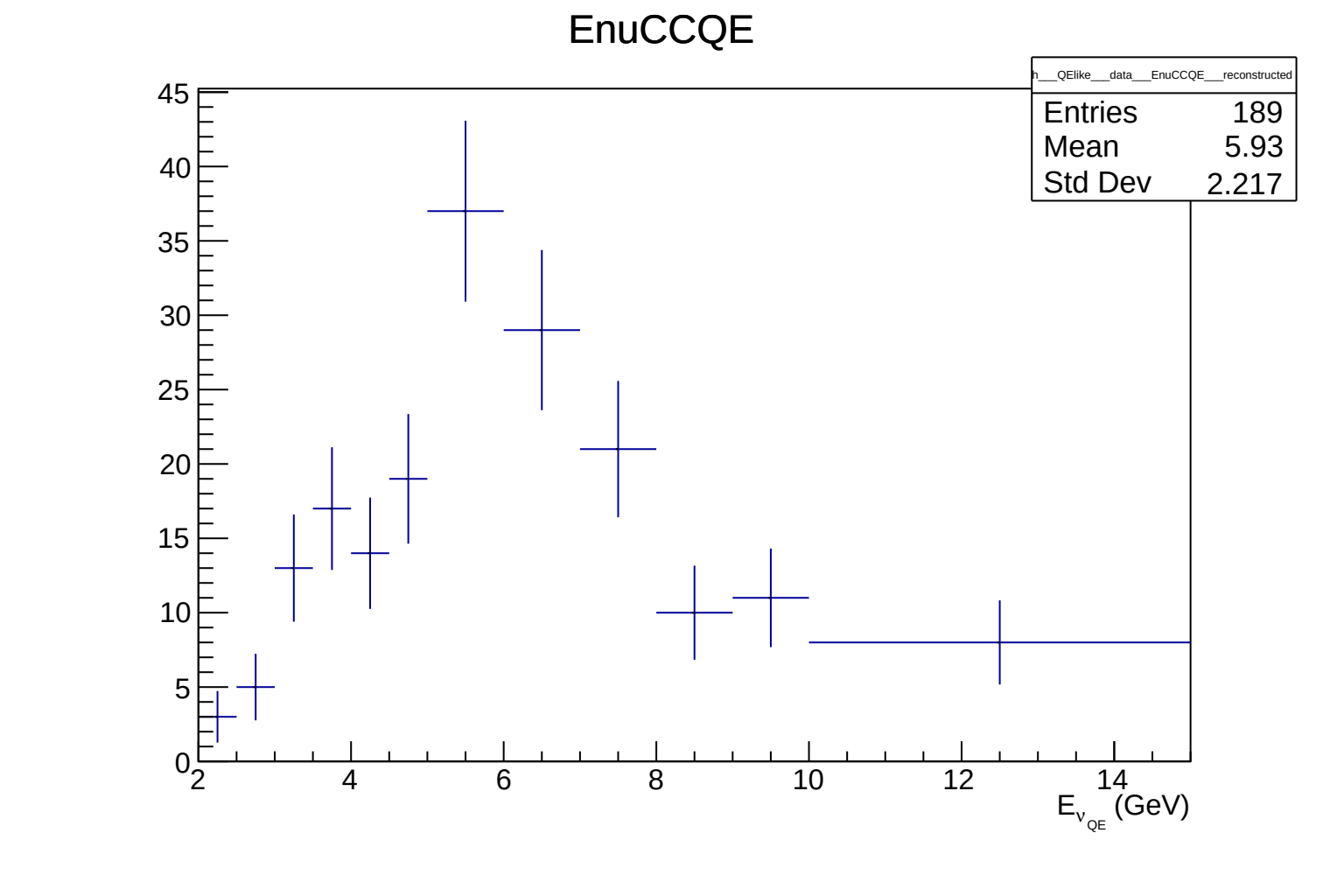
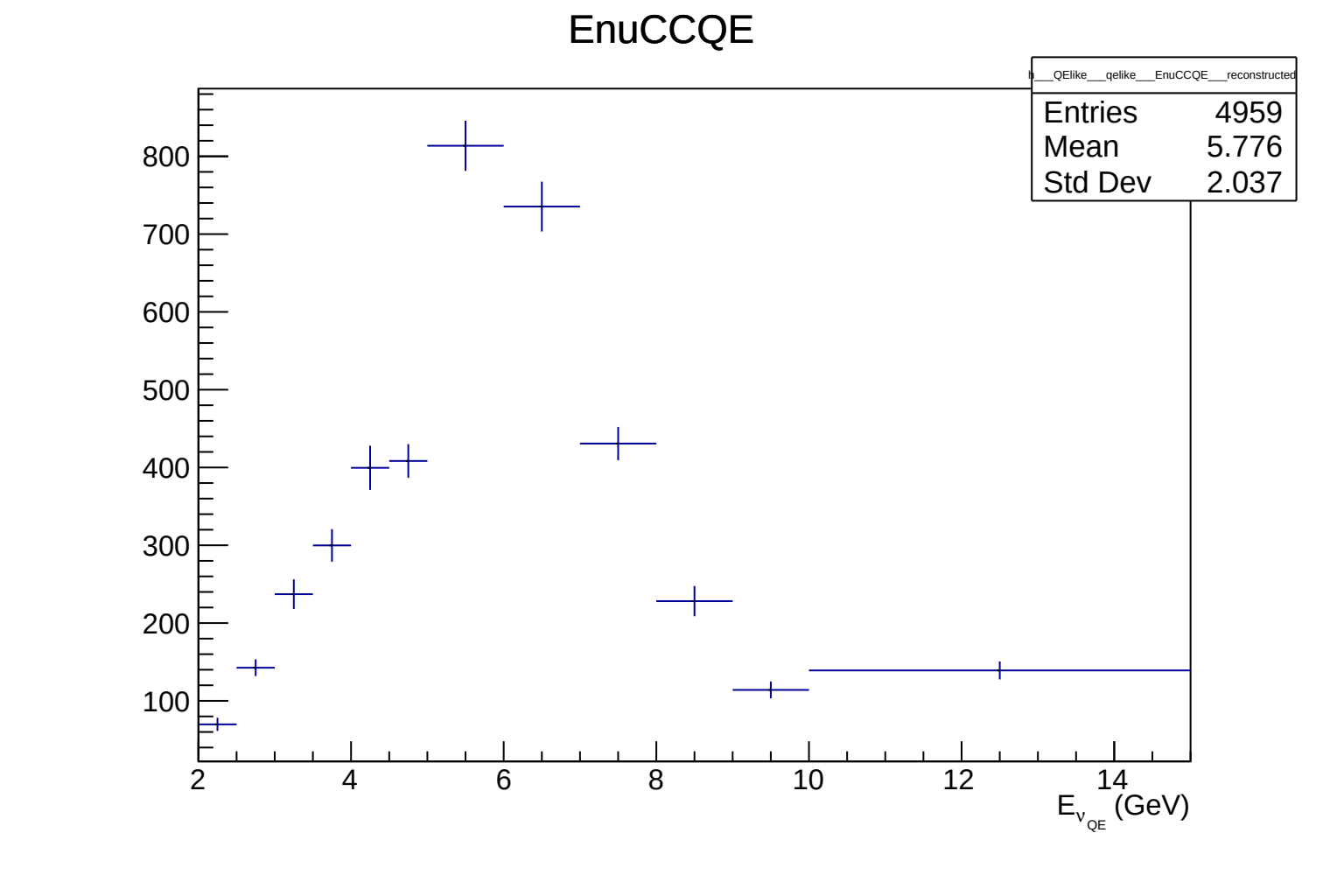
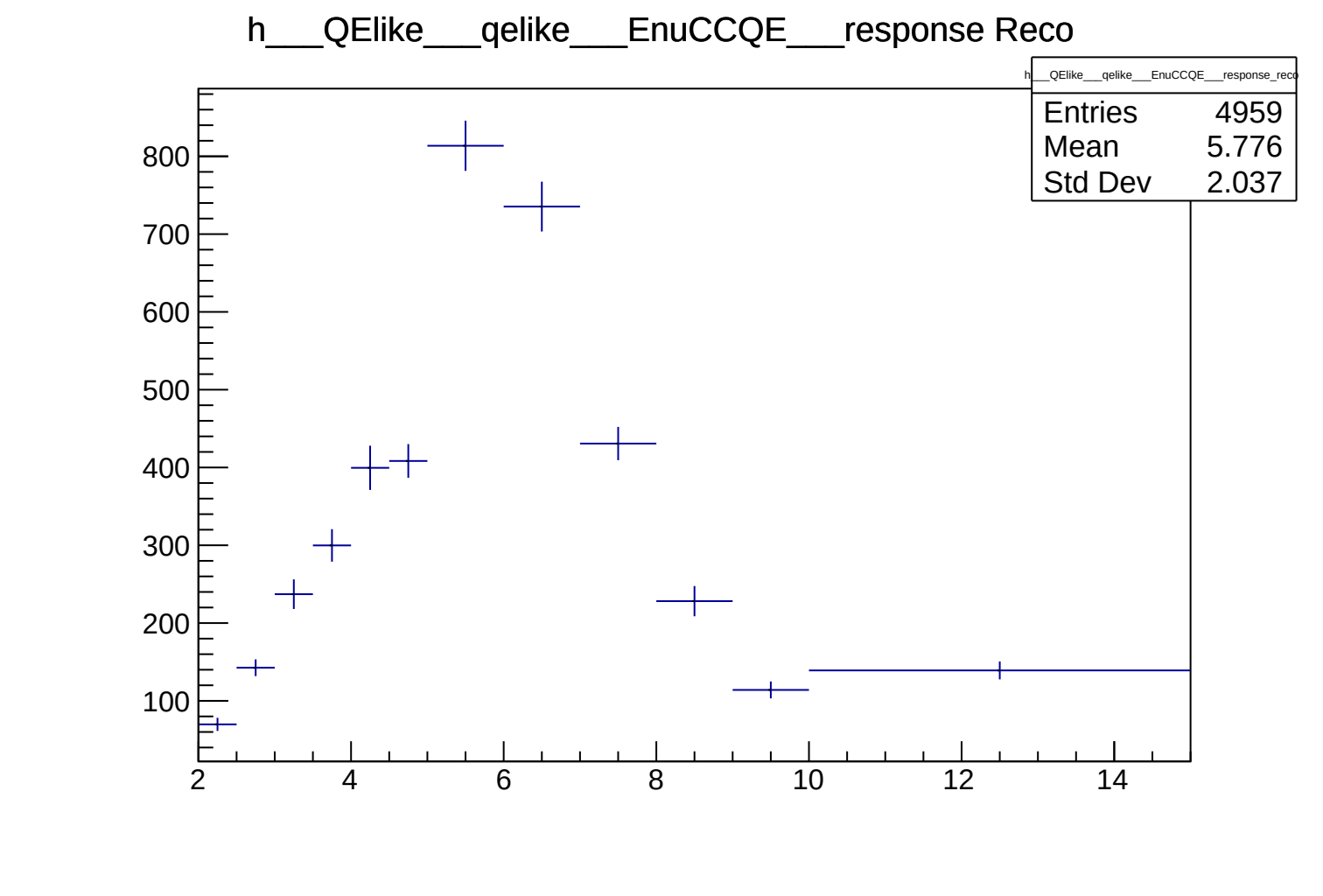
