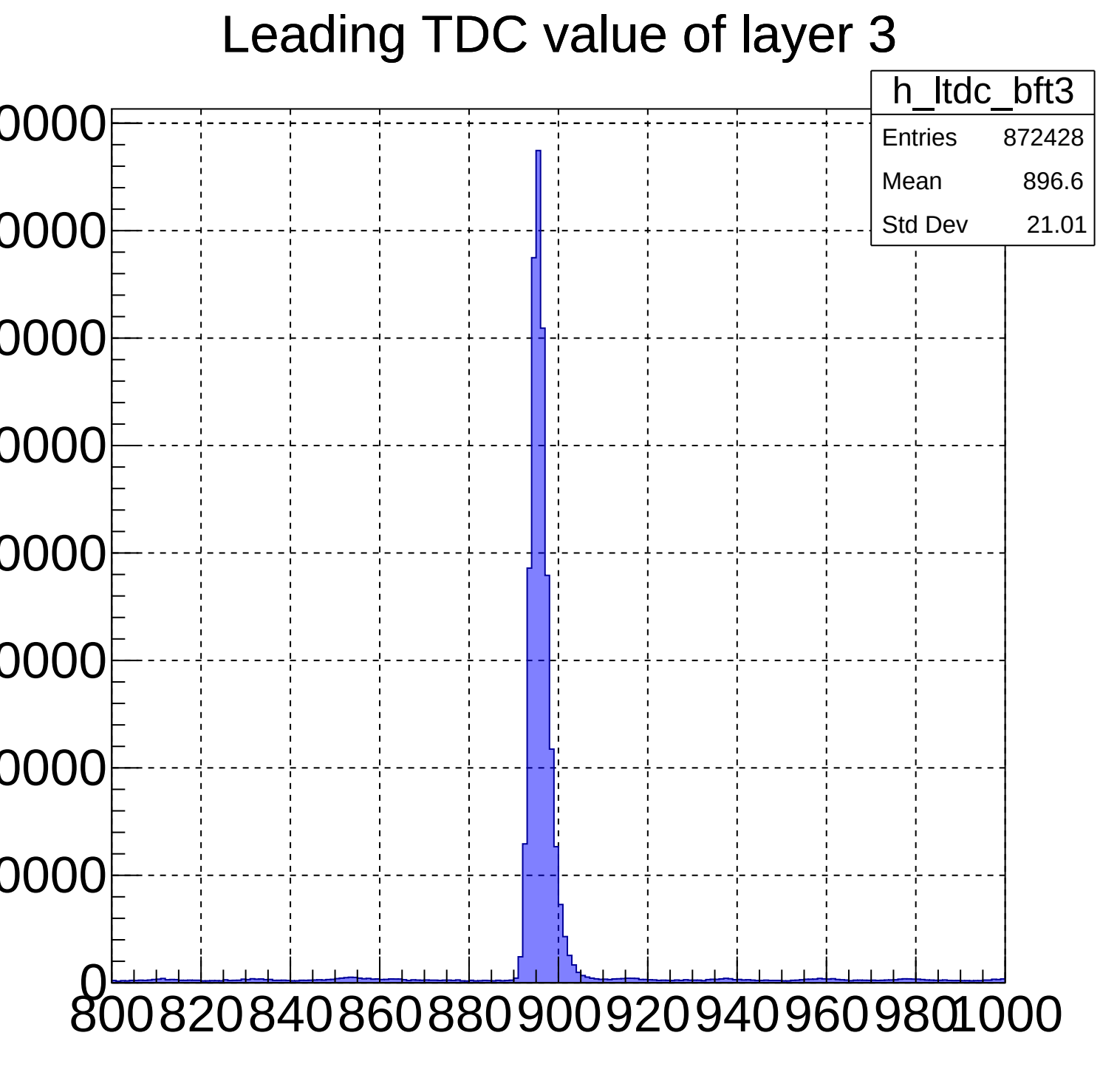

residual of layer 4
h_res4
Entries 169179
Mean −0.0001299
Std Dev 0.1162
4000
2000
0000
8000
6000
4000
2000
0
−0.5 −0.4 −0.3 −0.2 −0.1 0 0.1 0.2 0.3 0.4 0.5
residual [mm]

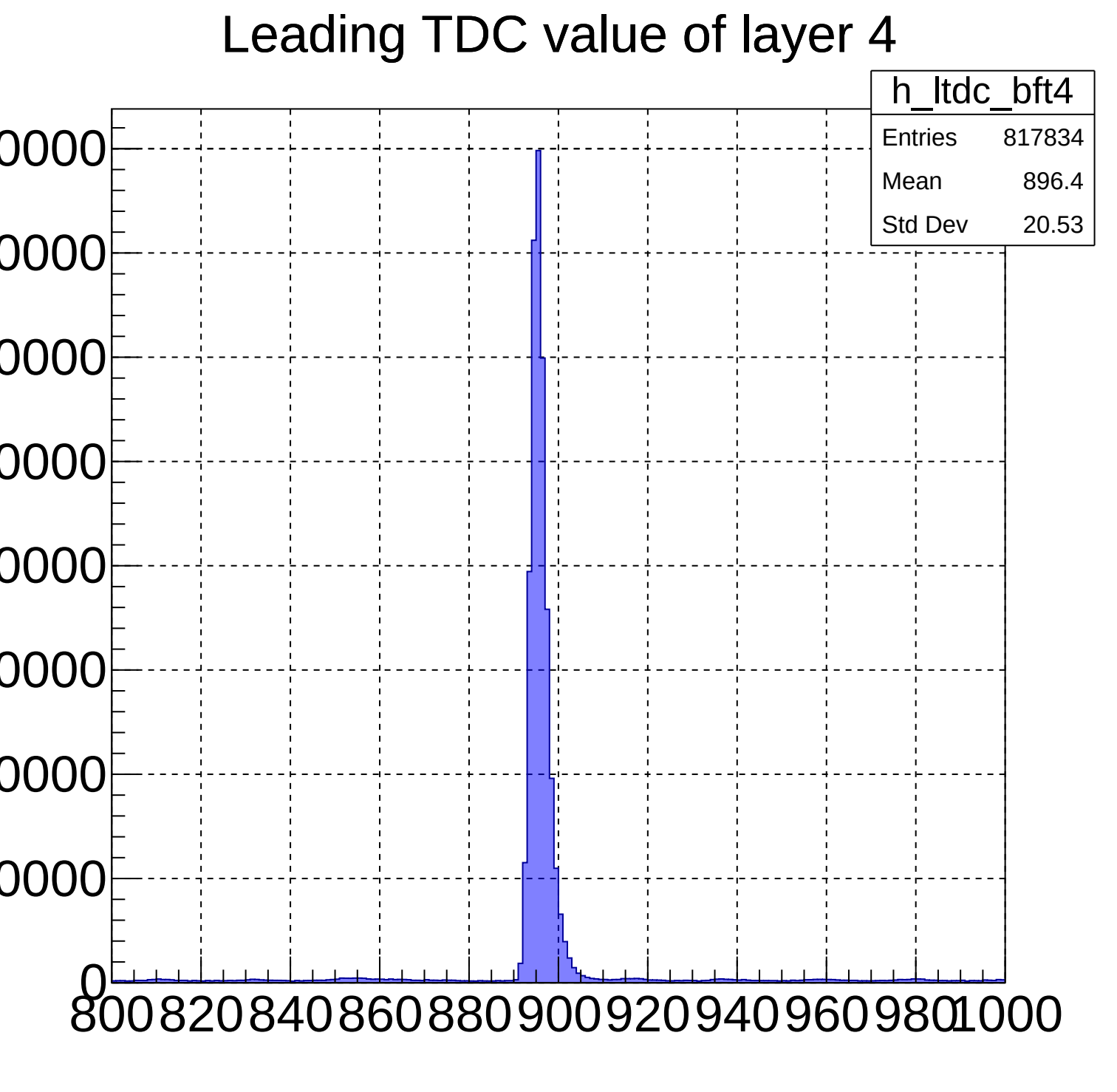

residual of layer 5
h_res5
Entries 205890
Mean 0.0002723
Std Dev 0.06284
5000
0000
5000
0000
5000
0000
5000
0000
5000
0
–0.5 –0.4 –0.3 –0.2 –0.1 0 0.1 0.2 0.3 0.4 0.5
residual [mm]

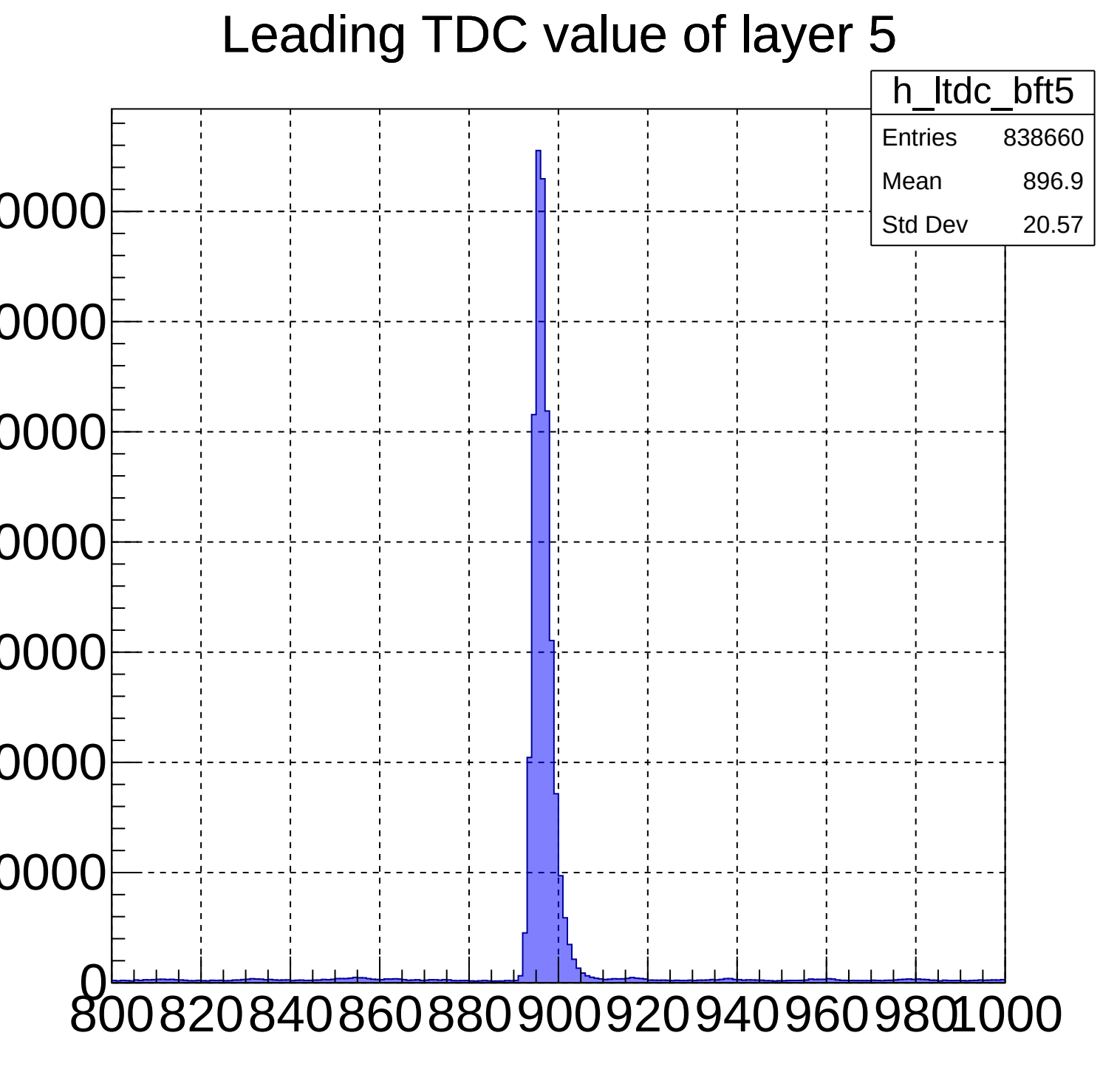

residual of layer 6
h_res6
Entries 168309
Mean 0.0002504
Std Dev 0.06817
2000
0000
8000
6000
4000
2000
0000
8000
6000
4000
2000
0
–0.5 –0.4 –0.3 –0.2 –0.1 0 0.1 0.2 0.3 0.4 0.5
residual [mm]

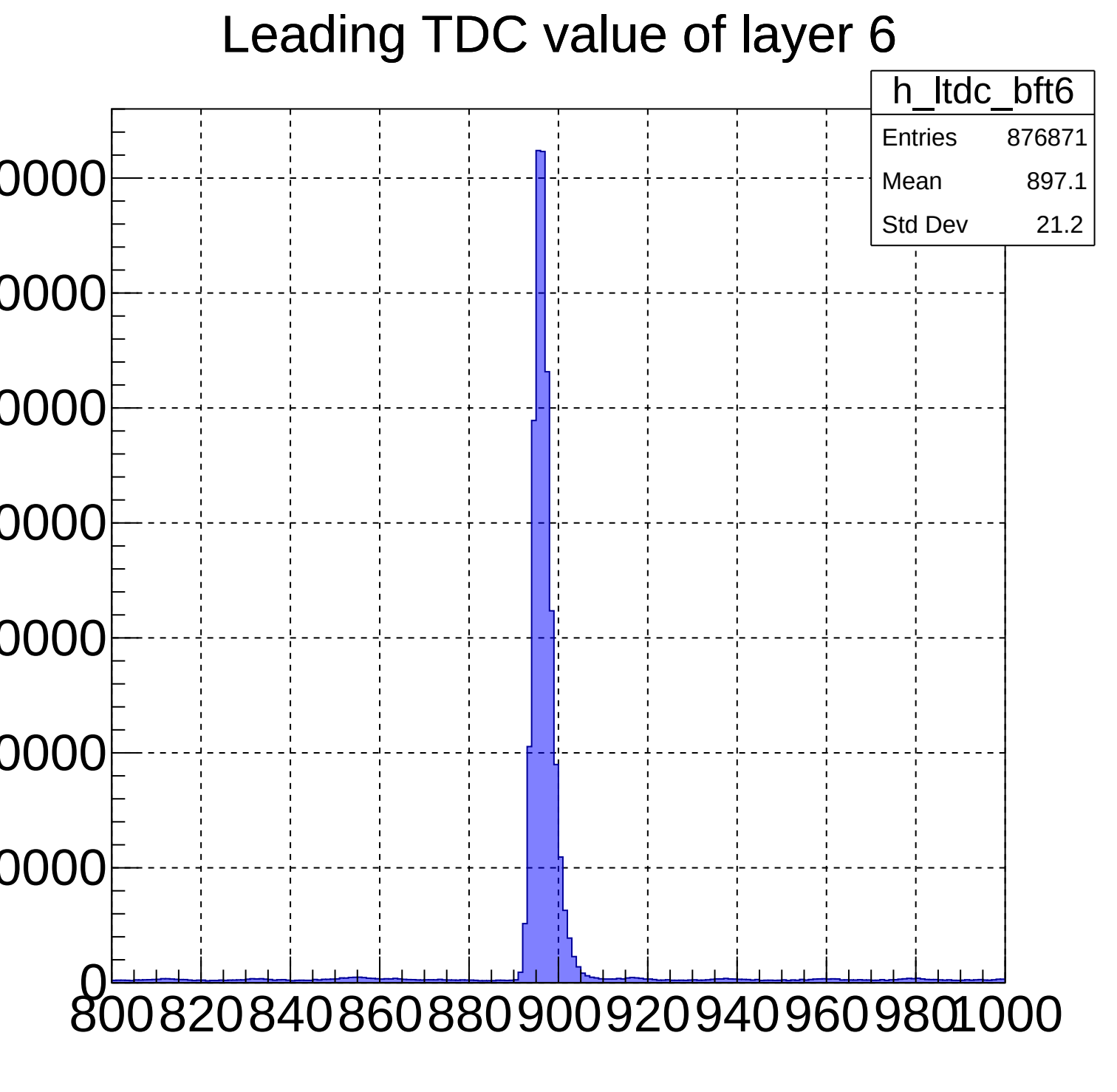

Leading TDC value of layer 1
h_ltdc_bft1
Entries 709808
Mean 895.6
Std Dev 18.07
0000
0000
0000
0000
0000
0000
0000
0
800 820 840 860 880 900 920 940 960 980 1000

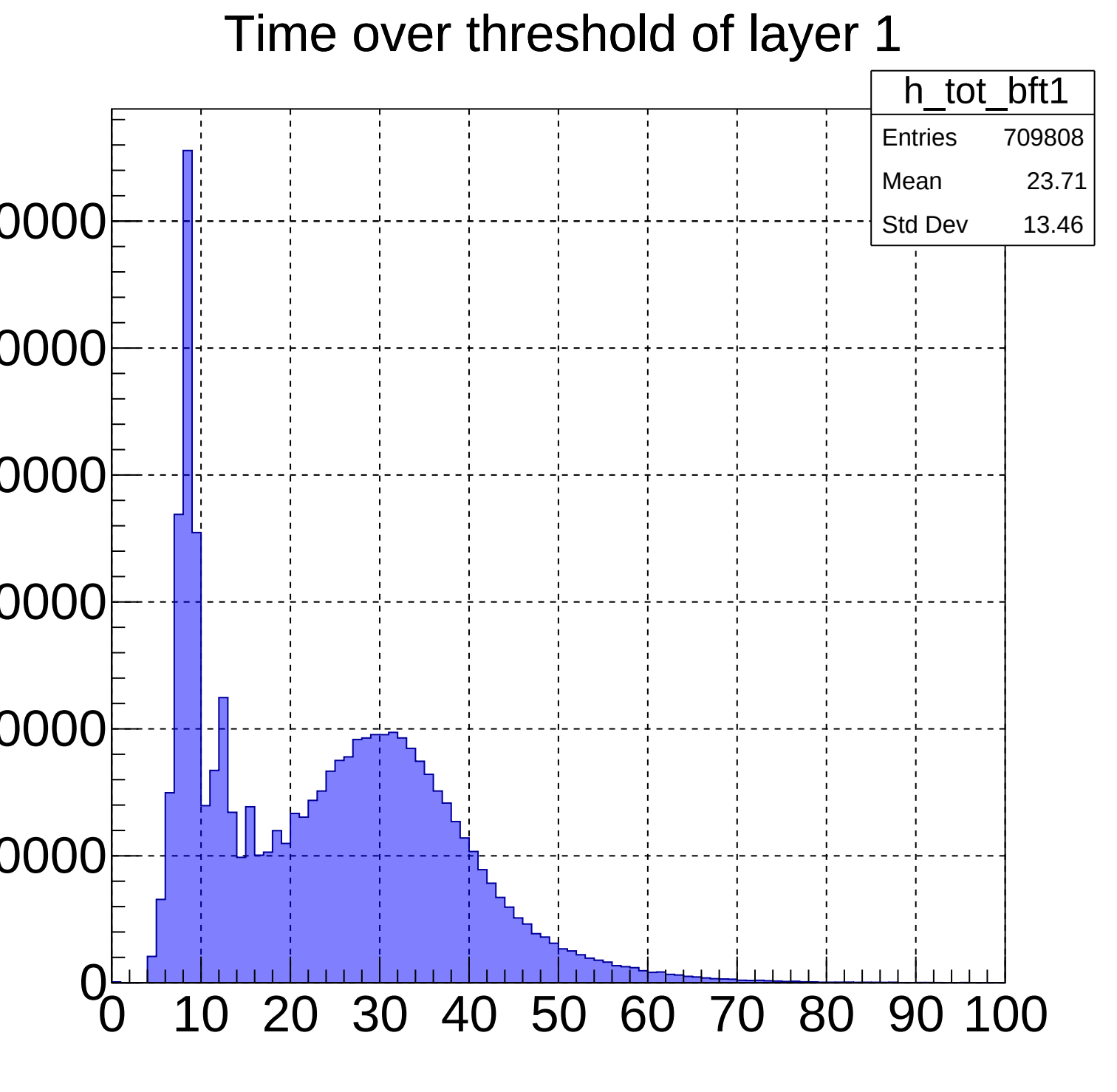

Leading TDC value of layer 2
h_ltdc_bft2
Entries 823820
Mean 896.5
Std Dev 20.36
0000
0000
0000
0000
0000
0000
0000
0
800 820 840 860 880 900 920 940 960 980 1000

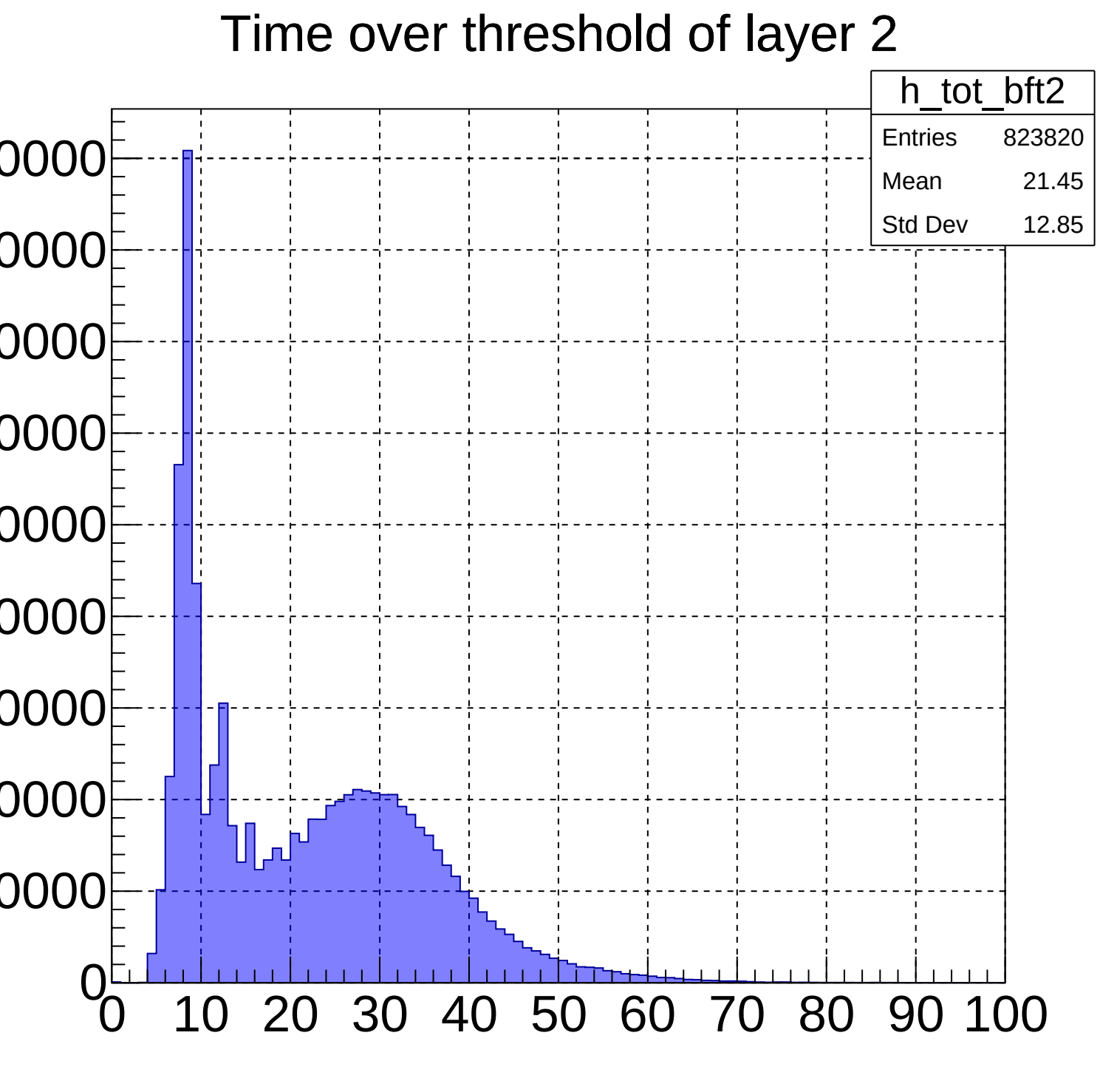

Leading TDC value of layer 3
h_ltdc_bft3
Entries 872428
Mean 896.6
Std Dev 21.01
0000
0000
0000
0000
0000
0000
0000
0
800 820 840 860 880 900 920 940 960 980 1000

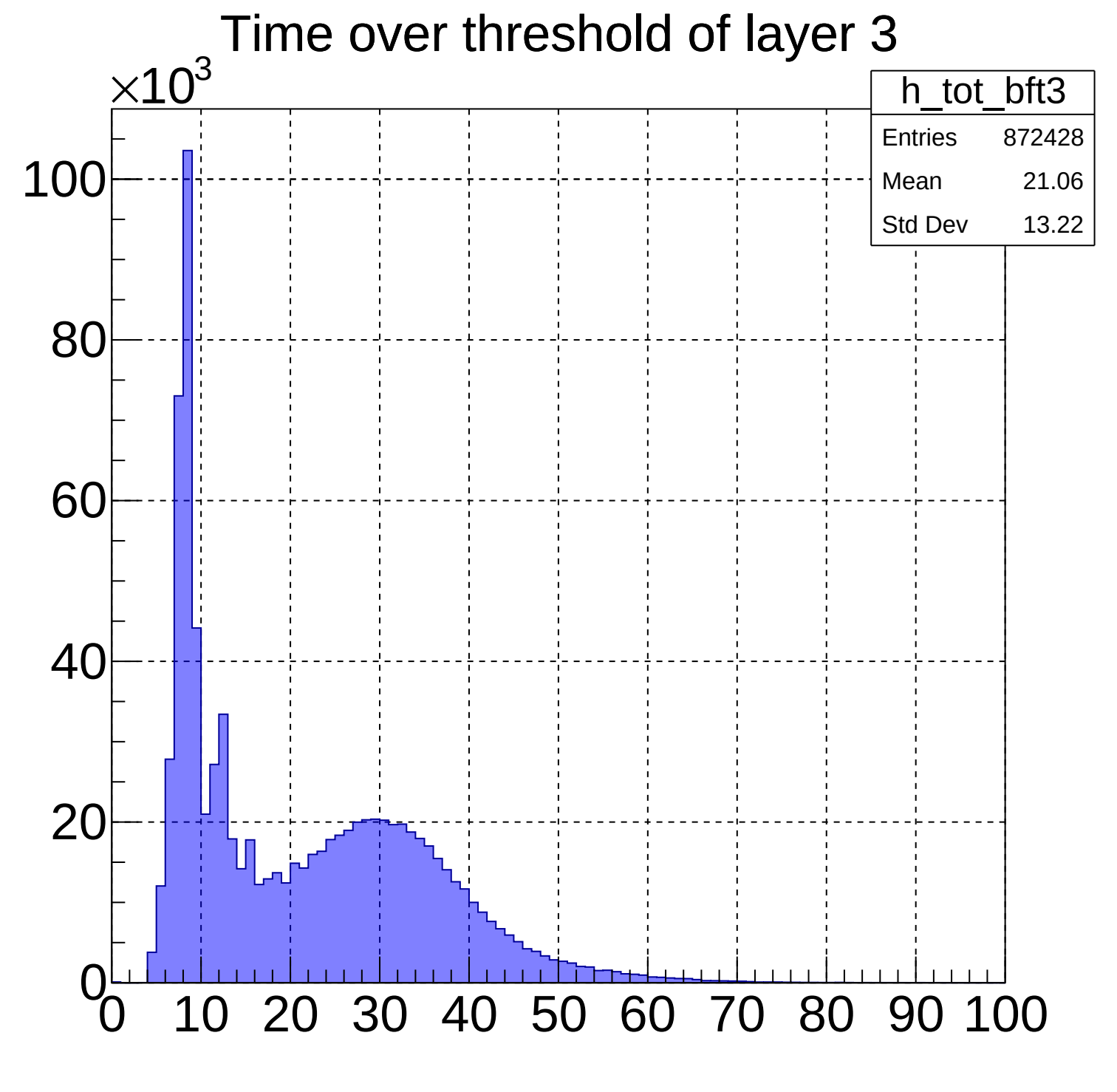

Leading TDC value of layer 4
h_ltdc_bft4
Entries 817834
Mean 896.4
Std Dev 20.53
0000
0000
0000
0000
0000
0000
0000
0
800 820 840 860 880 900 920 940 960 980 1000