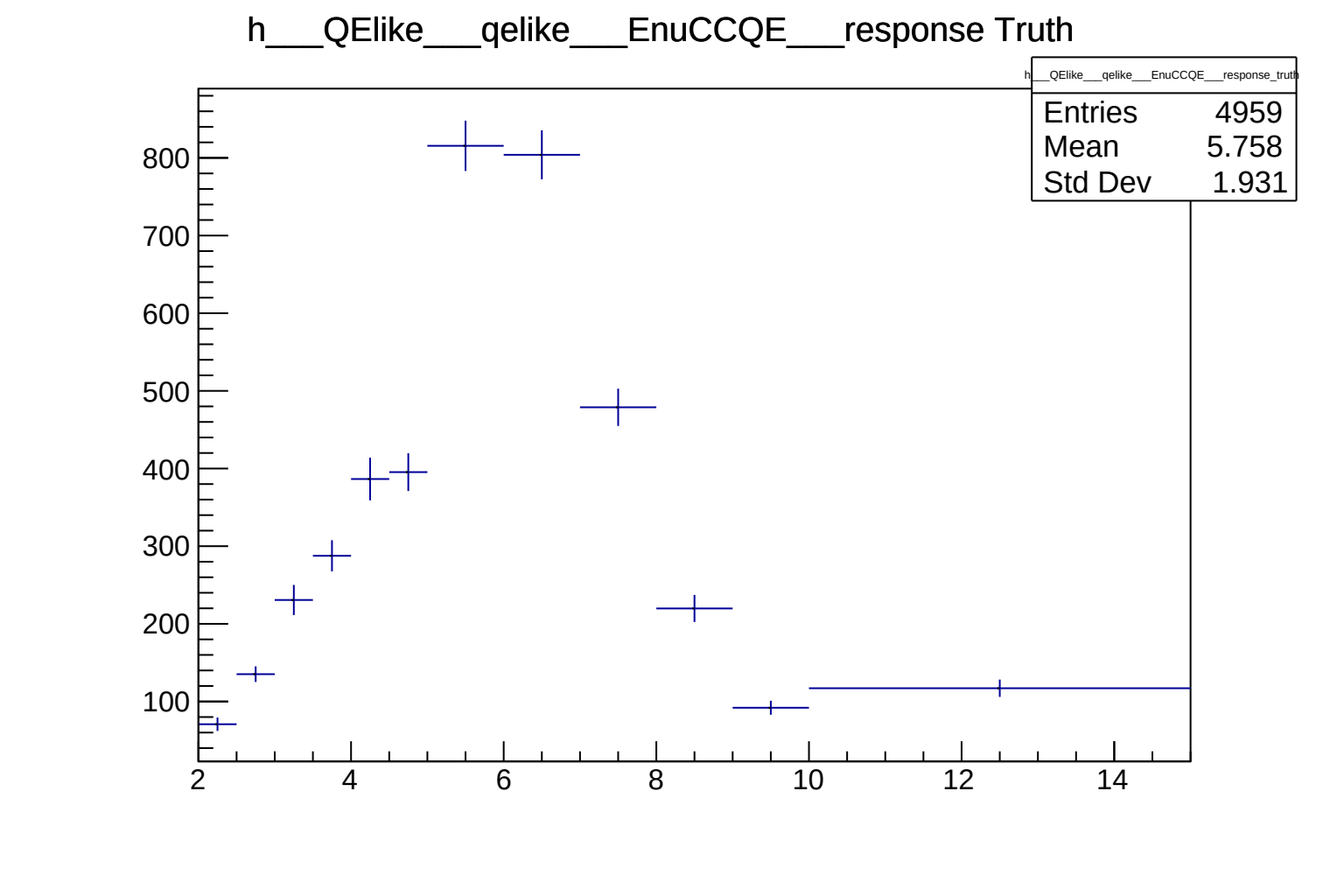
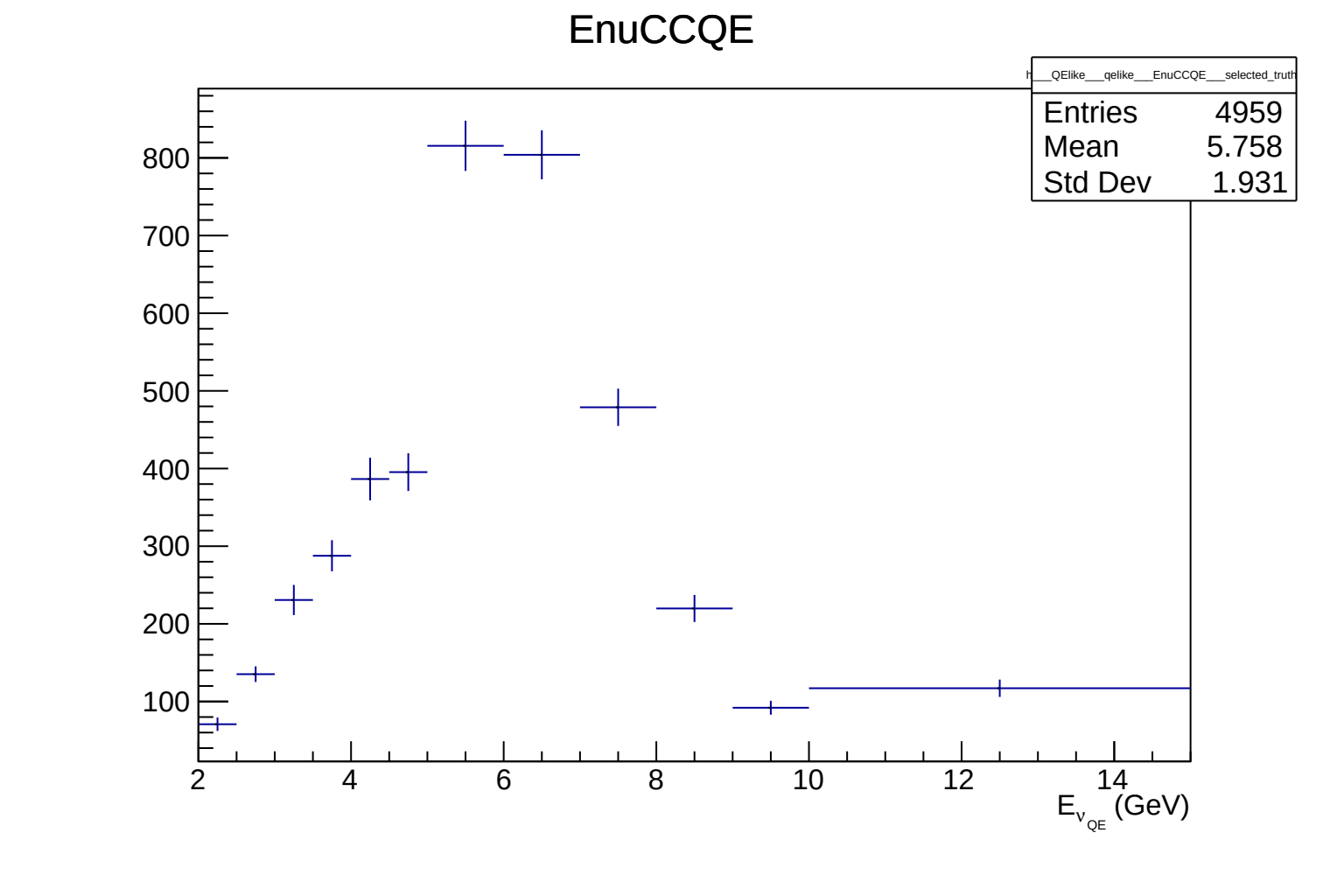
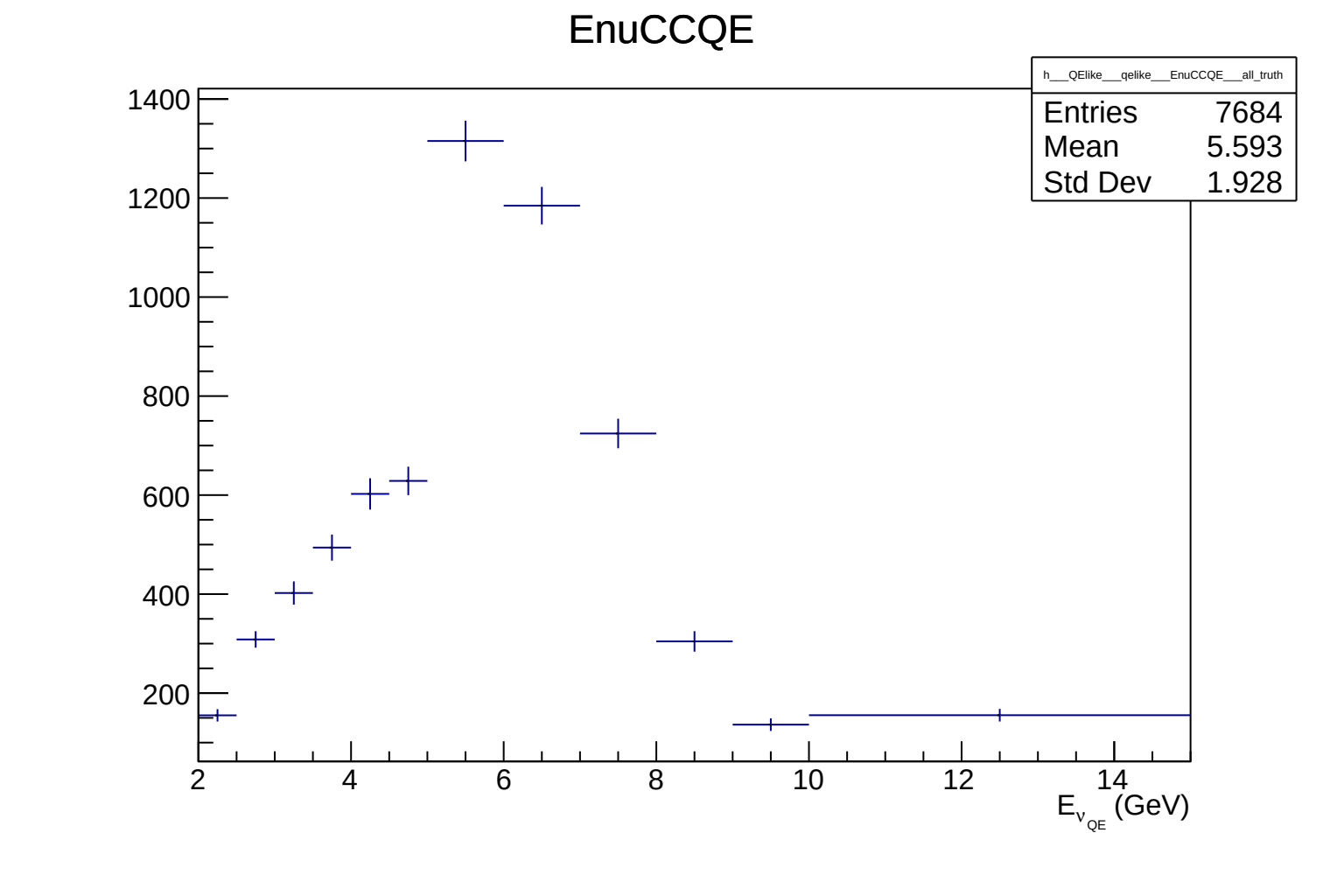