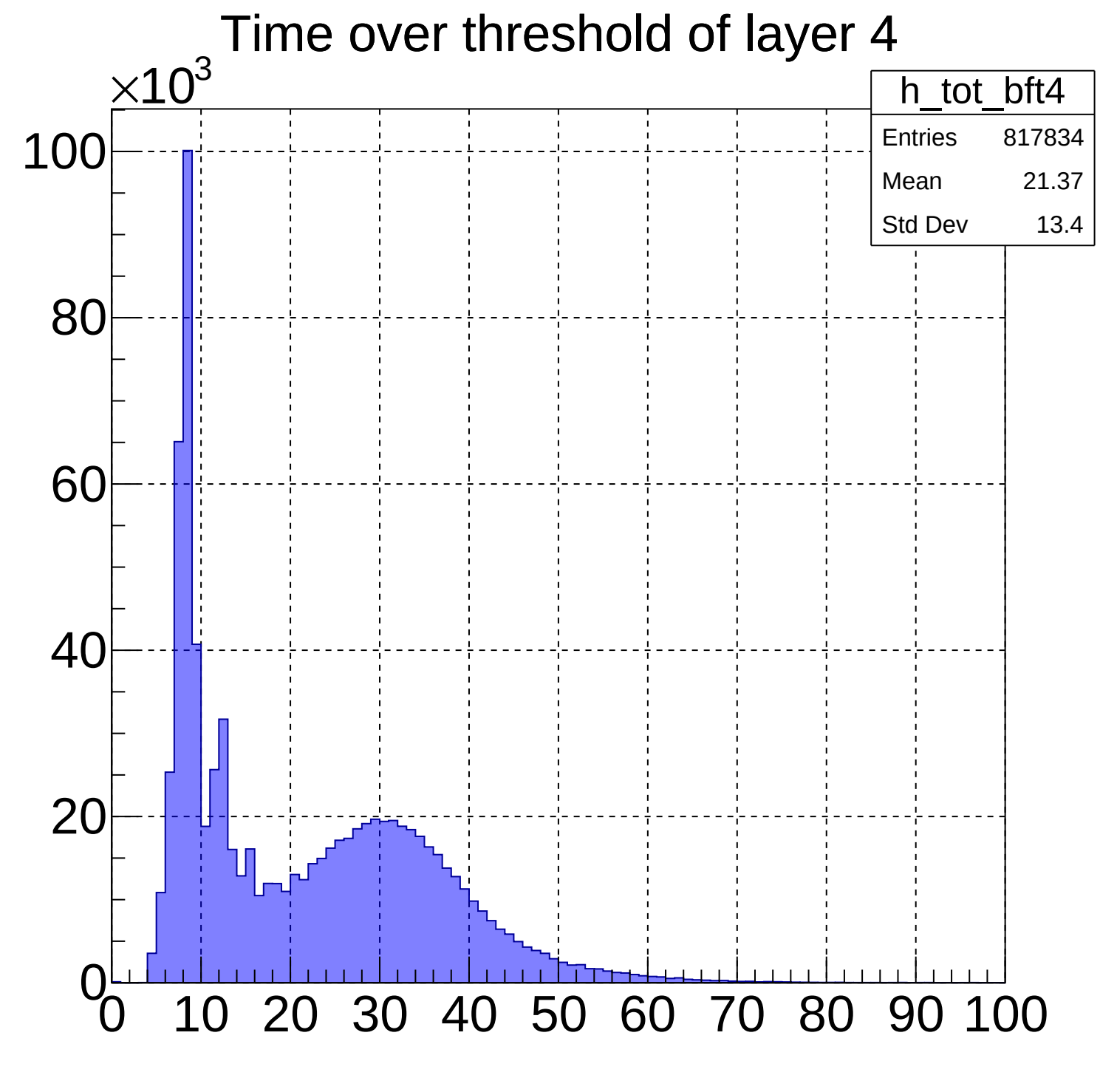

Leading TDC value of layer 5
h_ltdc_bft5
Entries 838660
Mean 896.9
Std Dev 20.57
0000
0000
0000
0000
0000
0000
0
800 820 840 860 880 900 920 940 960 980 1000

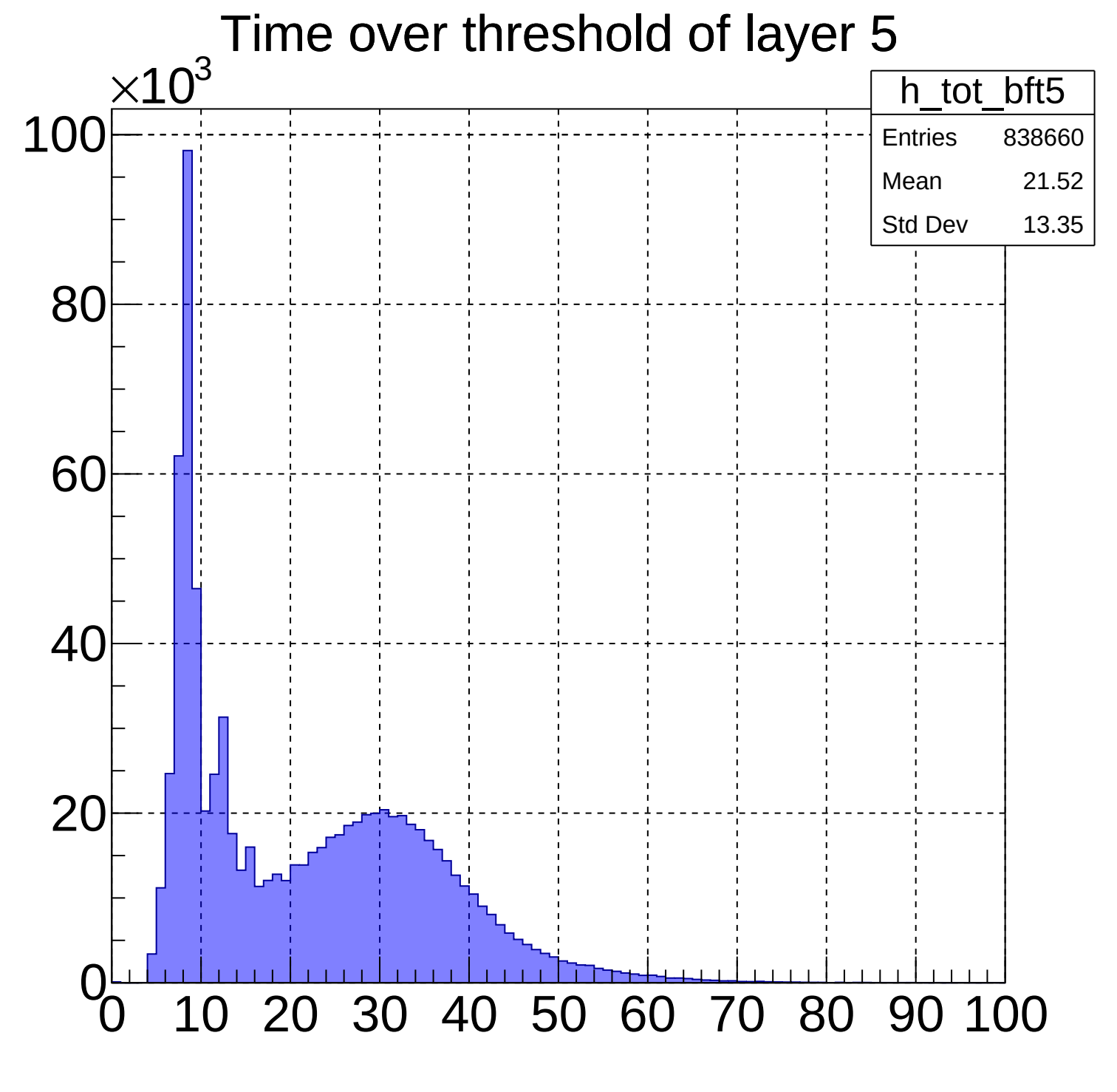

Leading TDC value of layer 6
h_ltdc_bft6
Entries 876871
Mean 897.1
Std Dev 21.2
0000
0000
0000
0000
0000
0000
0
800 820 840 860 880 900 920 940 960 980 1000

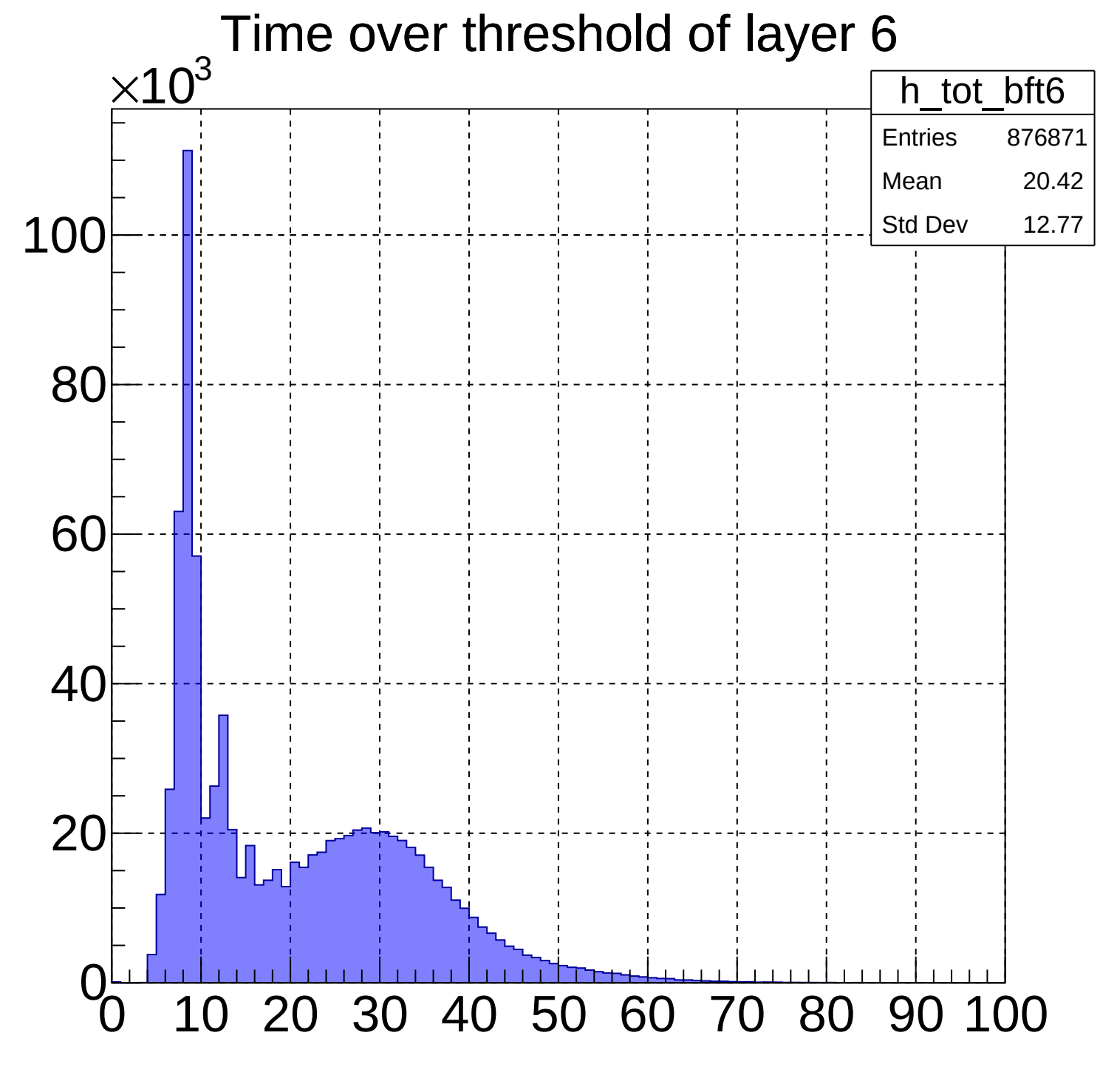

Time over threshold of layer 1
h_tot_bft1
Entries 709808
Mean 23.71
Std Dev 13.46
0000
0000
0000
0000
0000
0
0 10 20 30 40 50 60 70 80 90 100

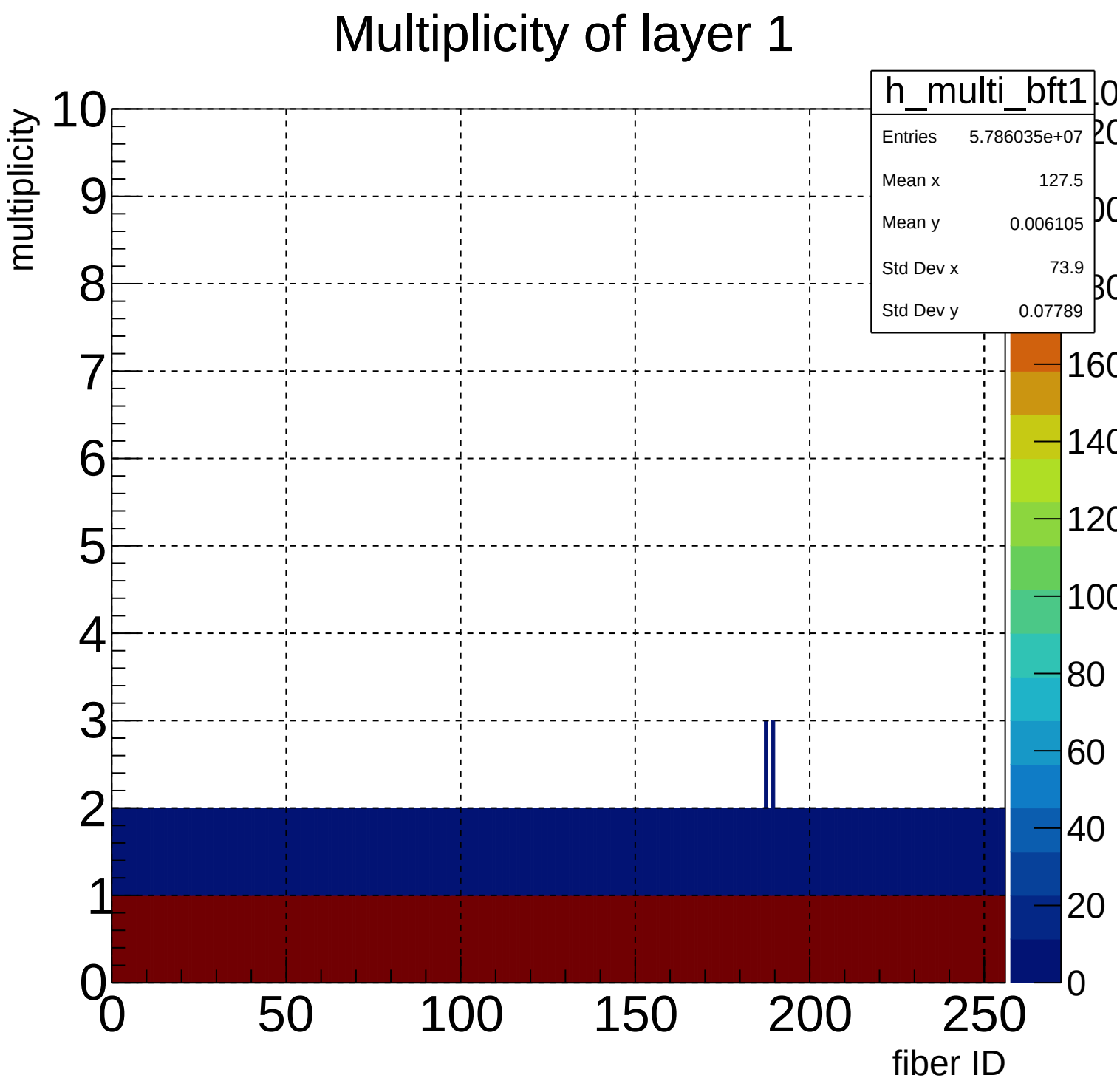

Time over threshold of layer 2
h_tot_bft2
Entries 823820
Mean 21.45
Std Dev 12.85
0000
0000
0000
0000
0000
0000
0000
0000
0
0 10 20 30 40 50 60 70 80 90 100