EnuCCQE
n___QElike___data___EnuCCQE___reconstructed
Entries 189
Mean 5.93
Std Dev 2.217
45
40
35
30
25
20
15
10
5
0
2
4
6
8
10
12
14
$E_{\nu_{QE}}$ (GeV)

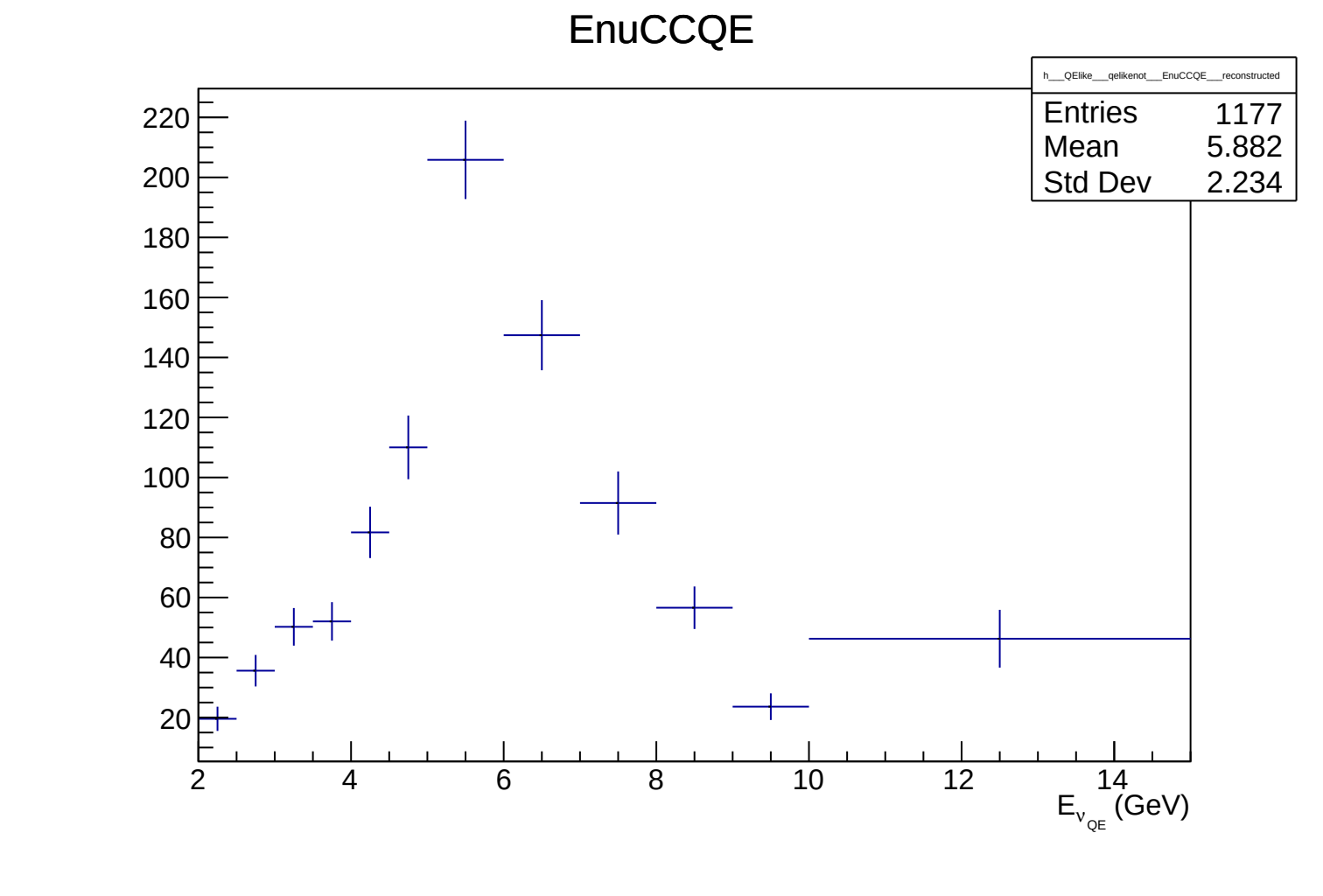

EnuCCQE
h___QElike___qelike___EnuCCQE___reconstructed
Entries 4959
Mean 5.776
Std Dev 2.037
800
700
600
500
400
300
200
100
2
4
6
8
10
12
14
E$_{\nu_{QE}}$ (GeV)

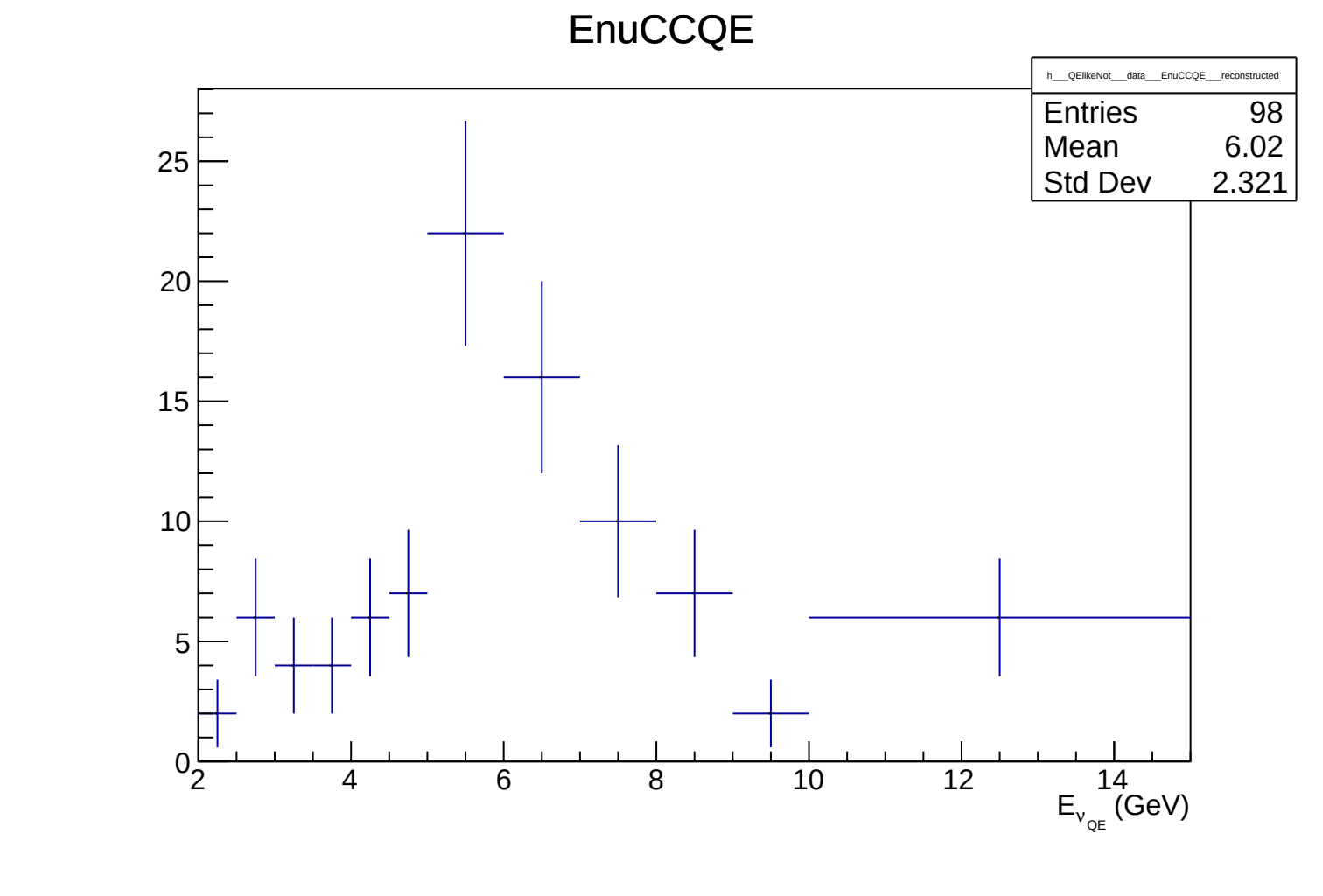

h___QElike___qelike___EnuCCQE___response Reco
h___QElike___qelike___EnuCCQE___response_reco
Entries 4959
Mean 5.776
Std Dev 2.037
800
700
600
500
400
300
200
100
2
4
6
8
10
12
14

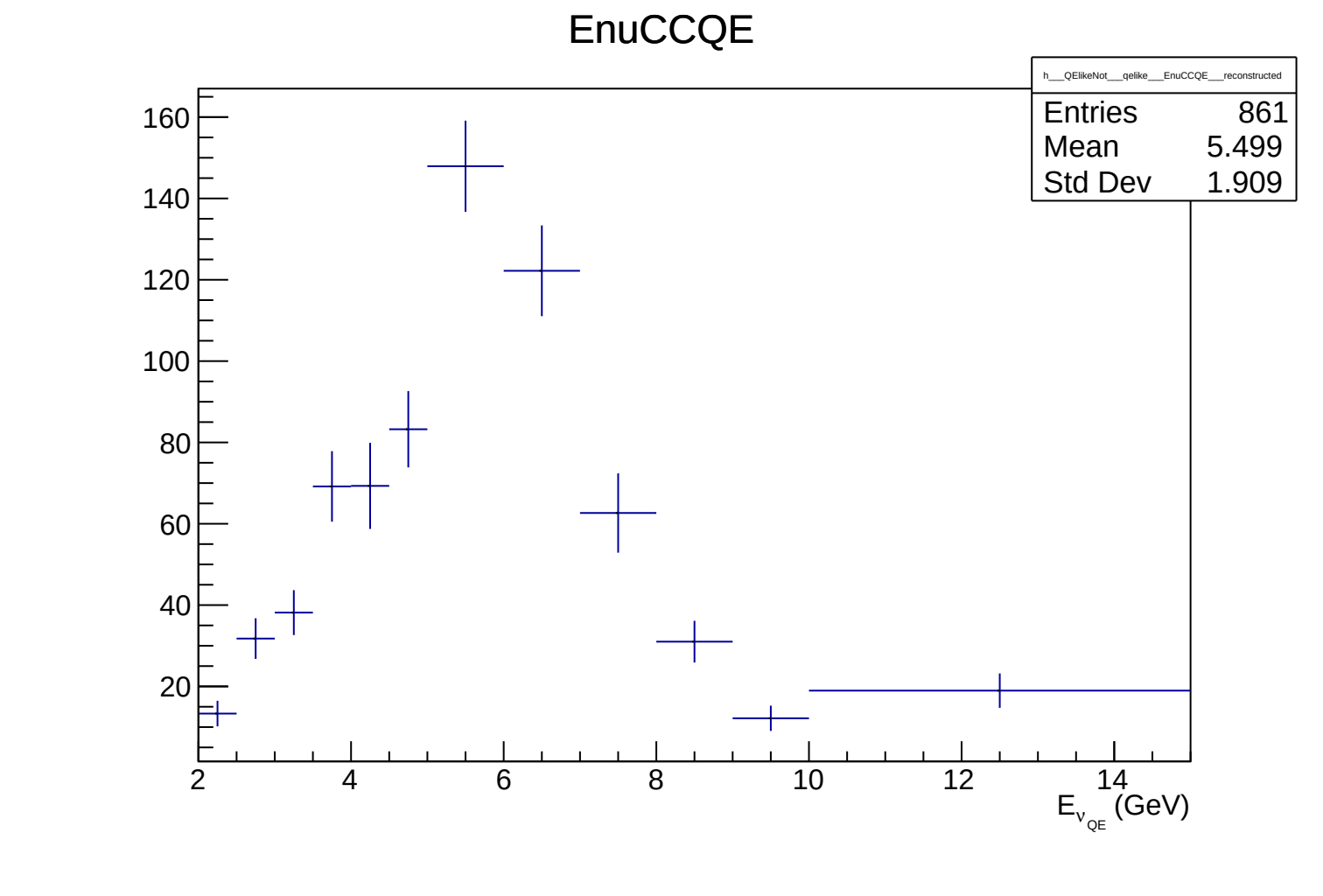

h___QElike___qelike___EnuCCQE___response Truth
h___QElike___qelike___EnuCCQE___response_truth
Entries 4959
Mean 5.758
Std Dev 1.931
800
700
600
500
400
300
200
100
2
4
6
8
10
12
14

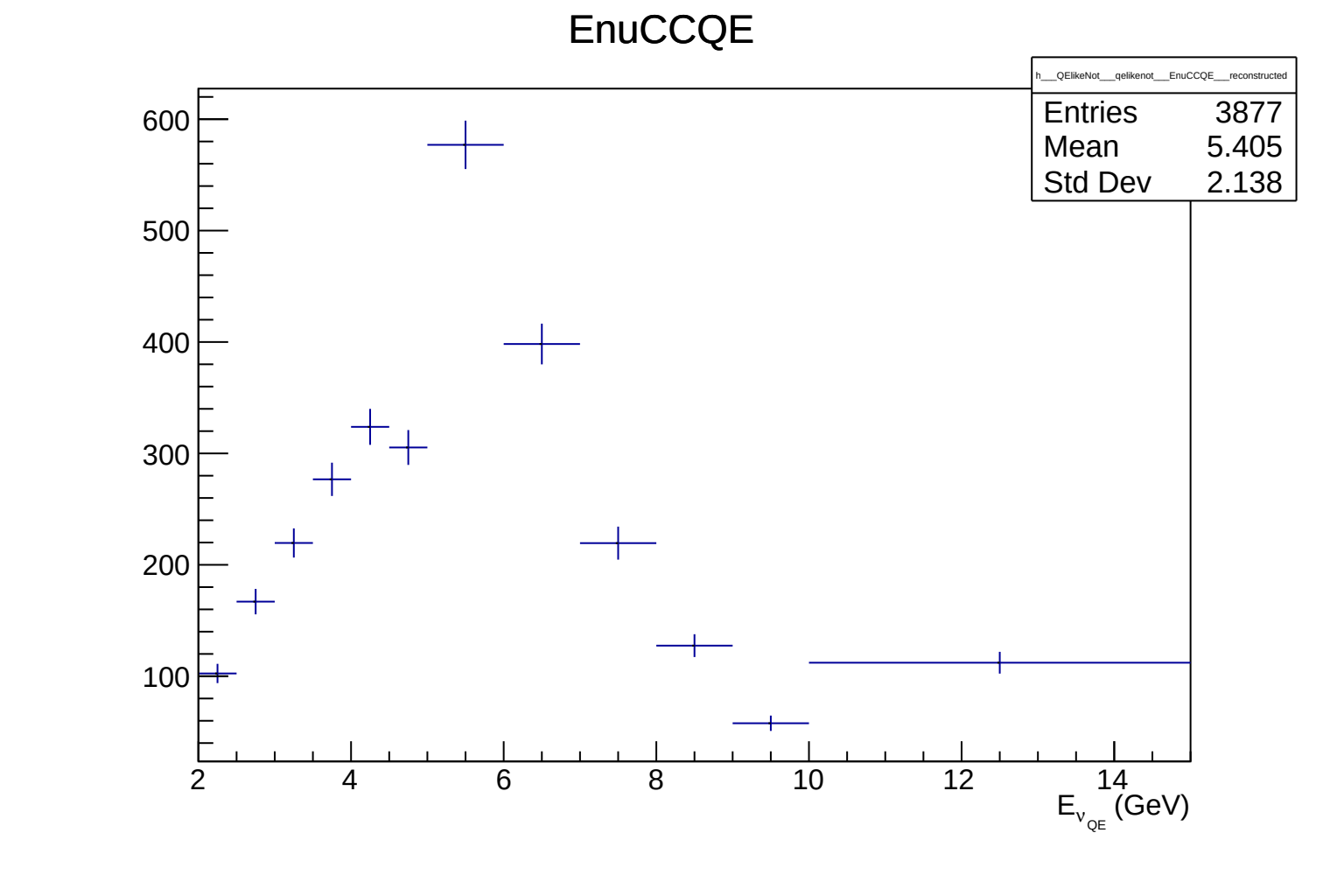

EnuCCQE
h___QElike___qelike___EnuCCQE___selected_truth
Entries 4959
Mean 5.758
Std Dev 1.931
800
700
600
500
400
300
200
100
2
4
6
8
10
12
14
$E_{\nu_{QE}}$ (GeV)

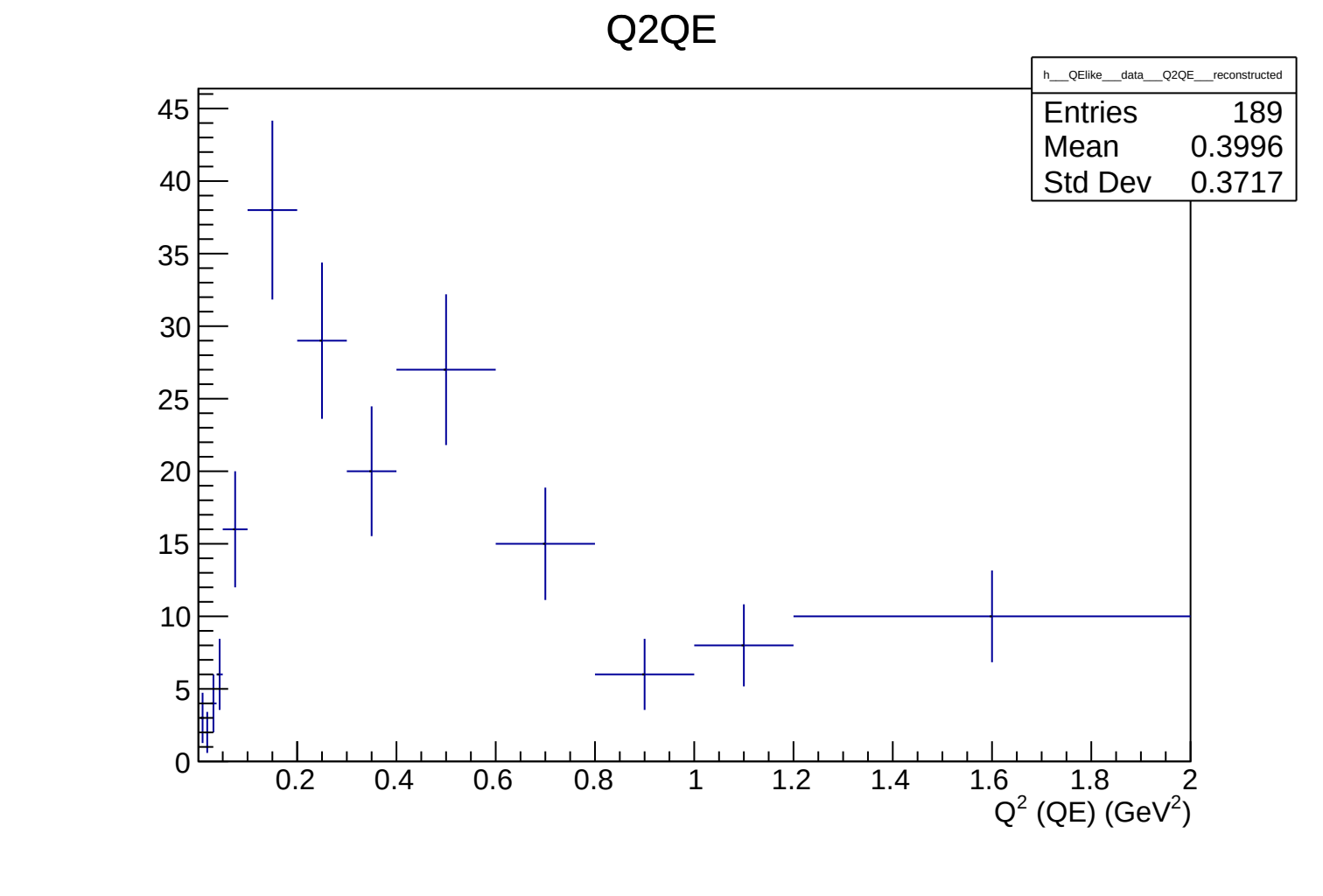

EnuCCQE
h___QElike___qelike___EnuCCQE___all_truth
Entries 7684
Mean 5.593
Std Dev 1.928
1400
1200
1000
800
600
400
200
2
4
6
8
10
12
14
$E_{\nu_{QE}}$ (GeV)

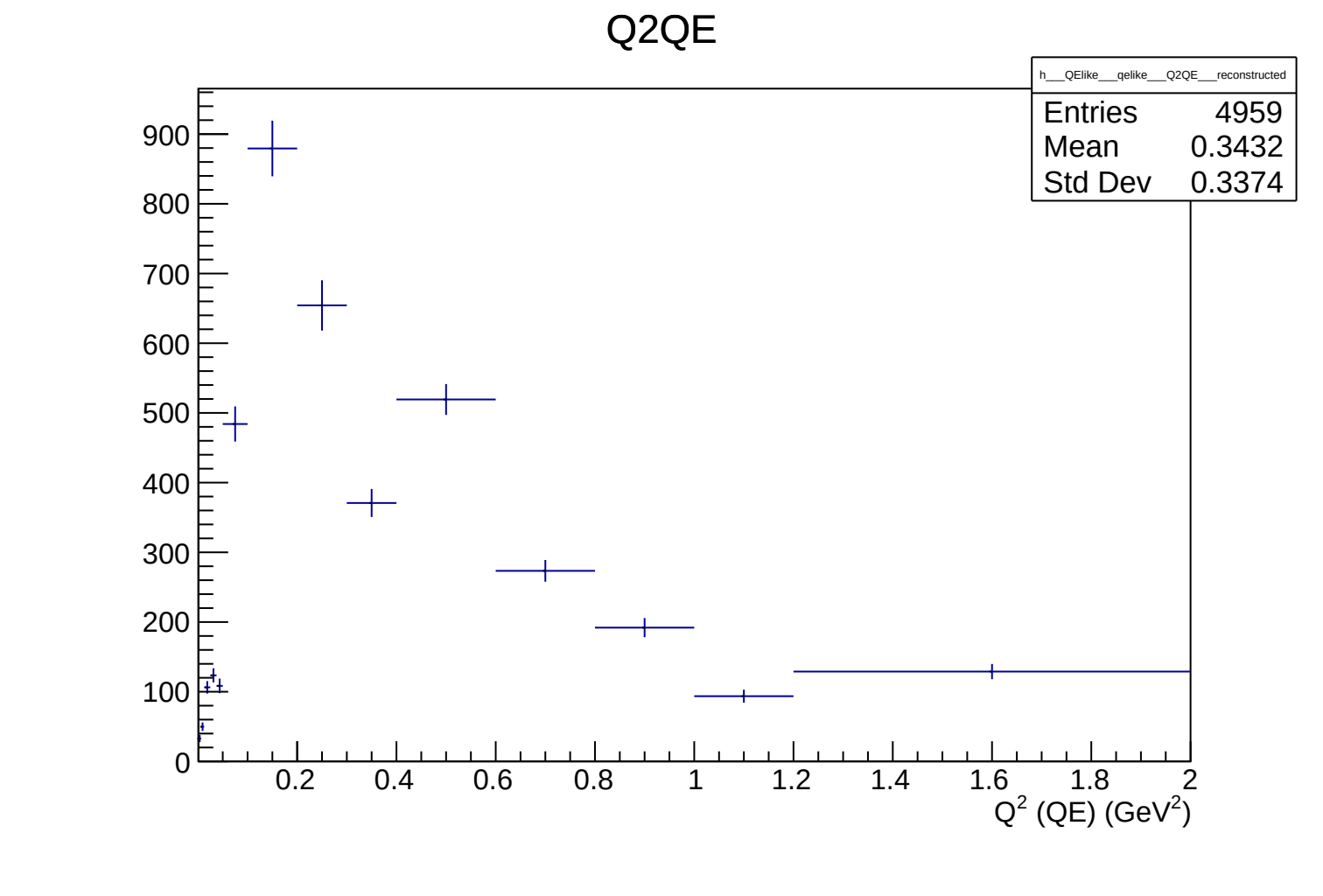

EnuCCQE
h___QElike___qelikenot___EnuCCQE___reconstructed
Entries 1177
Mean 5.882
Std Dev 2.234
220
200
180
160
140
120
100
80
60
40
20
2
4
6
8
10
12
14
E$_{\nu_{QE}}$ (GeV)