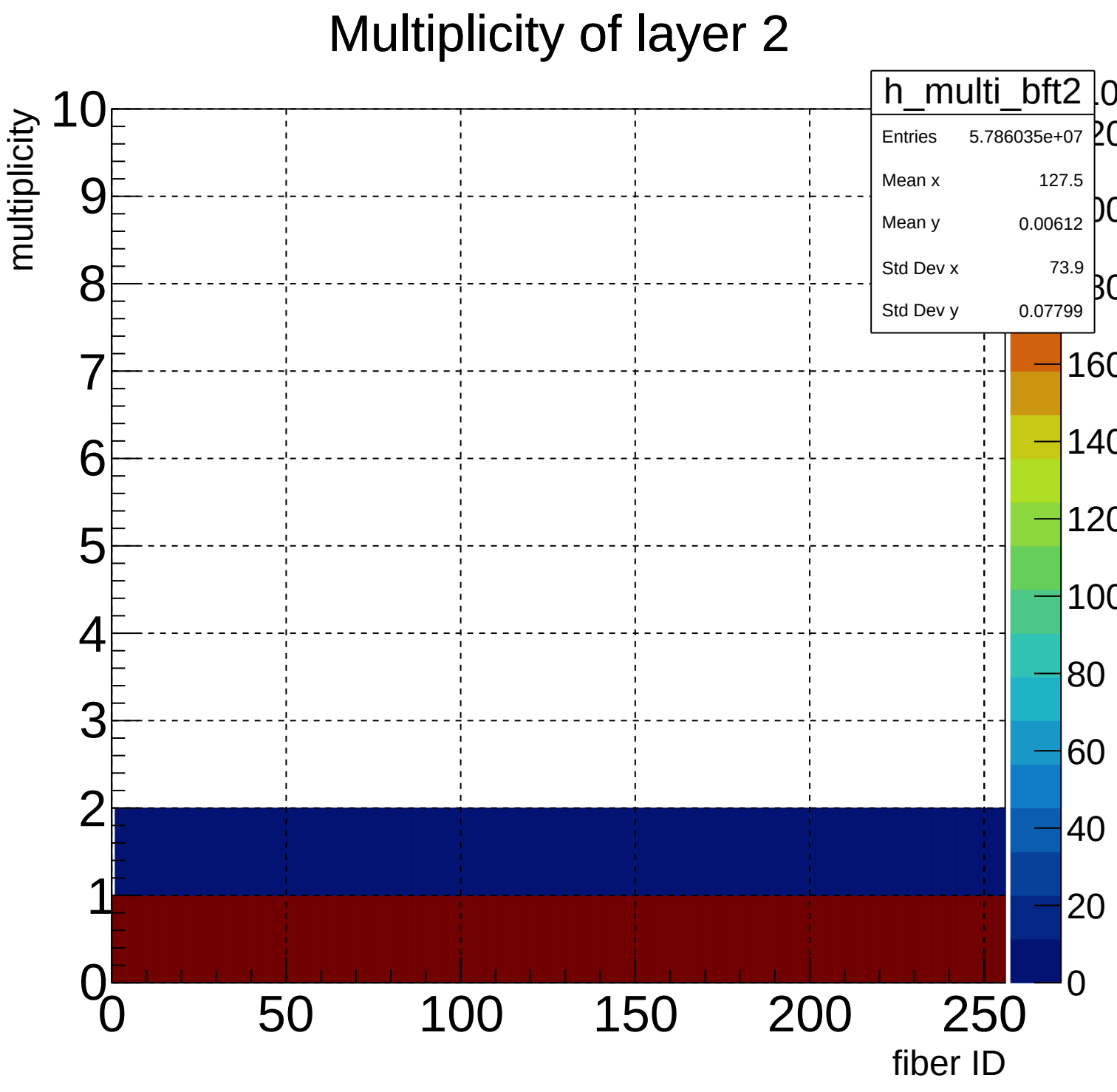

Time over threshold of layer 3
×10^3
h_tot_bft3
Entries 872428
Mean 21.06
Std Dev 13.22
100
80
60
40
20
0
0 10 20 30 40 50 60 70 80 90 100

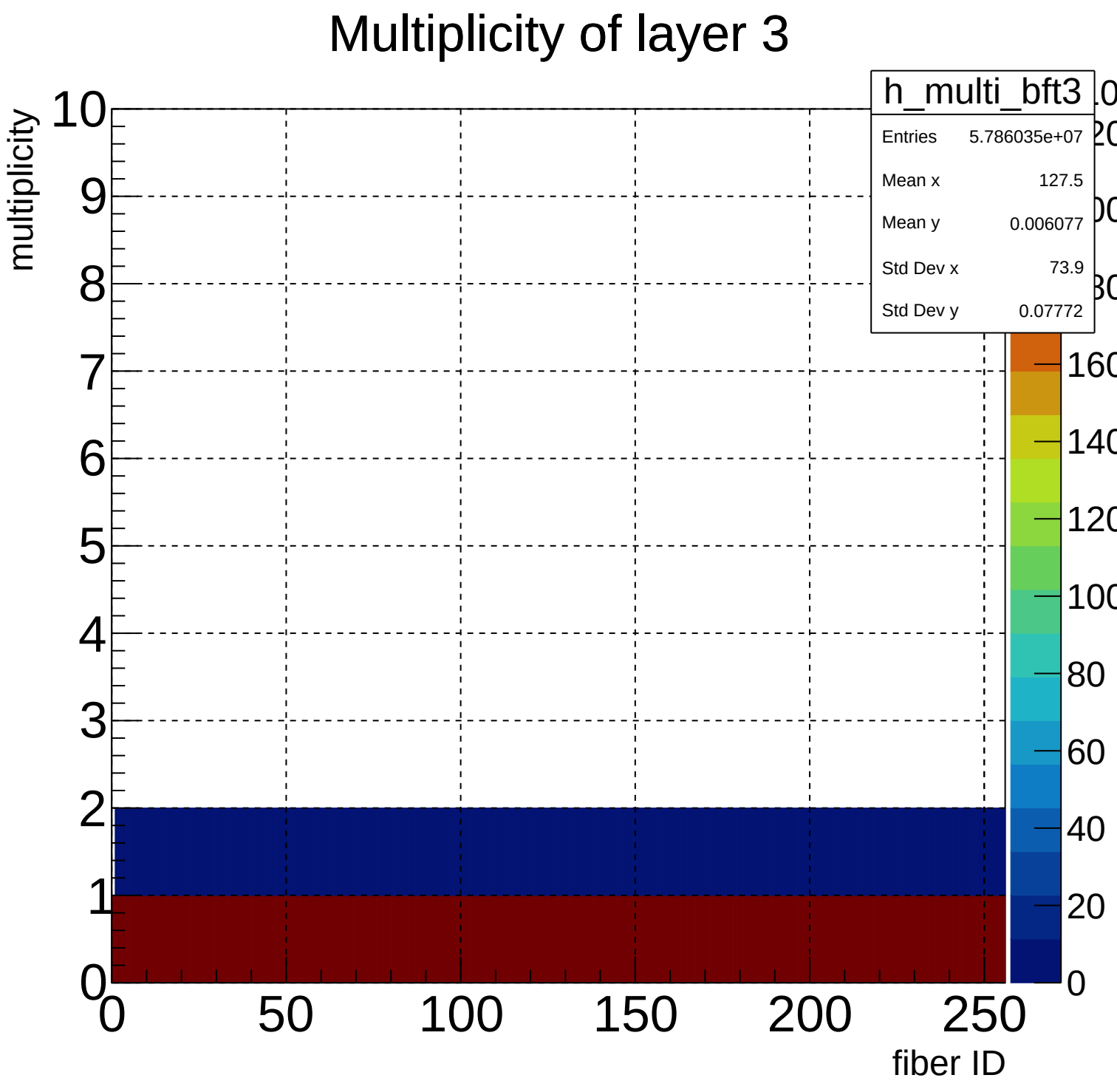

Time over threshold of layer 4
×10^3
h_tot_bft4
Entries 817834
Mean 21.37
Std Dev 13.4
100
80
60
40
20
0
0 10 20 30 40 50 60 70 80 90 100

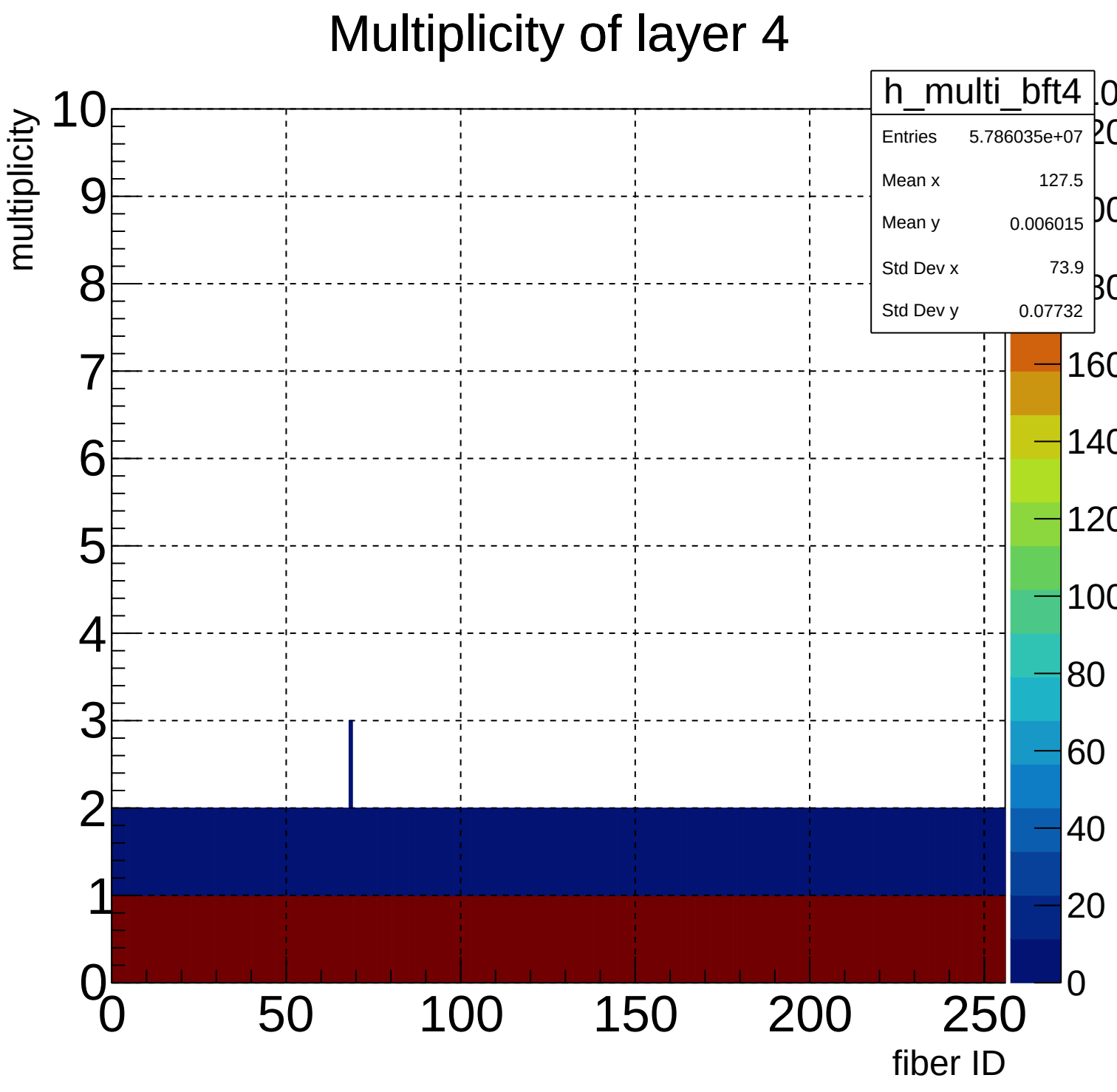

Time over threshold of layer 5
×10^3
h_tot_bft5
Entries 838660
Mean 21.52
Std Dev 13.35
100
80
60
40
20
0
0 10 20 30 40 50 60 70 80 90 100