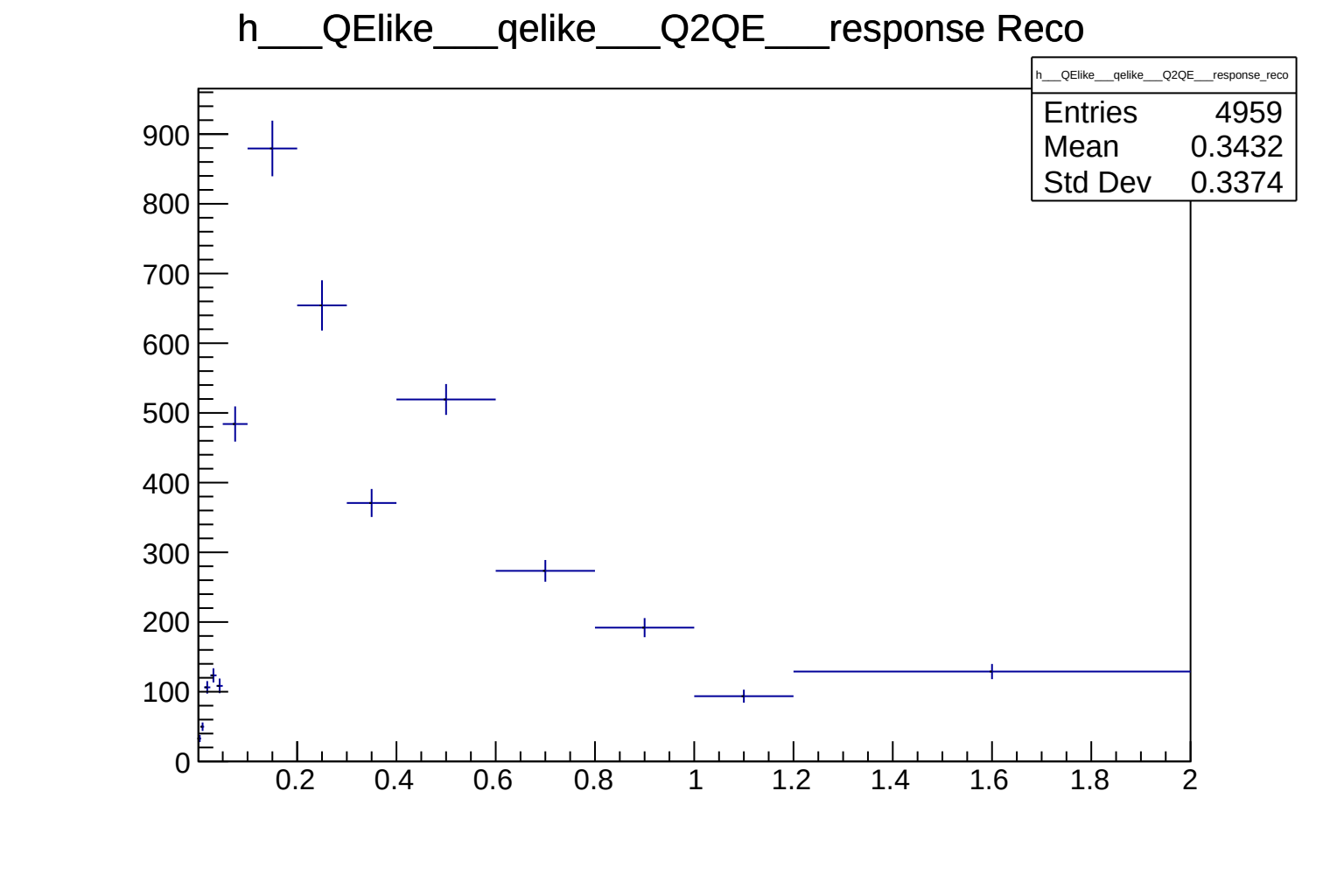

EnuCCQE
h___QElikeNot___data___EnuCCQE___reconstructed
Entries 98
Mean 6.02
Std Dev 2.321
25
20
15
10
5
0
2
4
6
8
10
12
14
$E_{\nu_{QE}}$ (GeV)

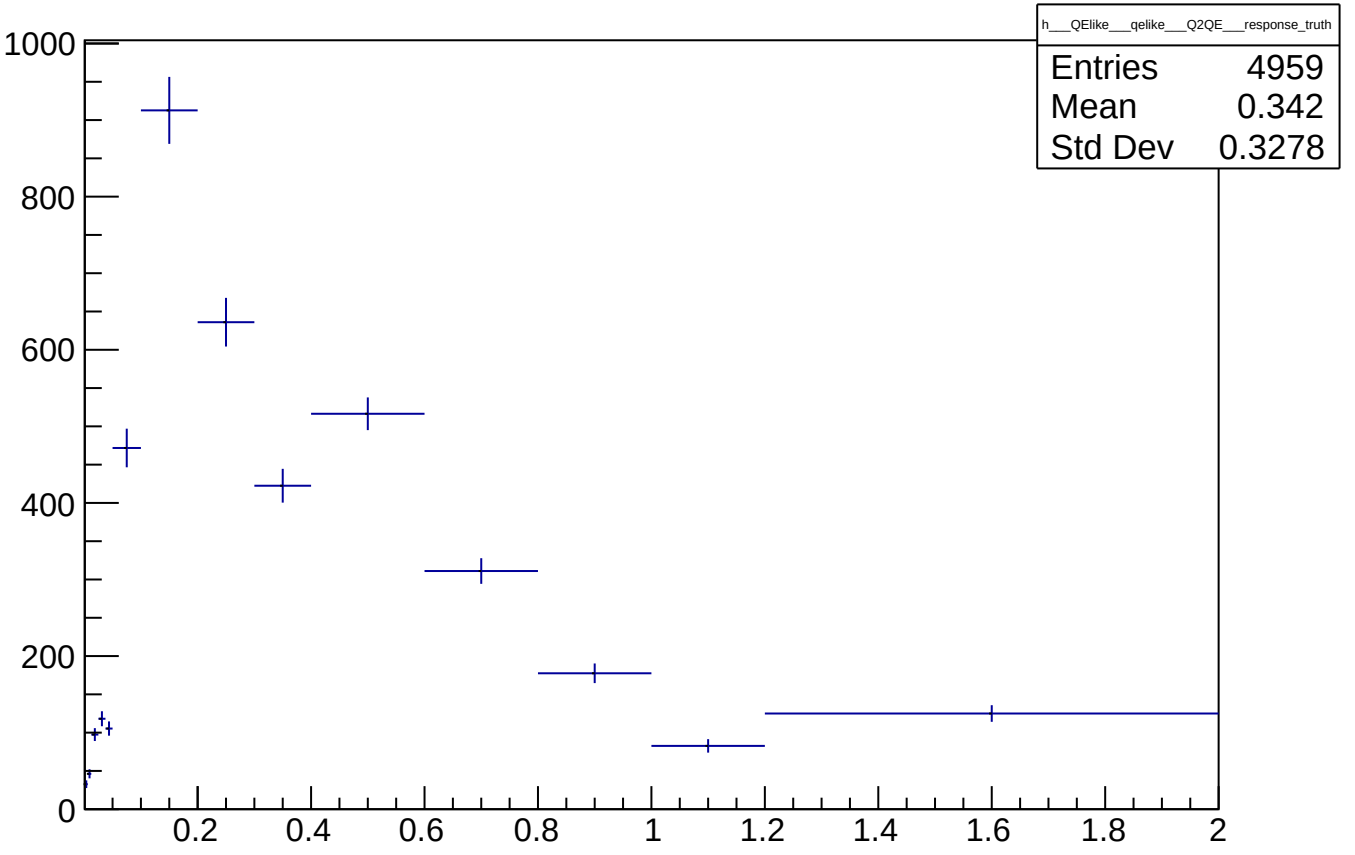

EnuCCQE
h___QElikeNot___qelike___EnuCCQE___reconstructed
Entries 861
Mean 5.499
Std Dev 1.909
160
140
120
100
80
60
40
20
2
4
6
8
10
12
14
E$_{\nu_{QE}}$ (GeV)

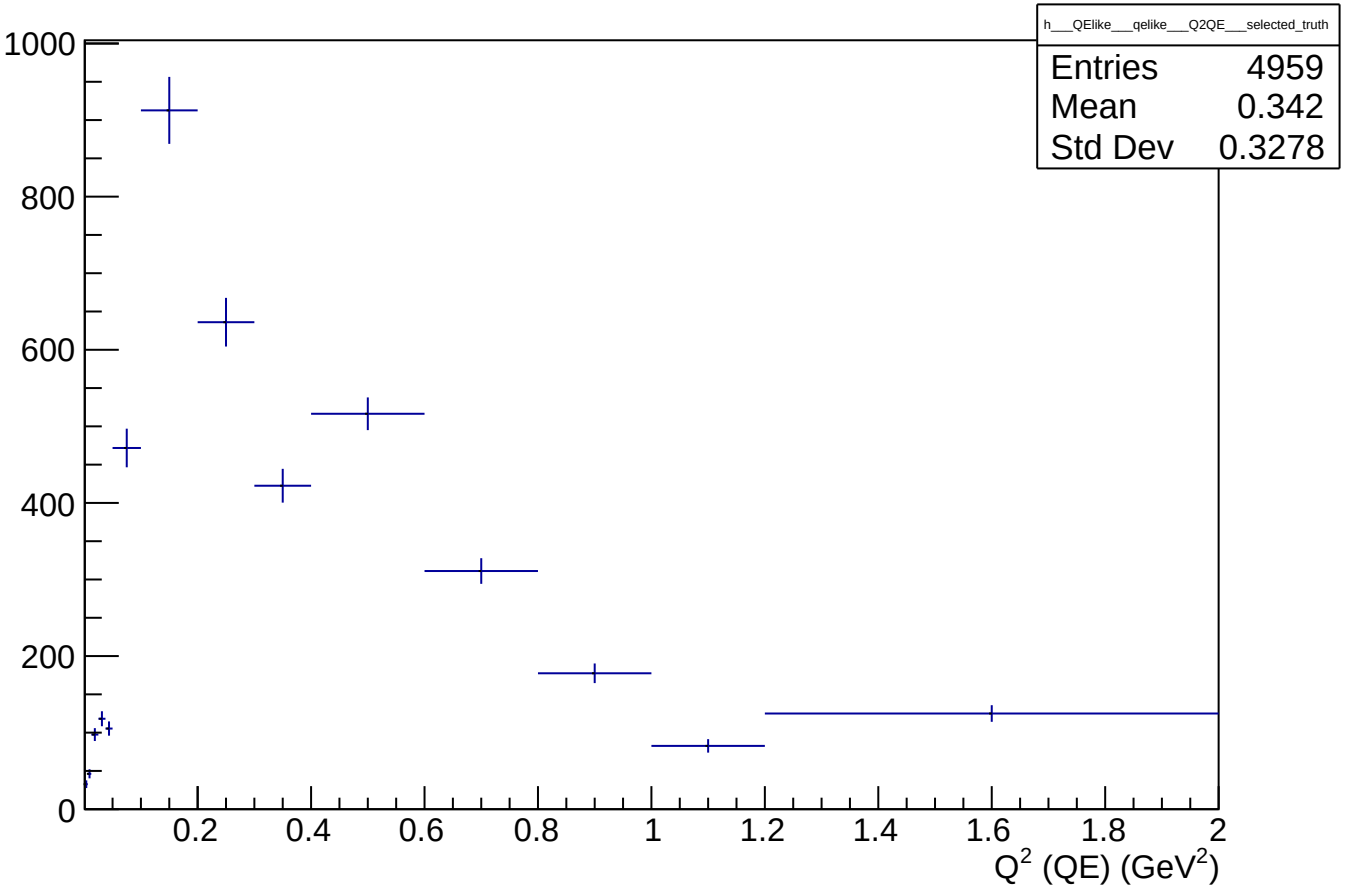

EnuCCQE
h___QElikeNot___qelikenot___EnuCCQE___reconstructed
Entries 3877
Mean 5.405
Std Dev 2.138
600
500
400
300
200
100
2
4
6
8
10
12
14
$E_{\nu_{QE}}$ (GeV)

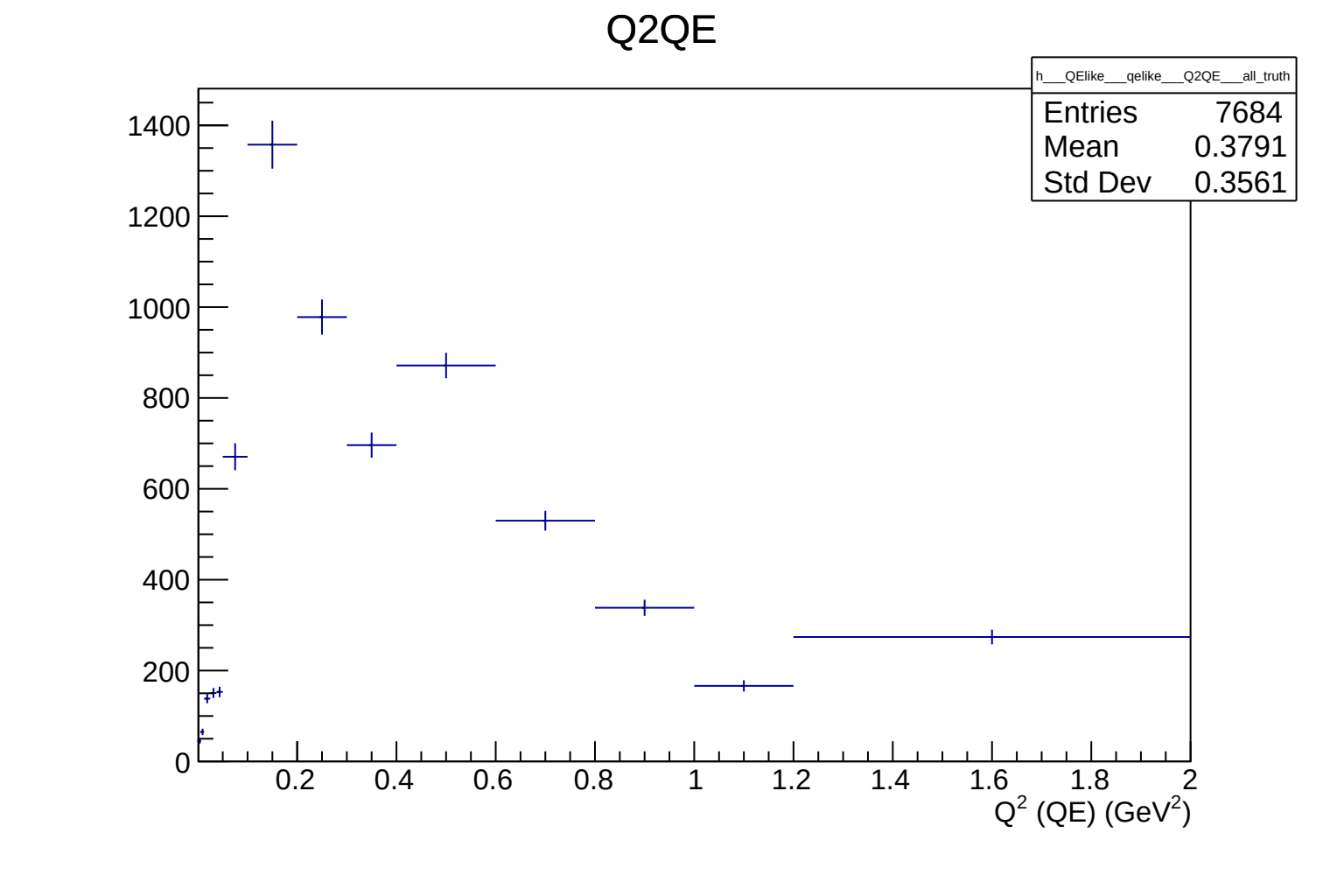

Q2QE
h___QElike___data___Q2QE___reconstructed
Entries 189
Mean 0.3996
Std Dev 0.3717
45
40
35
30
25
20
15
10
5
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Q2 (QE) (GeV2)

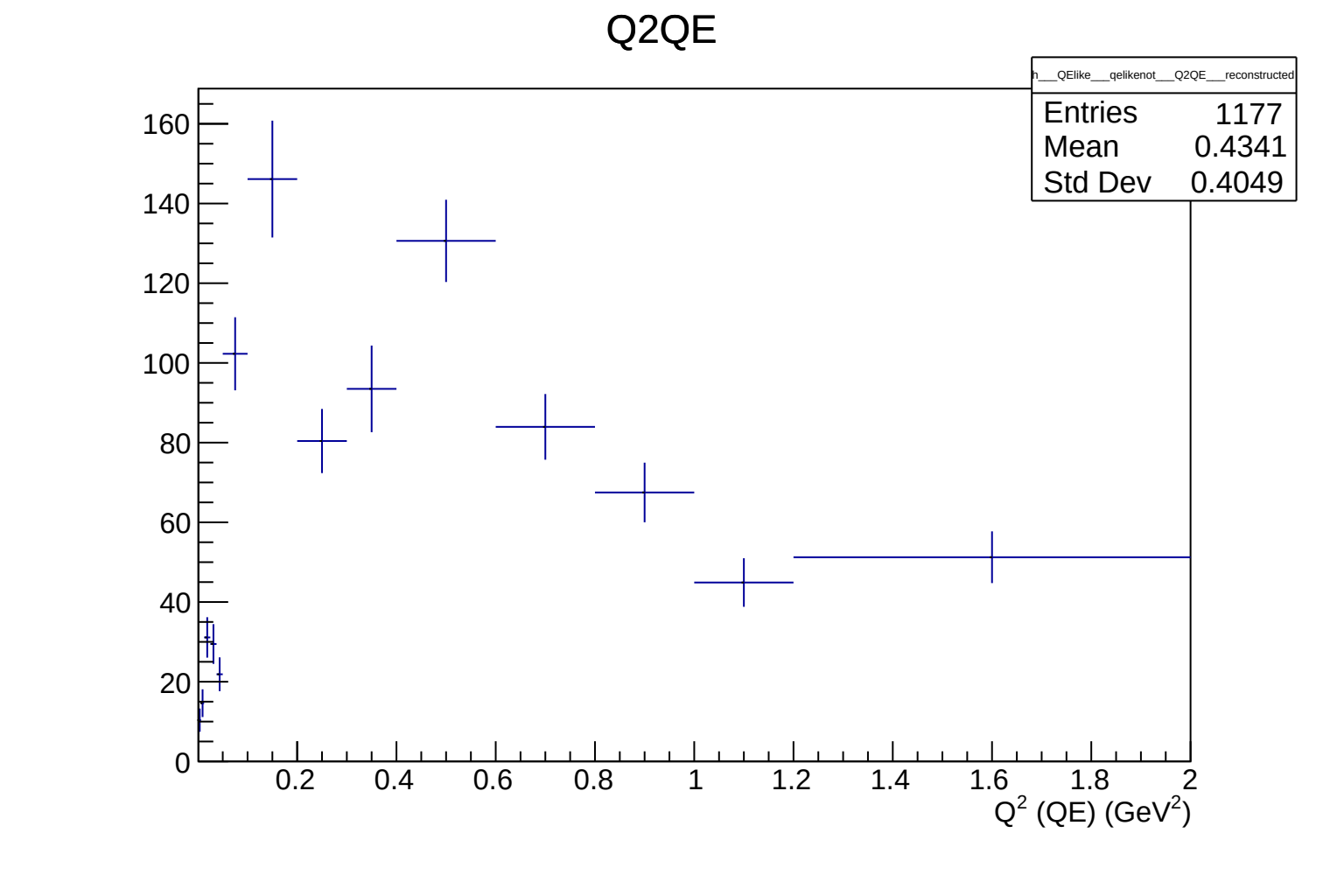

Q2QE
h___QElike___qelike___Q2QE___reconstructed
Entries 4959
Mean 0.3432
Std Dev 0.3374
900
800
700
600
500
400
300
200
100
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Q² (QE) (GeV²)

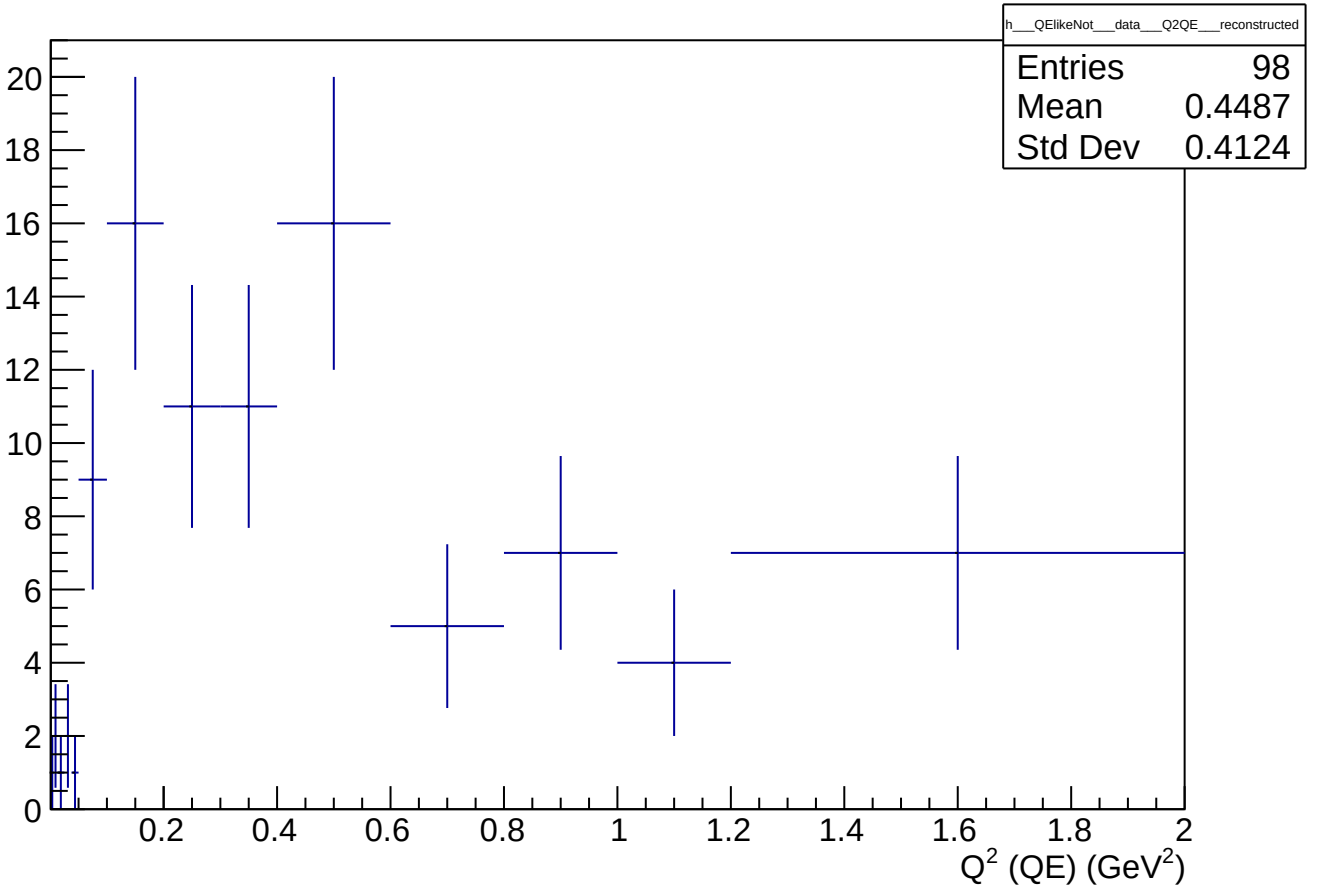

h___QElike___qelike___Q2QE___response Reco
h___QElike___qelike___Q2QE___response_reco
Entries 4959
Mean 0.3432
Std Dev 0.3374
900
800
700
600
500
400
300
200
100
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2