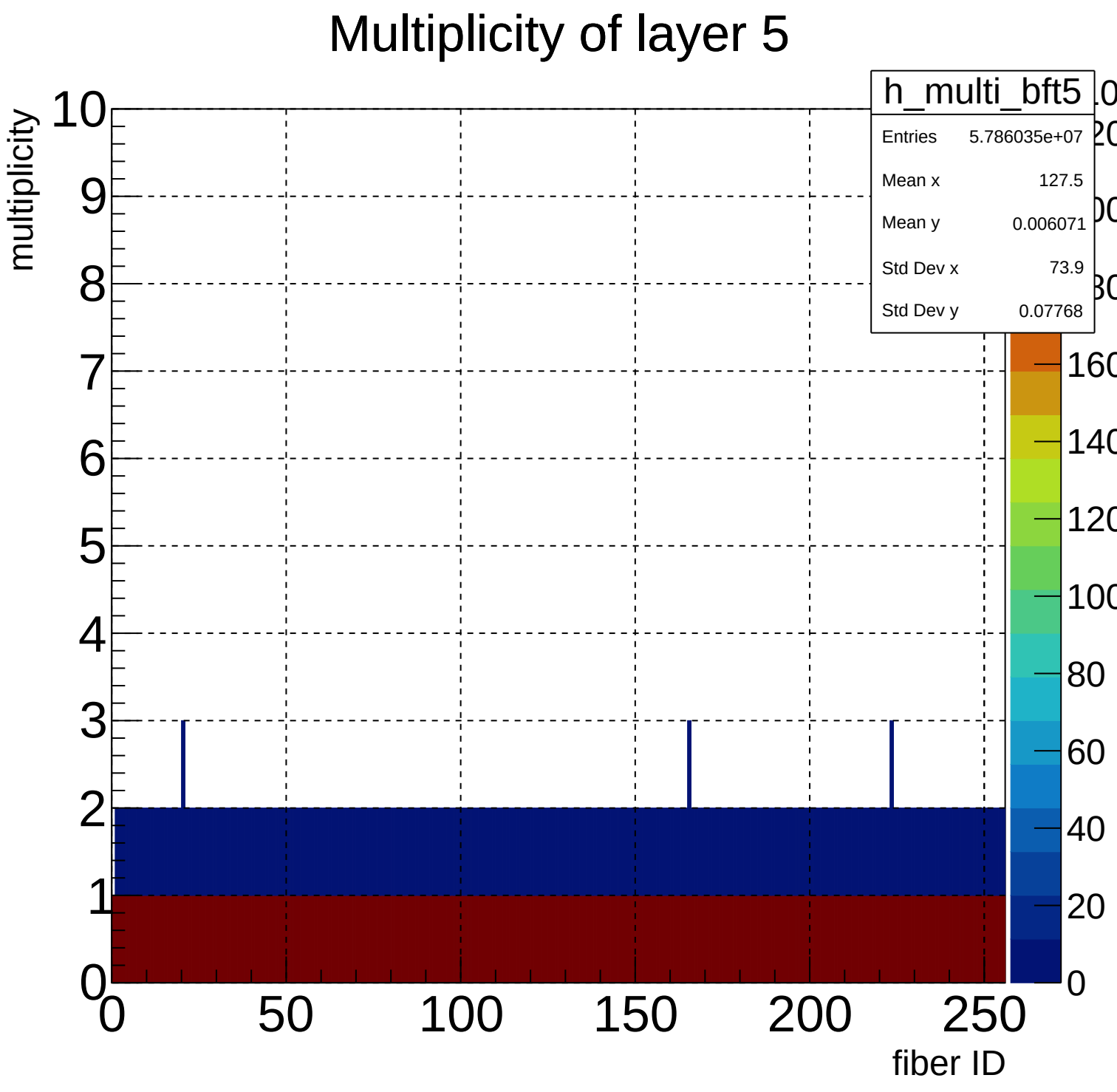

Time over threshold of layer 6
×10^3
h_tot_bft6
Entries 876871
Mean 20.42
Std Dev 12.77
100
80
60
40
20
0
0 10 20 30 40 50 60 70 80 90 100

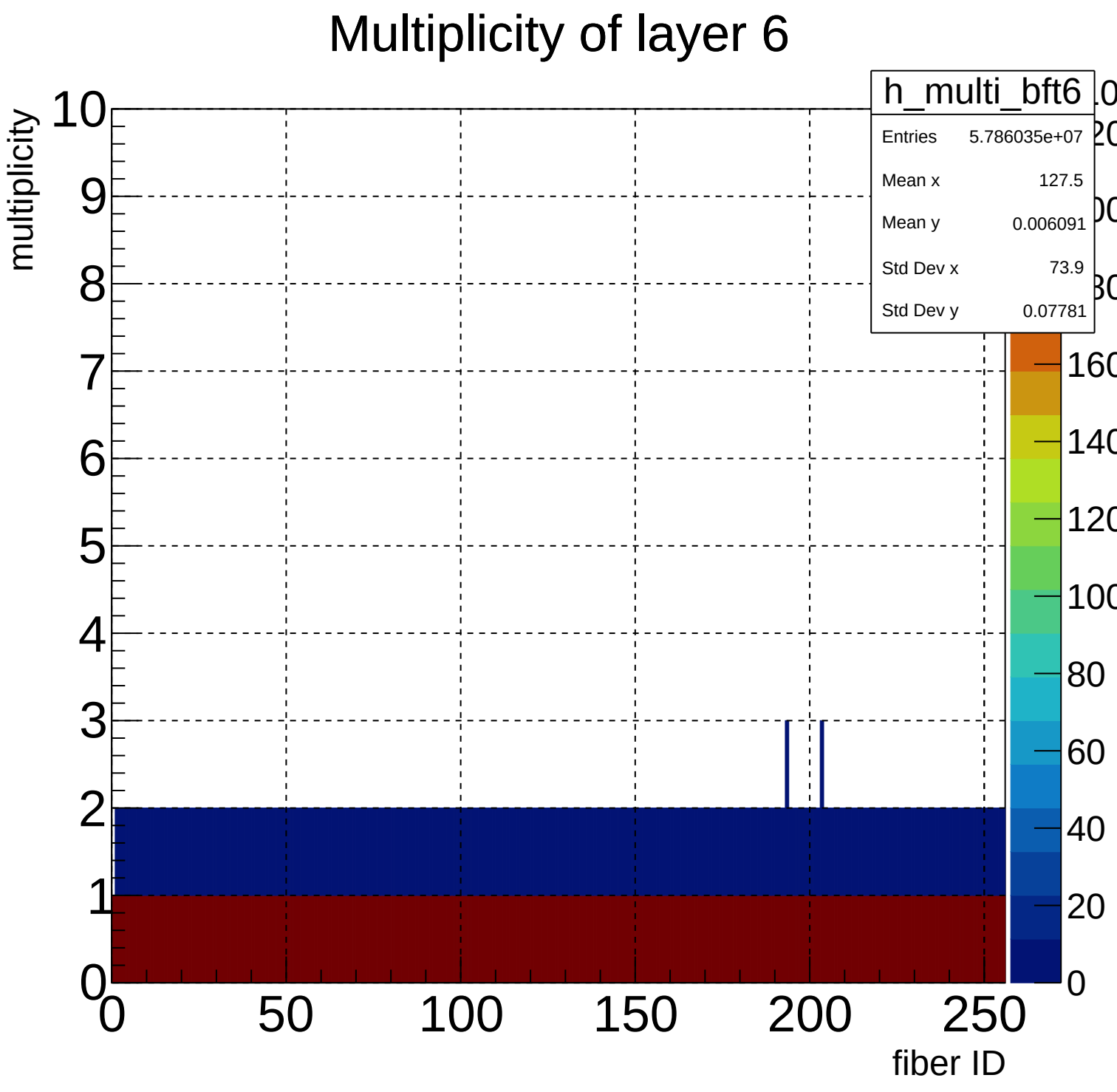

Multiplicity of layer 1
h_multi_bft1
Entries 5.786035e+07
Mean x 127.5
Mean y 0.006105
Std Dev x 73.9
Std Dev y 0.07789
multiplicity
fiber ID
0
50
100
150
200
250
0
1
2
3
4
5
6
7
8
9
10
0
20
40
60
80
100
120
140
160

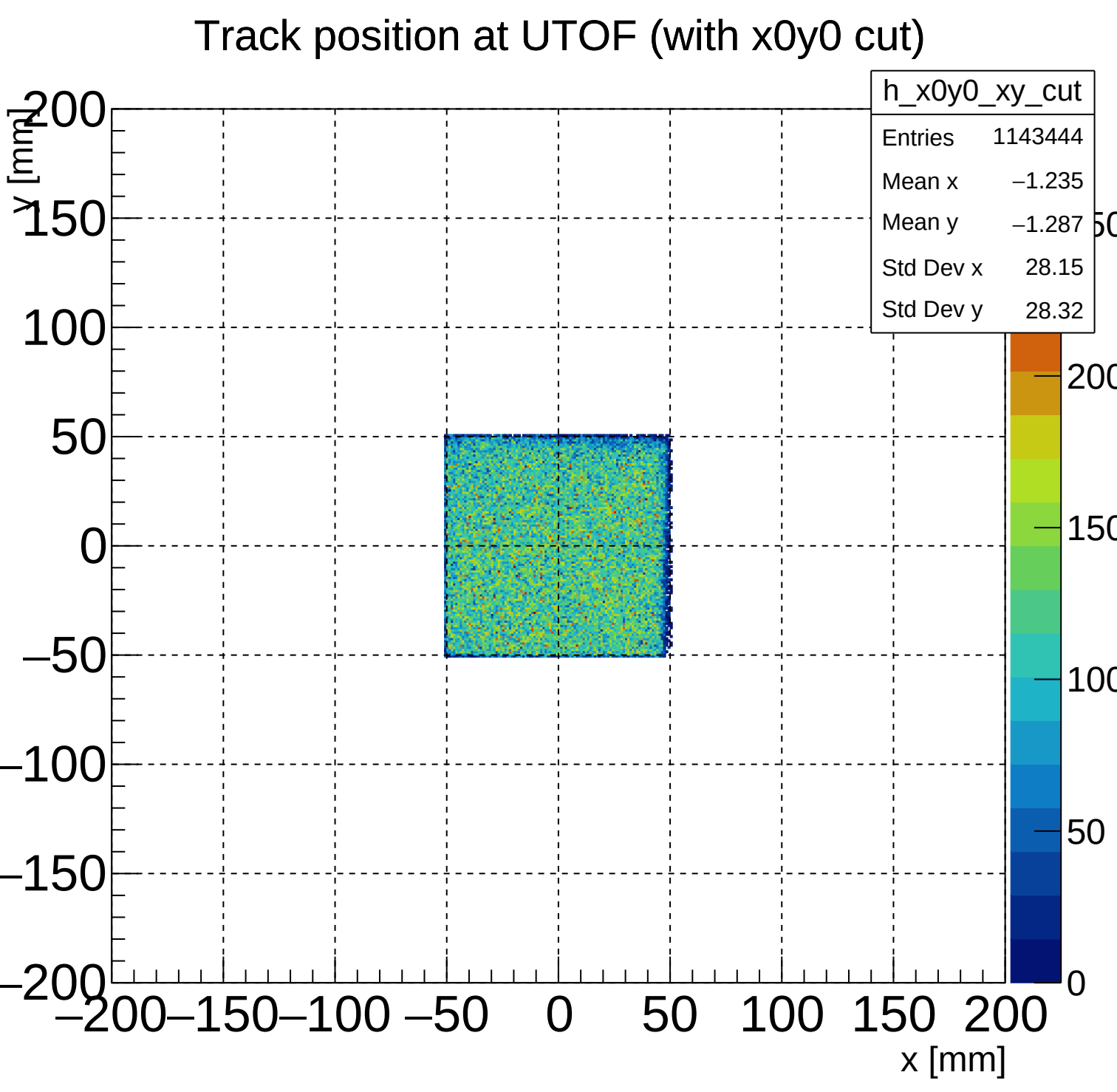

Multiplicity of layer 2
h_multi_bft2
Entries 5.786035e+07
Mean x 127.5
Mean y 0.00612
Std Dev x 73.9
Std Dev y 0.07799
multiplicity
fiber ID
0
50
100
150
200
250
0
1
2
3
4
5
6
7
8
9
10
0
20
40
60
80
100
120
140
160

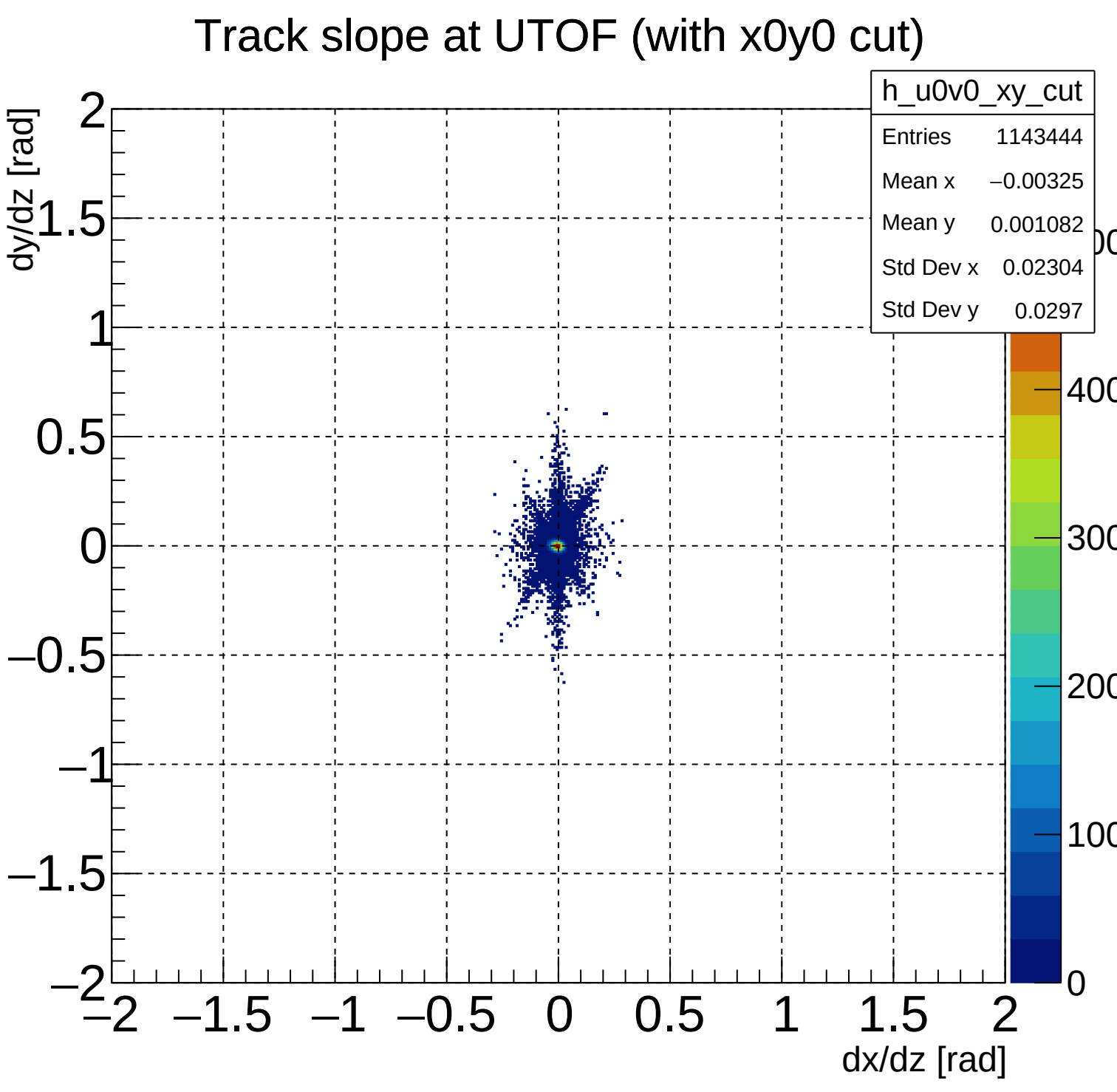

Multiplicity of layer 3
h_multi_bft3
Entries 5.786035e+07
Mean x 127.5
Mean y 0.006077
Std Dev x 73.9
Std Dev y 0.07772
multiplicity
fiber ID
0
50
100
150
200
250
0
1
2
3
4
5
6
7
8
9
10
0
20
40
60
80
100
120
140
160