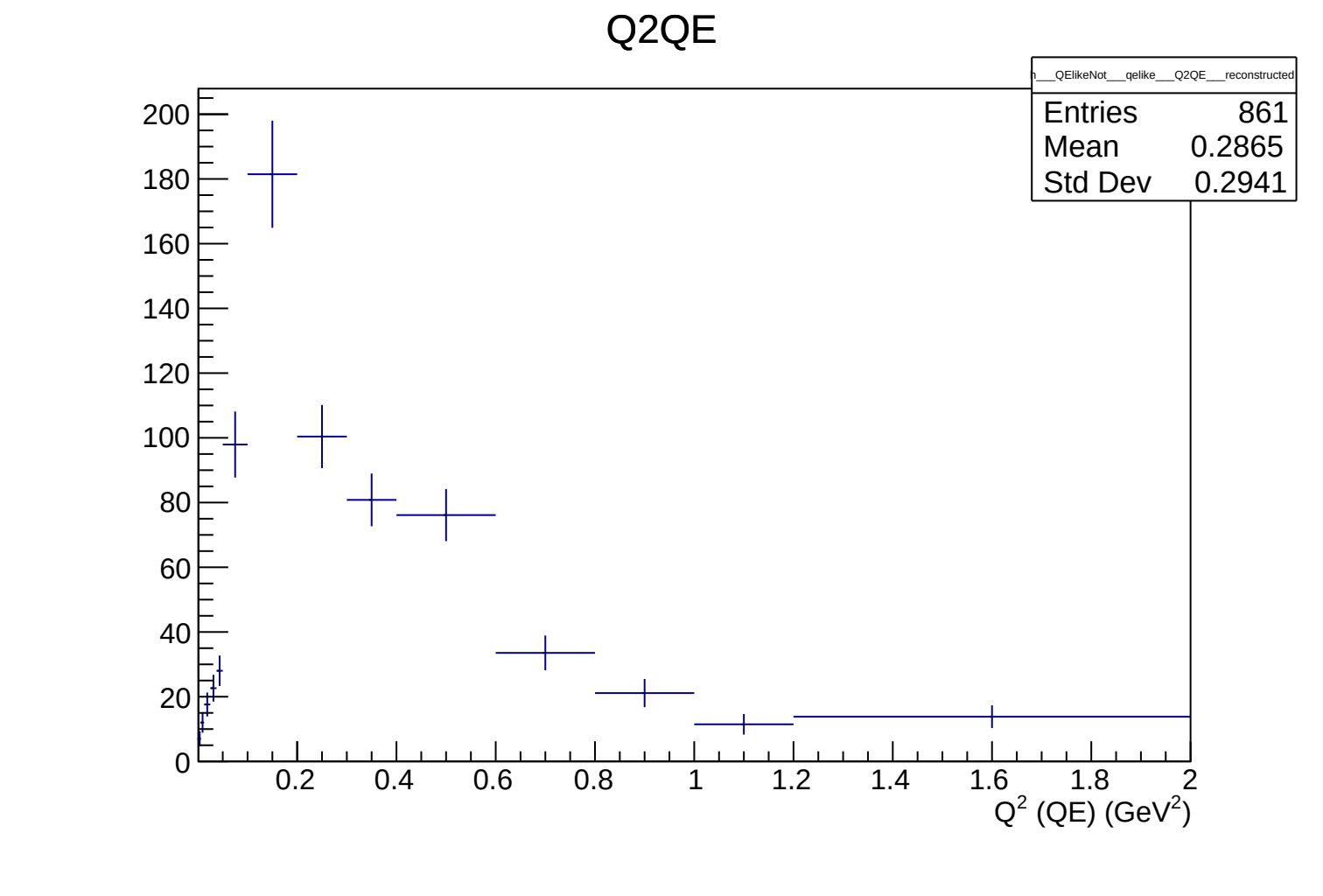

h___QElike___qelike___Q2QE___response Truth
h___QElike___qelike___Q2QE___response_truth
Entries 4959
Mean 0.342
Std Dev 0.3278
1000
800
600
400
200
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2

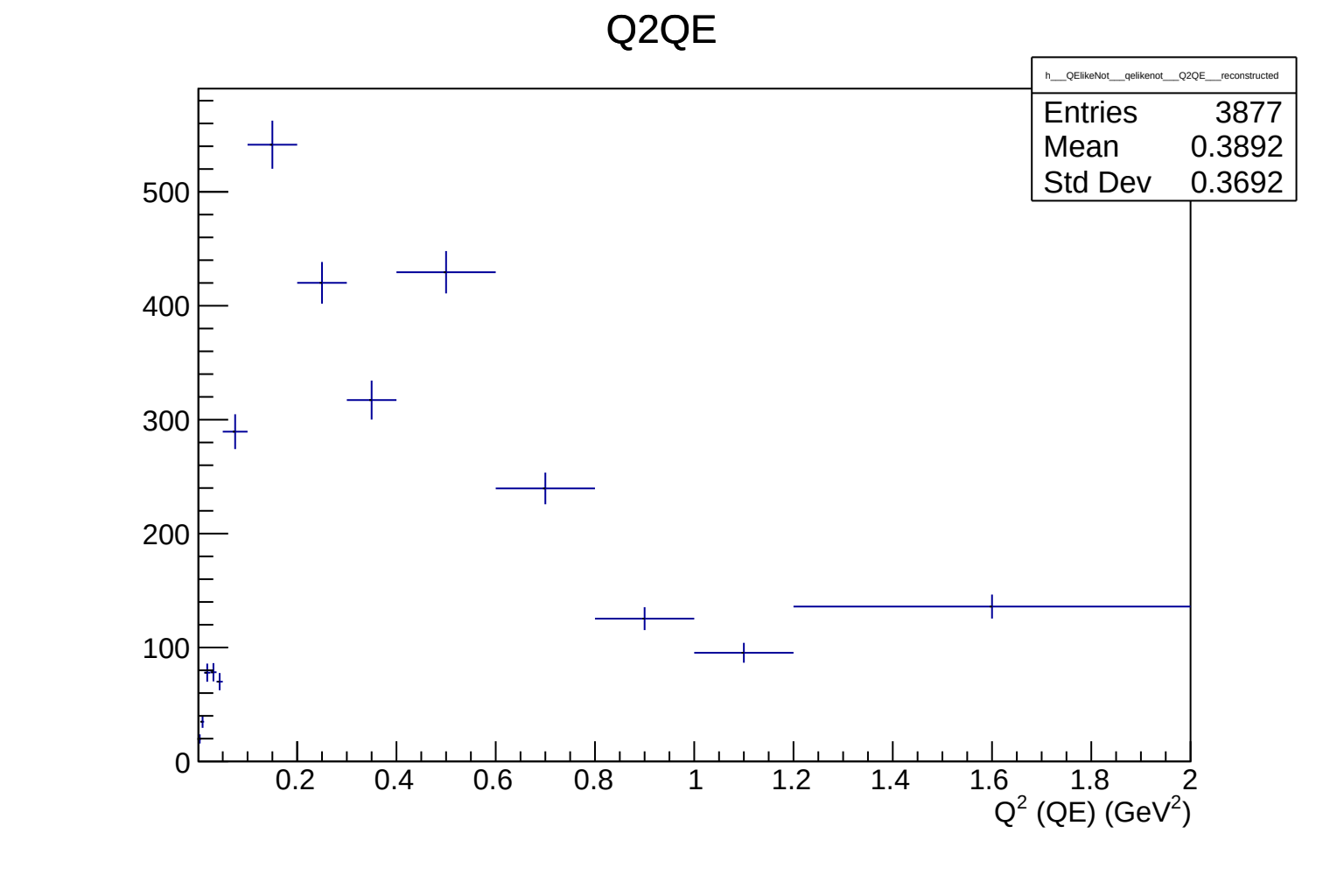

Q2QE
h___QElike___qelike___Q2QE___selected_truth
Entries 4959
Mean 0.342
Std Dev 0.3278
1000
800
600
400
200
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Q2 (QE) (GeV2)

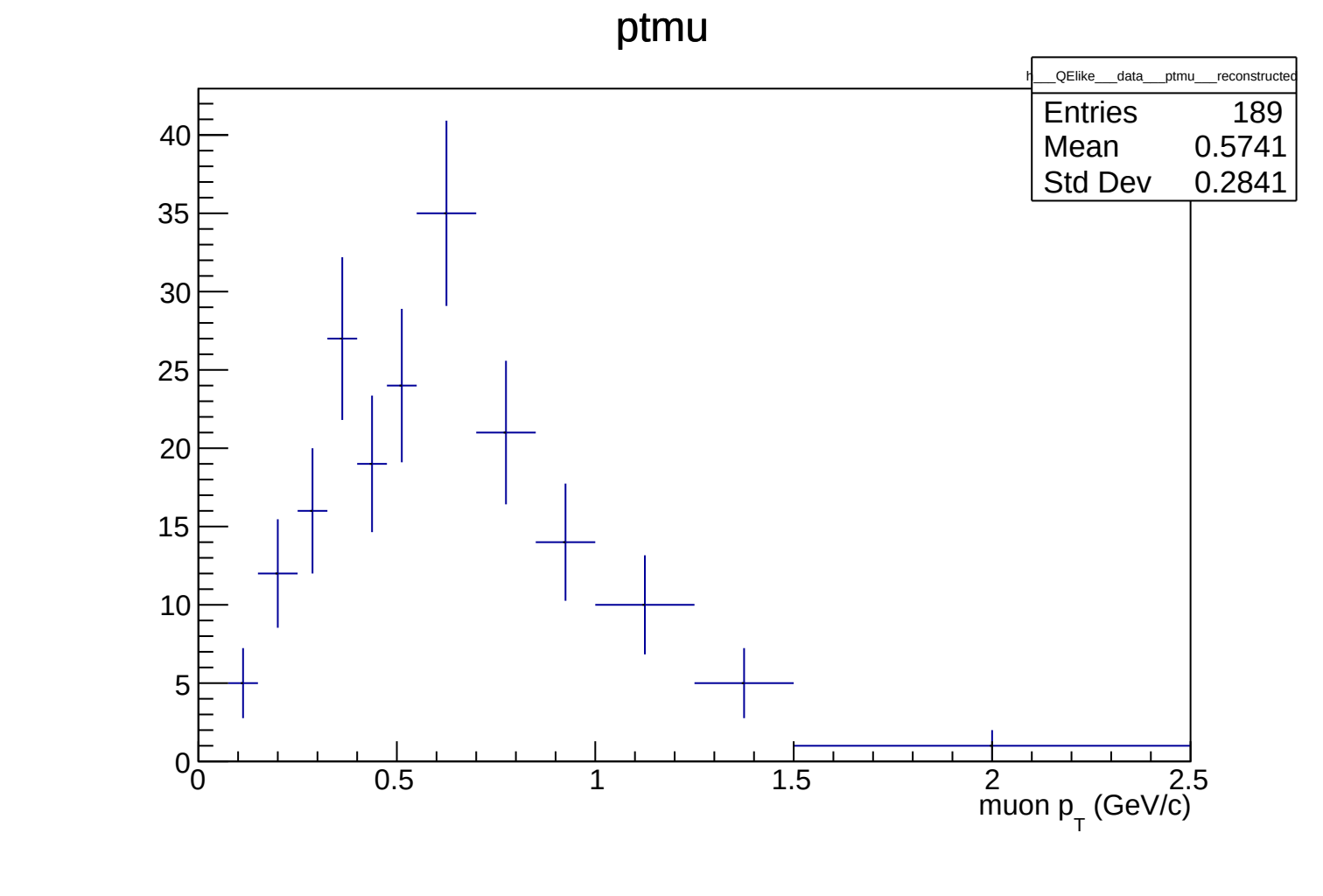

Q2QE
h___QElike___qelike___Q2QE___all_truth
Entries 7684
Mean 0.3791
Std Dev 0.3561
1400
1200
1000
800
600
400
200
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Q² (QE) (GeV²)