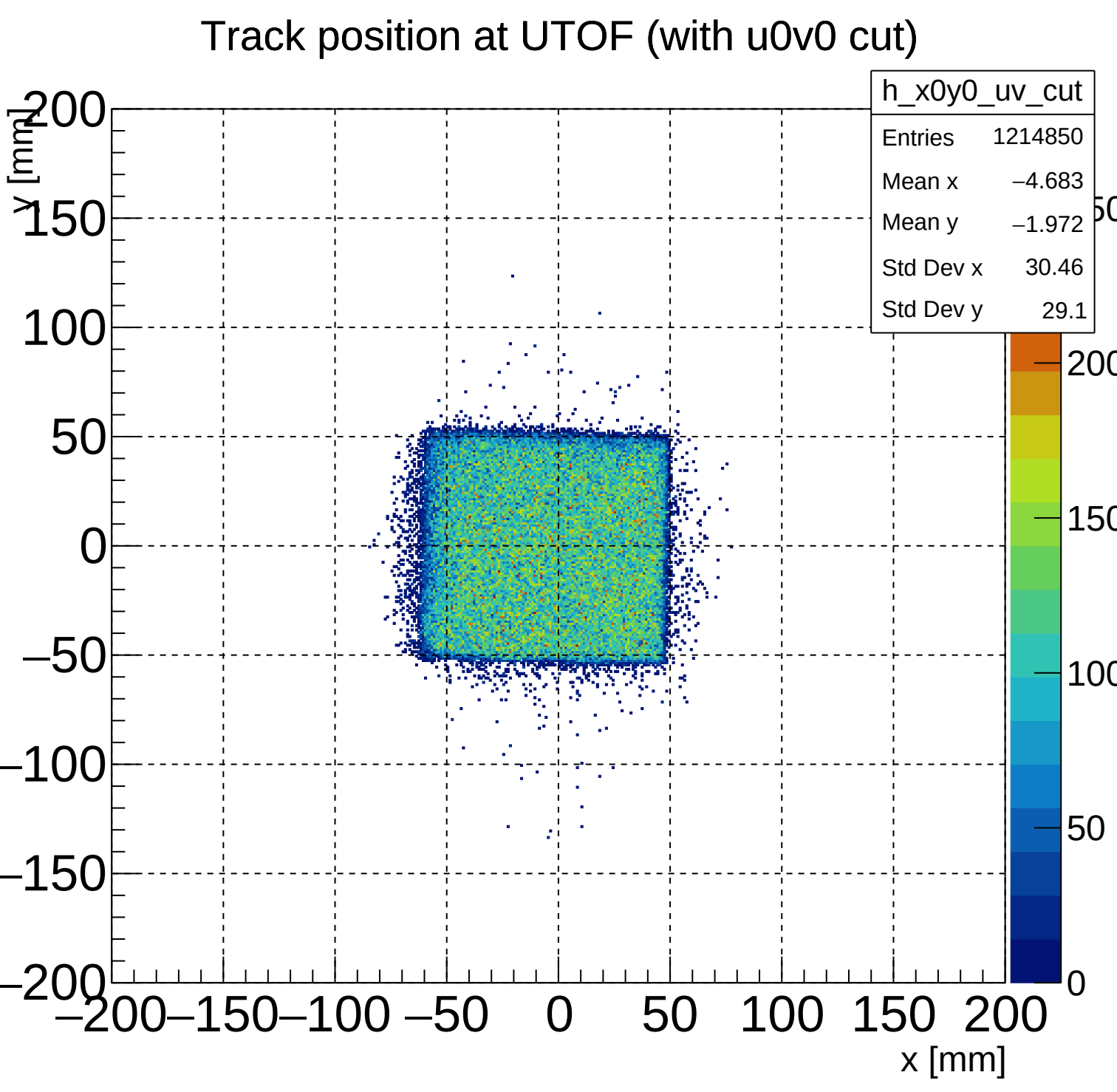

Multiplicity of layer 4
h_multi_bft4
Entries 5.786035e+07
Mean x 127.5
Mean y 0.006015
Std Dev x 73.9
Std Dev y 0.07732
multiplicity
fiber ID
0
50
100
150
200
250
1
2
3
4
5
6
7
8
9
10
20
40
60
80
100
120
140
160

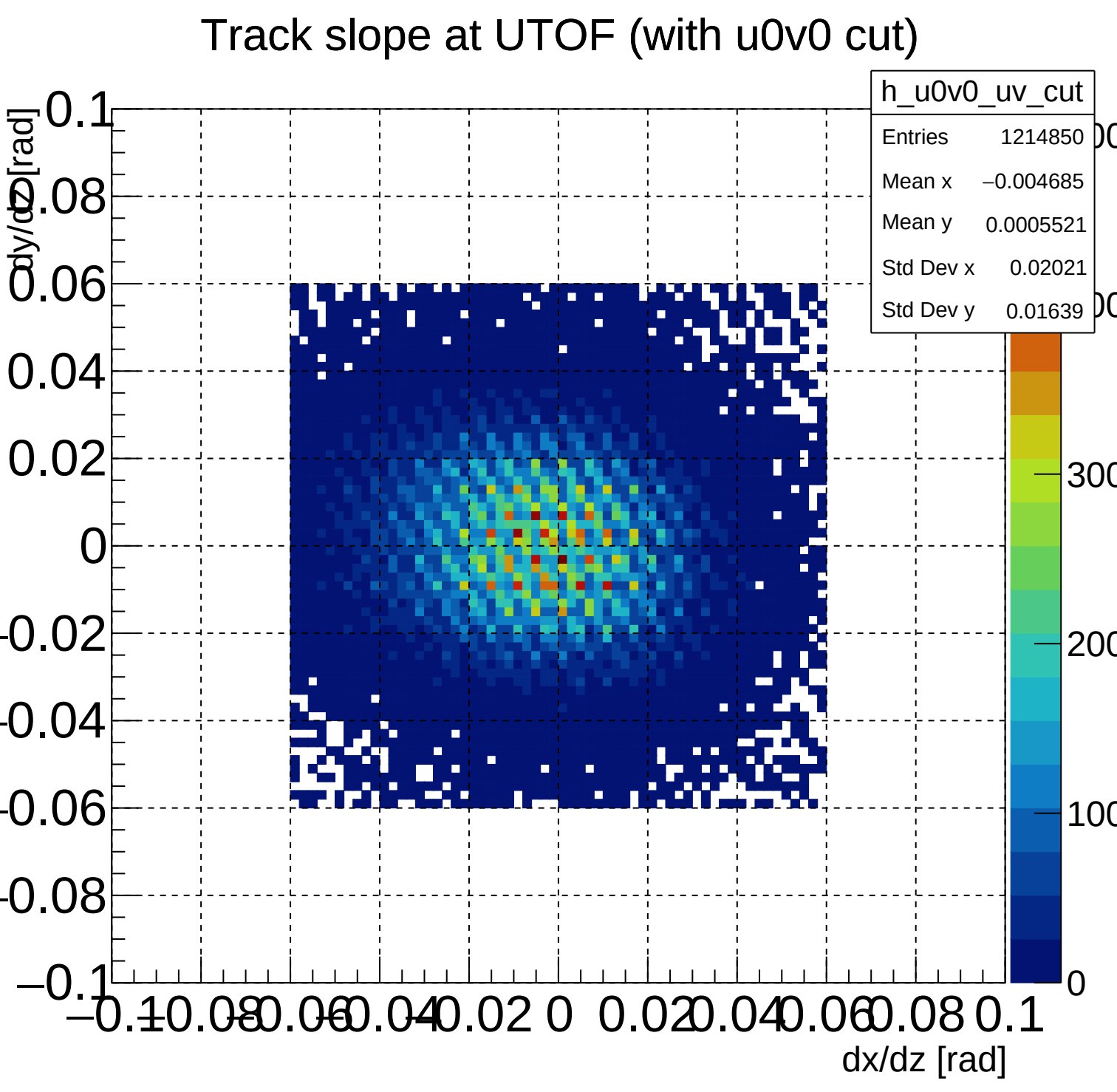

Multiplicity of layer 5
h_multi_bft5
Entries 5.786035e+07
Mean x 127.5
Mean y 0.006071
Std Dev x 73.9
Std Dev y 0.07768
multiplicity
fiber ID
0
50
100
150
200
250
0
1
2
3
4
5
6
7
8
9
10
0
20
40
60
80
100
120
140
160

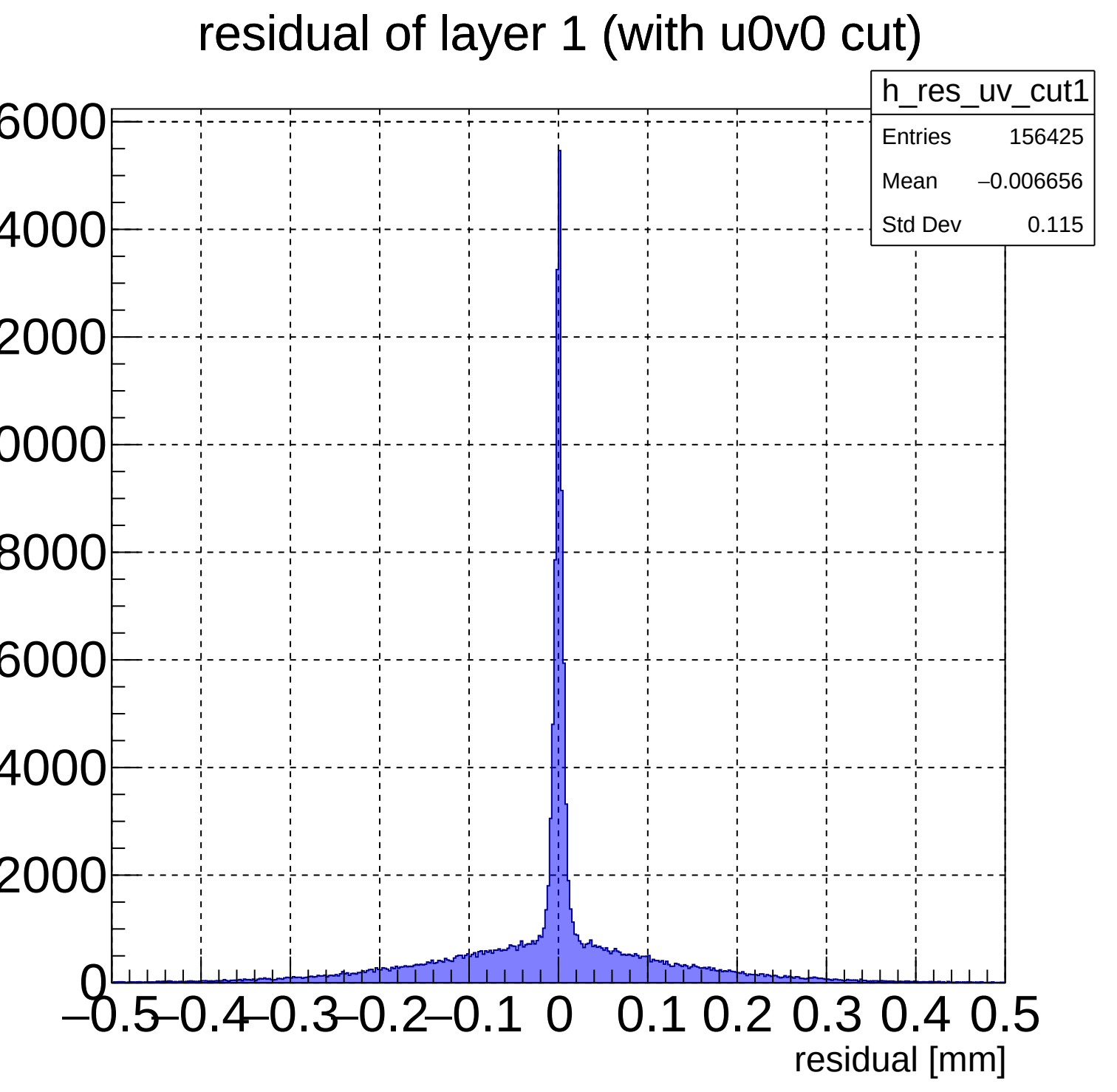

Multiplicity of layer 6
h_multi_bft6
Entries 5.786035e+07
Mean x 127.5
Mean y 0.006091
Std Dev x 73.9
Std Dev y 0.07781
multiplicity
fiber ID
0
50
100
150
200
250
1
2
3
4
5
6
7
8
9
10
20
40
60
80
100
120
140
160

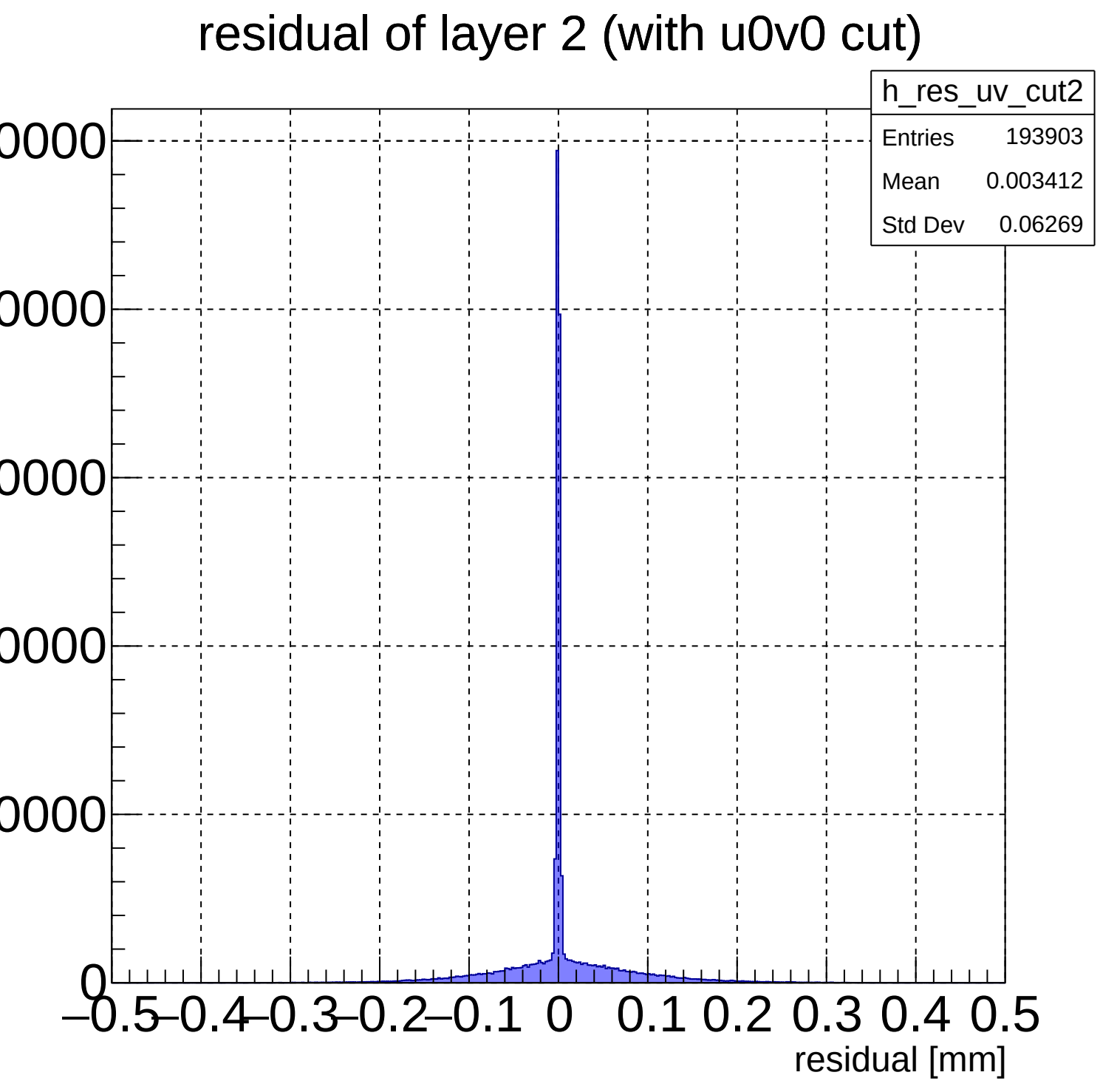

Track position at UTOF (with x0y0 cut)
h_x0y0_xy_cut
Entries 1143444
Mean x −1.235
Mean y −1.287
Std Dev x 28.15
Std Dev y 28.32
y [mm]
x [mm]
200
150
100
50
0
−50
−100
−150
−200
−200 −150 −100 −50 0 50 100 150 200
200
150
100
50
0

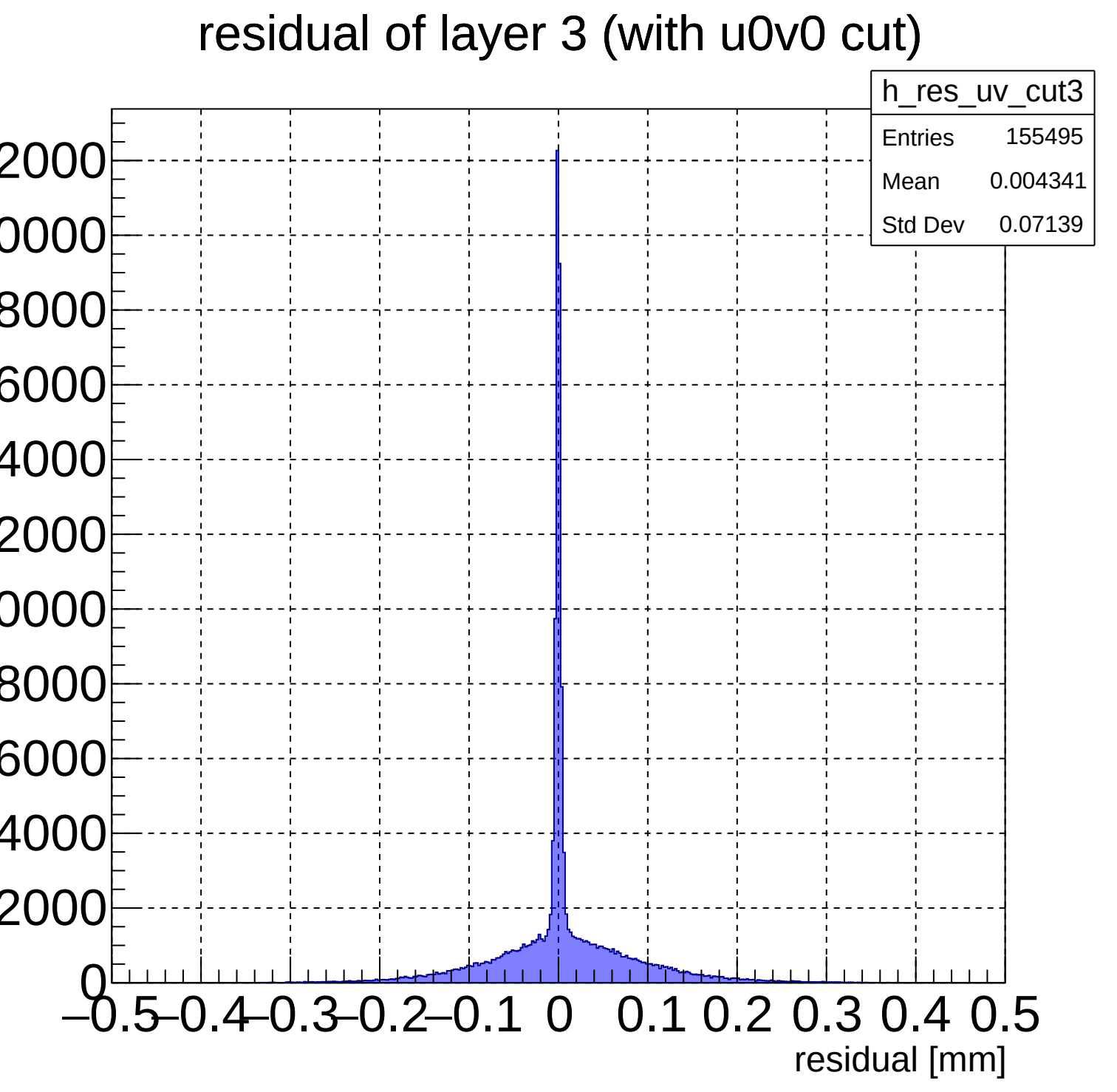

Track slope at UTOF (with x0y0 cut)
h_u0v0_xy_cut
Entries 1143444
Mean x −0.00325
Mean y 0.001082
Std Dev x 0.02304
Std Dev y 0.0297
dy/dz [rad]
dx/dz [rad]
2
1.5
1
0.5
0
−0.5
−1
−1.5
−2
400
300
200
100
0

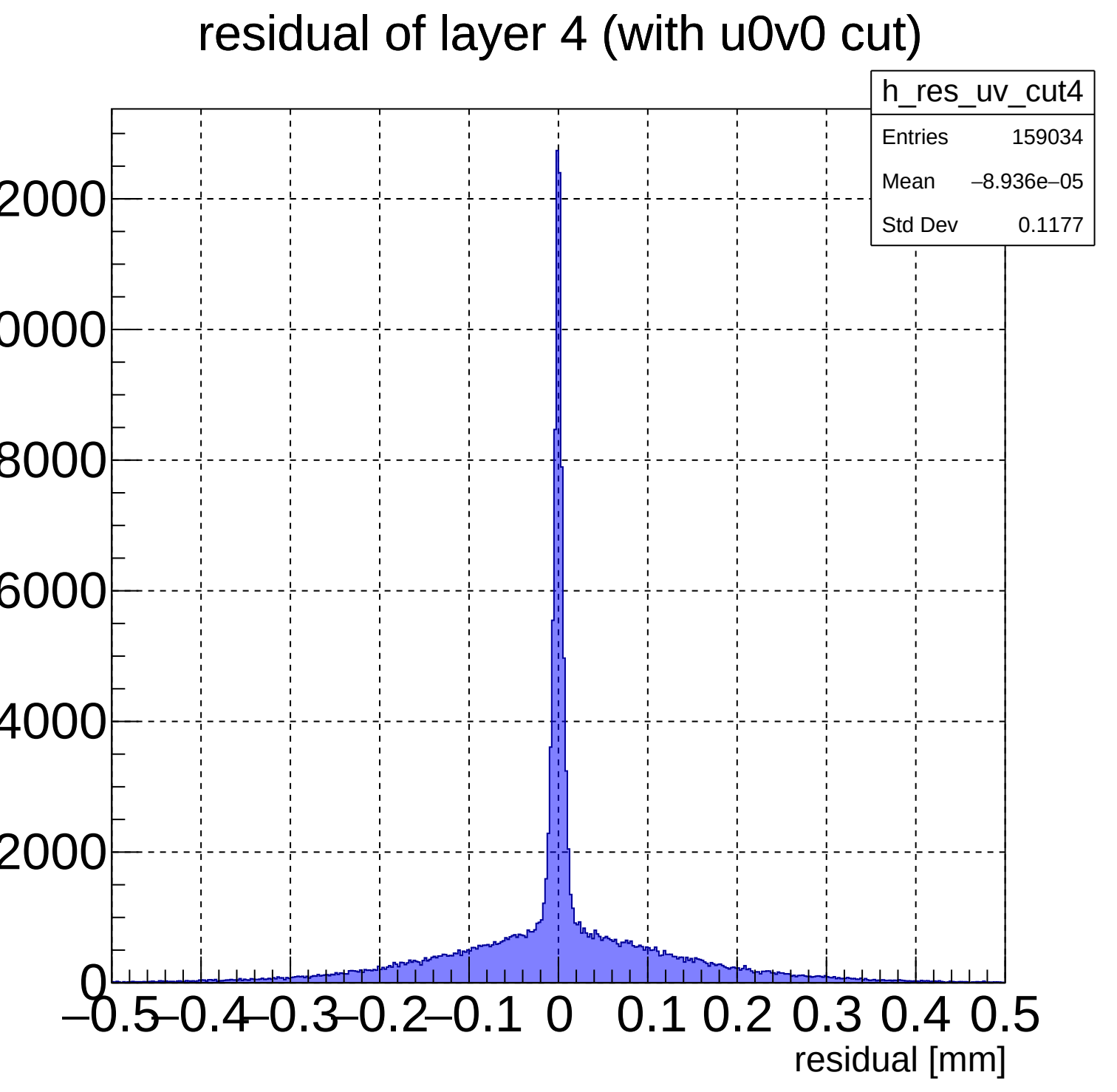

Track position at UTOF (with u0v0 cut)
h_x0y0_uv_cut
Entries 1214850
Mean x −4.683
Mean y −1.972
Std Dev x 30.46
Std Dev y 29.1
y [mm]
x [mm]
200
150
100
50
0
−50
−100
−150
−200
−200 −150 −100 −50 0 50 100 150 200
200
150
100
50
0

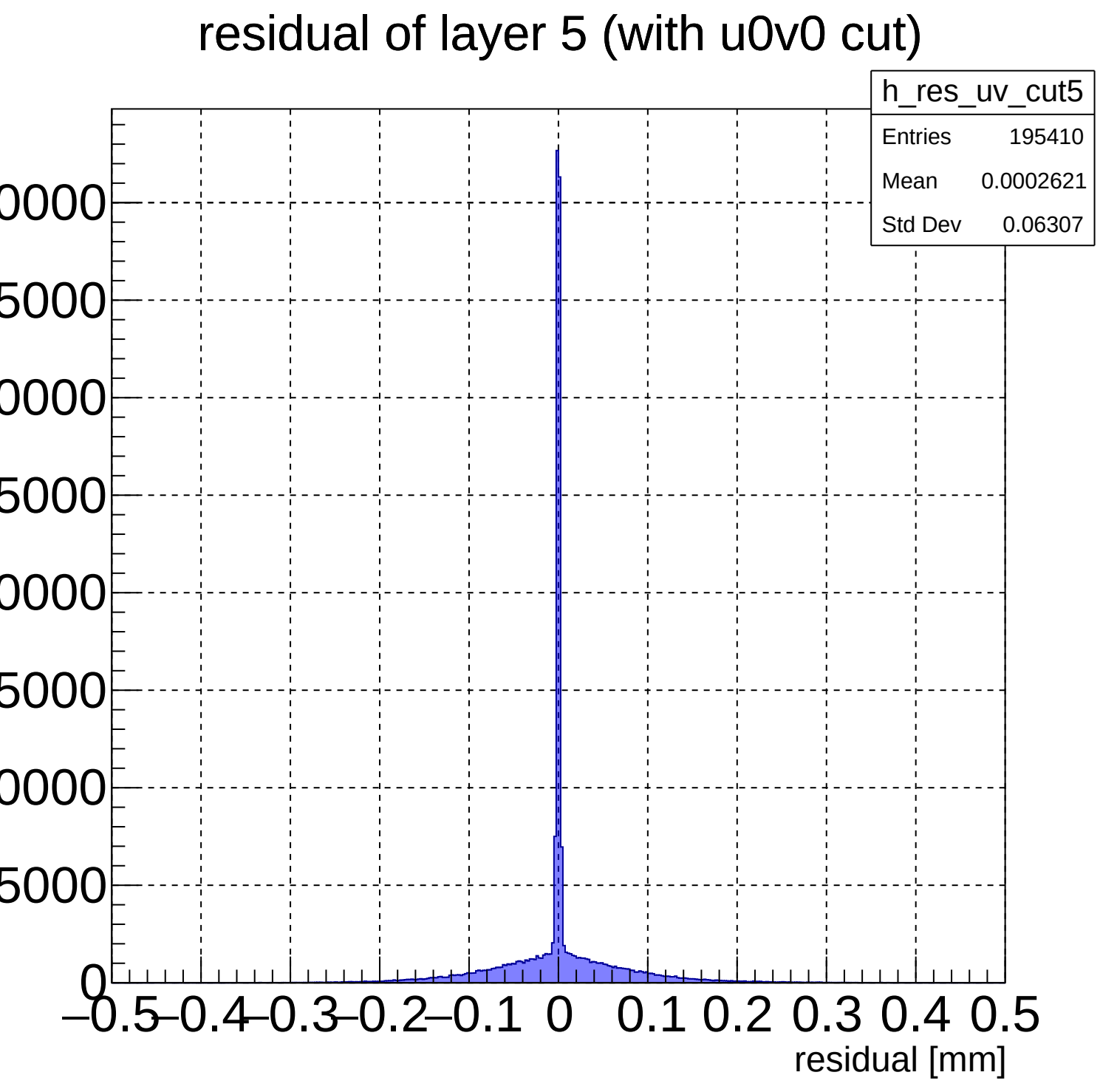

Track slope at UTOF (with u0v0 cut)
h_u0v0_uv_cut
Entries 1214850
Mean x −0.004685
Mean y 0.0005521
Std Dev x 0.02021
Std Dev y 0.01639
dy/dz [rad]
dx/dz [rad]
0.1
0.08
0.06
0.04
0.02
0
−0.02
−0.04
−0.06
−0.08
−0.1
300
200
100
0

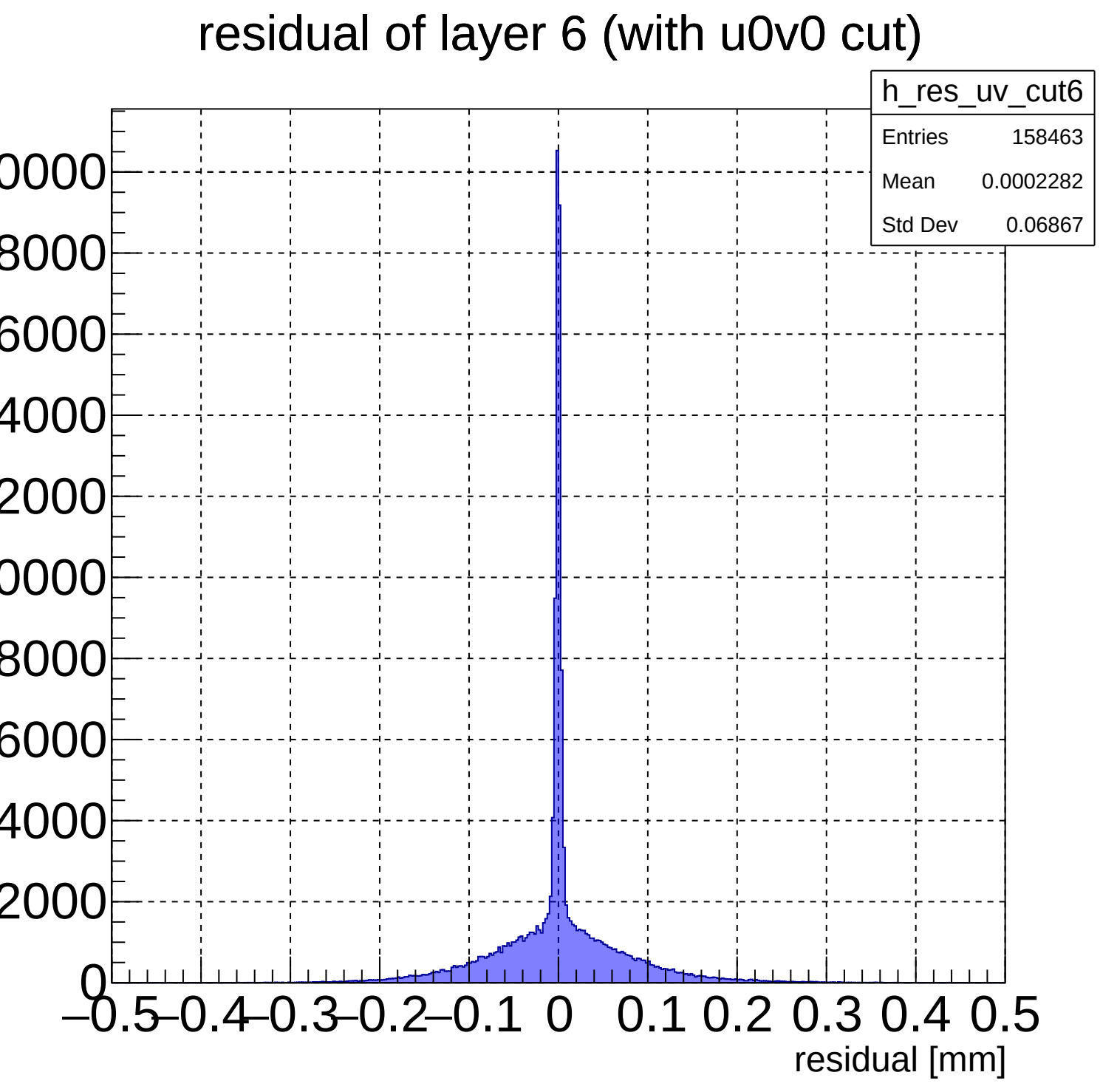

residual of layer 1 (with u0v0 cut)
h_res_uv_cut1
Entries 156425
Mean –0.006656
Std Dev 0.115
6000
4000
2000
0000
8000
6000
4000
2000
0
–0.5 –0.4 –0.3 –0.2 –0.1 0 0.1 0.2 0.3 0.4 0.5
residual [mm]

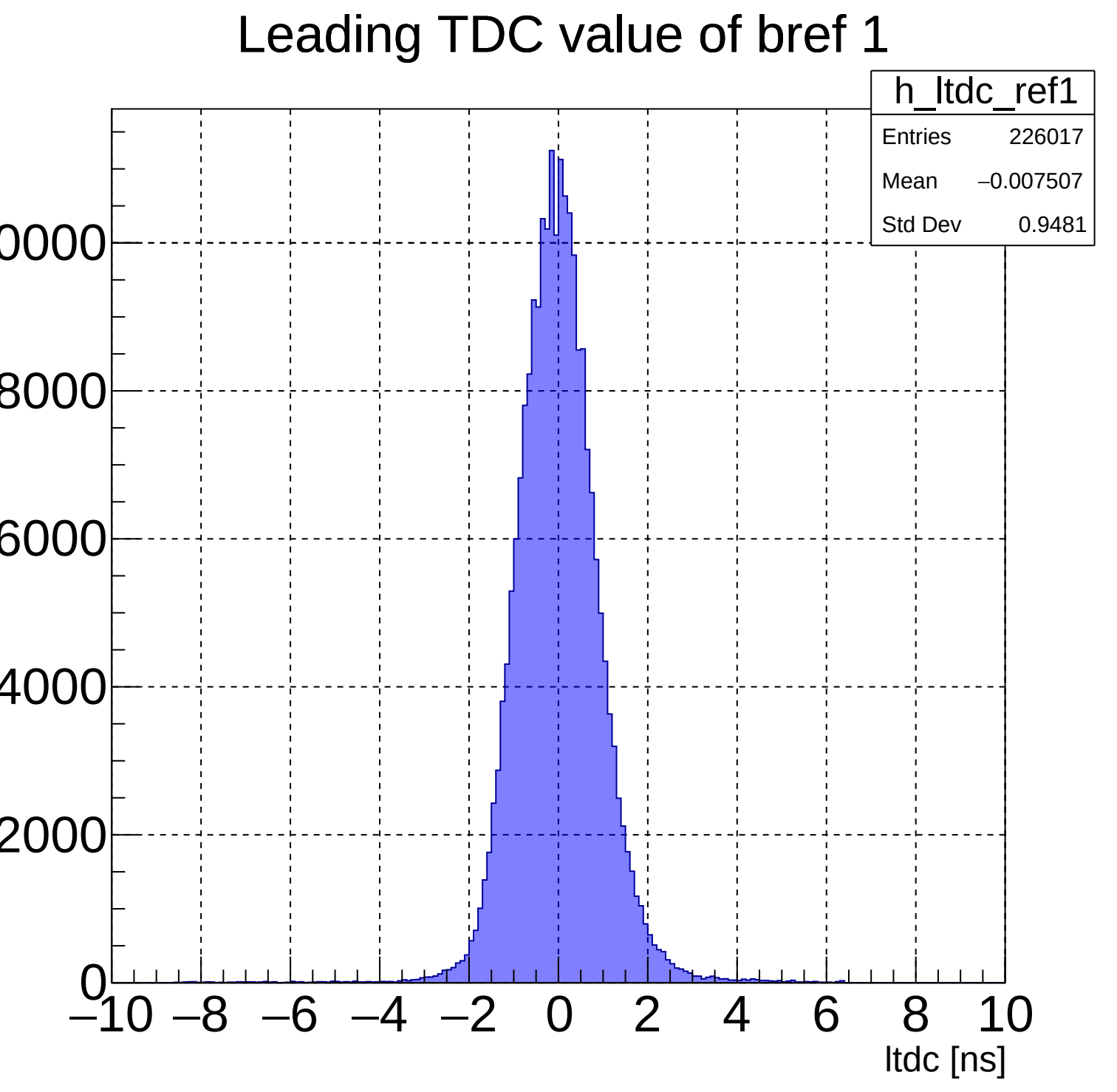

residual of layer 2 (with u0v0 cut)
h_res_uv_cut2
Entries 193903
Mean 0.003412
Std Dev 0.06269
0000
0000
0000
0000
0
–0.5 –0.4 –0.3 –0.2 –0.1 0 0.1 0.2 0.3 0.4 0.5
residual [mm]

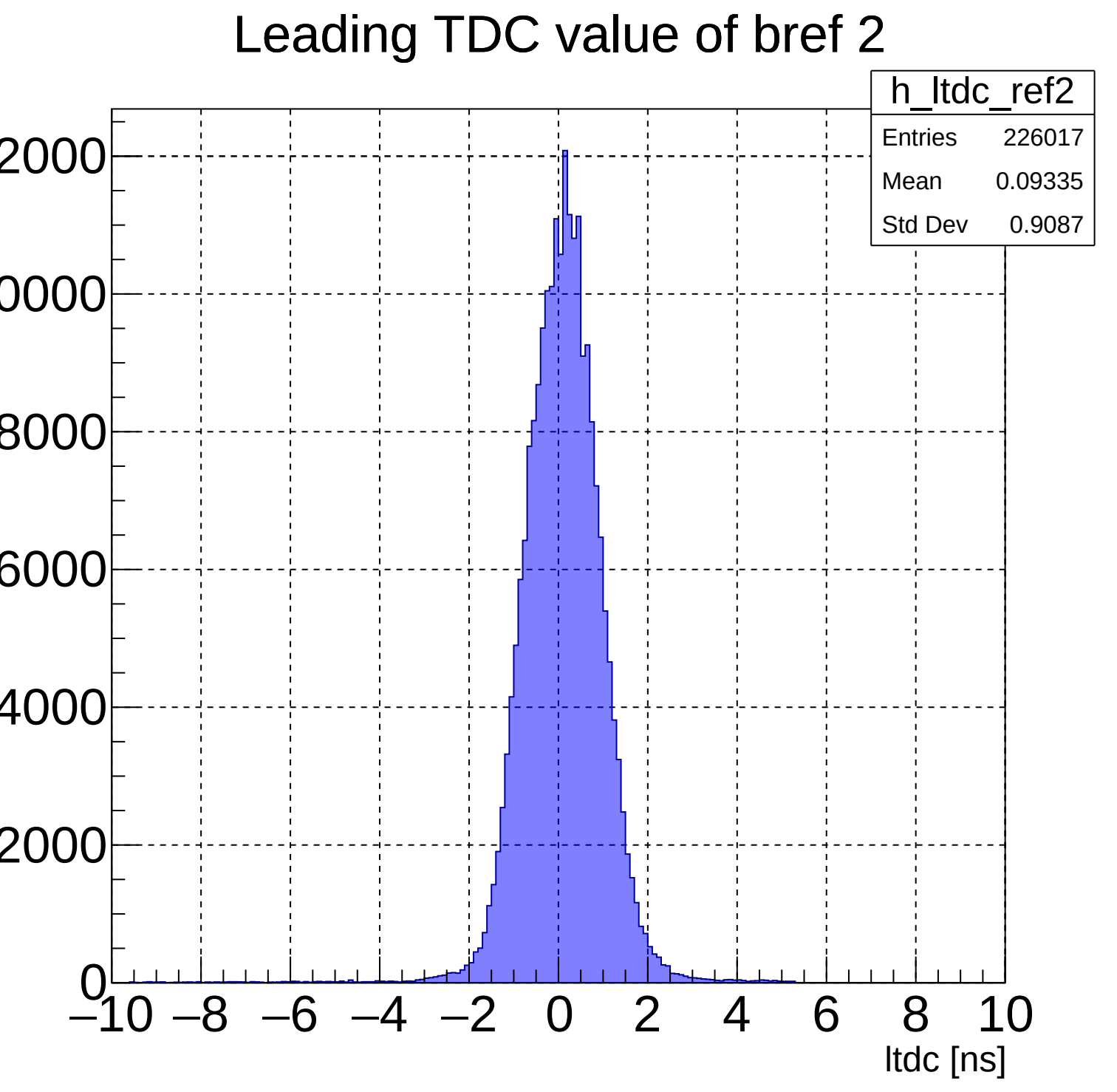

residual of layer 3 (with u0v0 cut)
h_res_uv_cut3
Entries 155495
Mean 0.004341
Std Dev 0.07139
2000
0000
8000
6000
4000
2000
0000
8000
6000
4000
2000
0
–0.5 –0.4 –0.3 –0.2 –0.1 0 0.1 0.2 0.3 0.4 0.5
residual [mm]


residual of layer 4 (with u0v0 cut)
h_res_uv_cut4
Entries 159034
Mean –8.936e–05
Std Dev 0.1177
2000
0000
8000
6000
4000
2000
0
–0.5 –0.4 –0.3 –0.2 –0.1 0 0.1 0.2 0.3 0.4 0.5
residual [mm]


residual of layer 5 (with u0v0 cut)
h_res_uv_cut5
Entries 195410
Mean 0.0002621
Std Dev 0.06307
0000
5000
0000
5000
0000
5000
0000
5000
0
–0.5 –0.4 –0.3 –0.2 –0.1 0 0.1 0.2 0.3 0.4 0.5
residual [mm]


residual of layer 6 (with u0v0 cut)
h_res_uv_cut6
Entries 158463
Mean 0.0002282
Std Dev 0.06867
0000
8000
6000
4000
2000
0000
8000
6000
4000
2000
0
–0.5 –0.4 –0.3 –0.2 –0.1 0 0.1 0.2 0.3 0.4 0.5
residual [mm]


Leading TDC value of bref 1
h_ltdc_ref1
Entries 226017
Mean −0.007507
Std Dev 0.9481
0000
8000
6000
4000
2000
0
−10 −8 −6 −4 −2 0 2 4 6 8 10
ltdc [ns]


Leading TDC value of bref 2
h_ltdc_ref2
Entries 226017
Mean 0.09335
Std Dev 0.9087
2000
0000
8000
6000
4000
2000
0
–10 –8 –6 –4 –2 0 2 4 6 8 10
ltdc [ns]