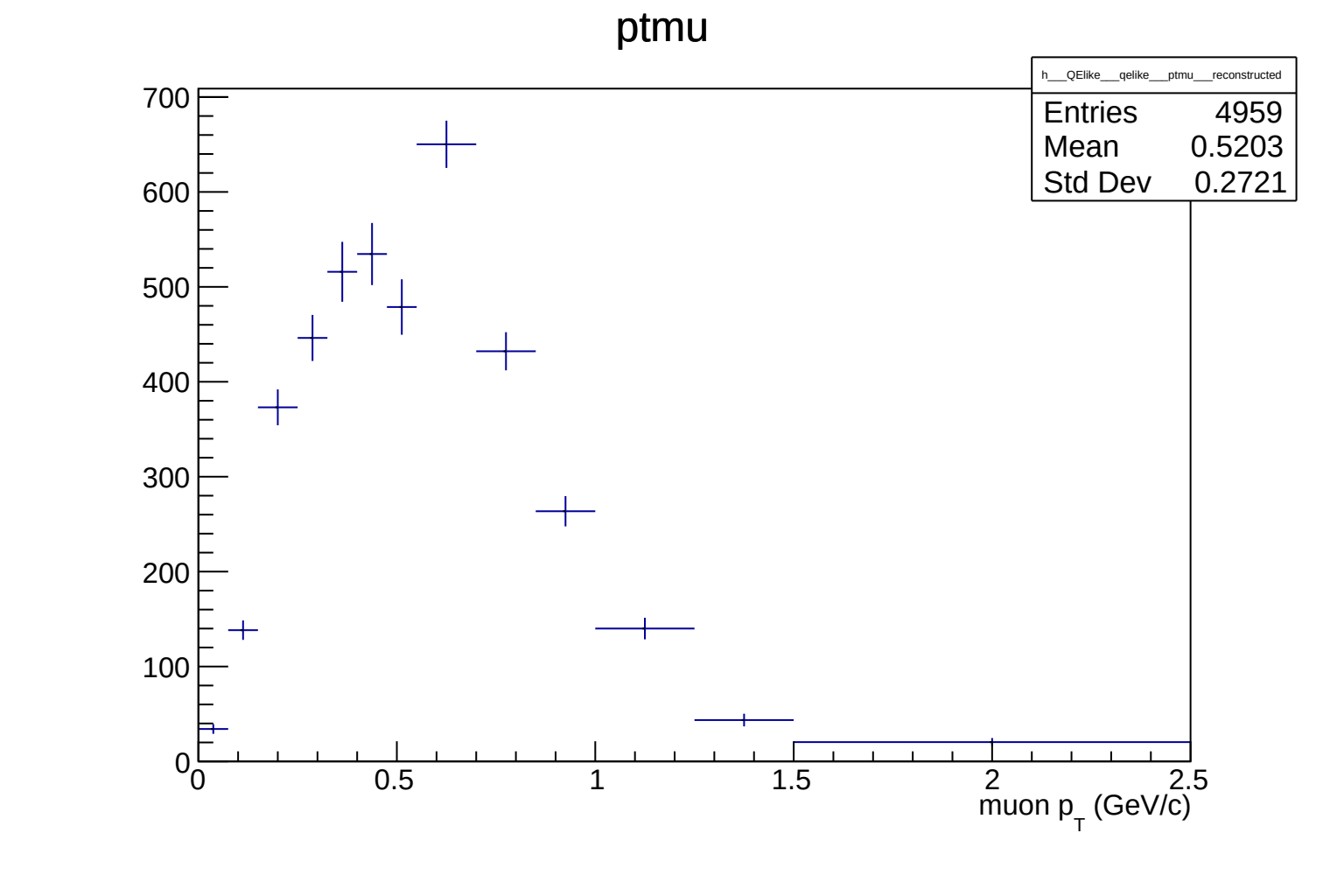

Q2QE
h___QElike___qelikenot___Q2QE___reconstructed
Entries 1177
Mean 0.4341
Std Dev 0.4049
160
140
120
100
80
60
40
20
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Q2 (QE) (GeV2)

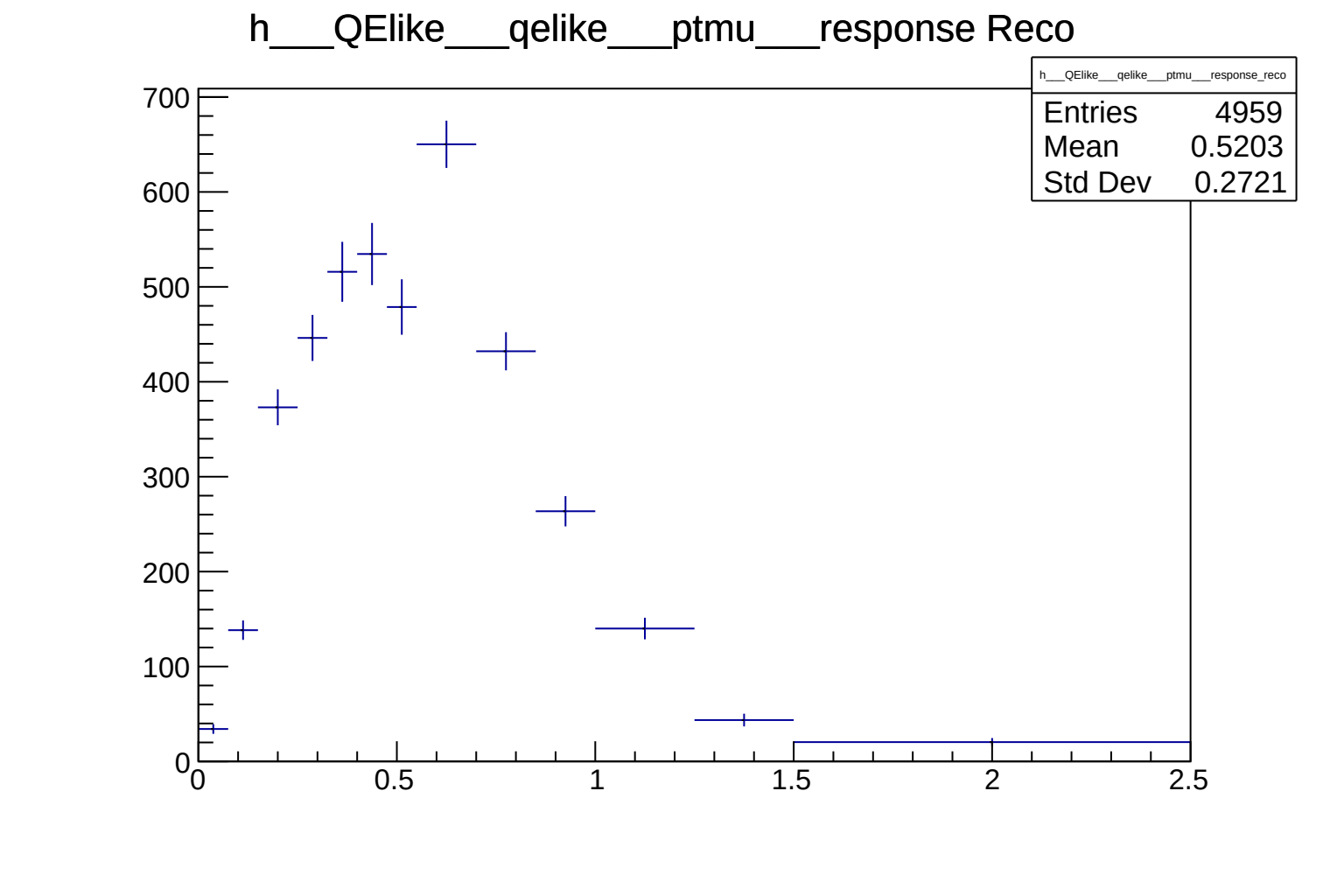

Q2QE
h___QElikeNot___data___Q2QE___reconstructed
Entries 98
Mean 0.4487
Std Dev 0.4124
20
18
16
14
12
10
8
6
4
2
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Q2 (QE) (GeV2)

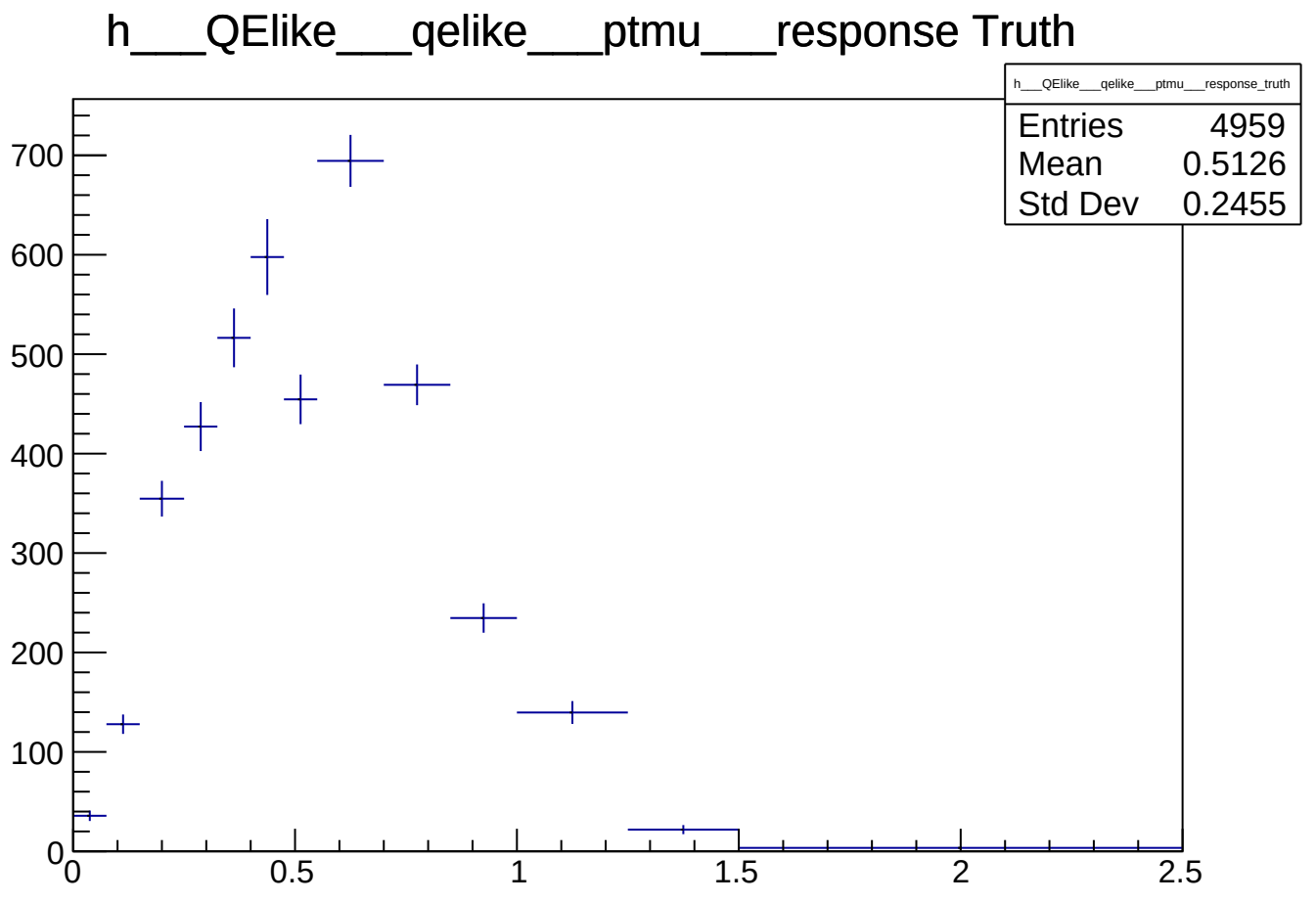

Q2QE
n___QElikeNot___qelike___Q2QE___reconstructed
Entries 861
Mean 0.2865
Std Dev 0.2941
200
180
160
140
120
100
80
60
40
20
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Q2 (QE) (GeV2)

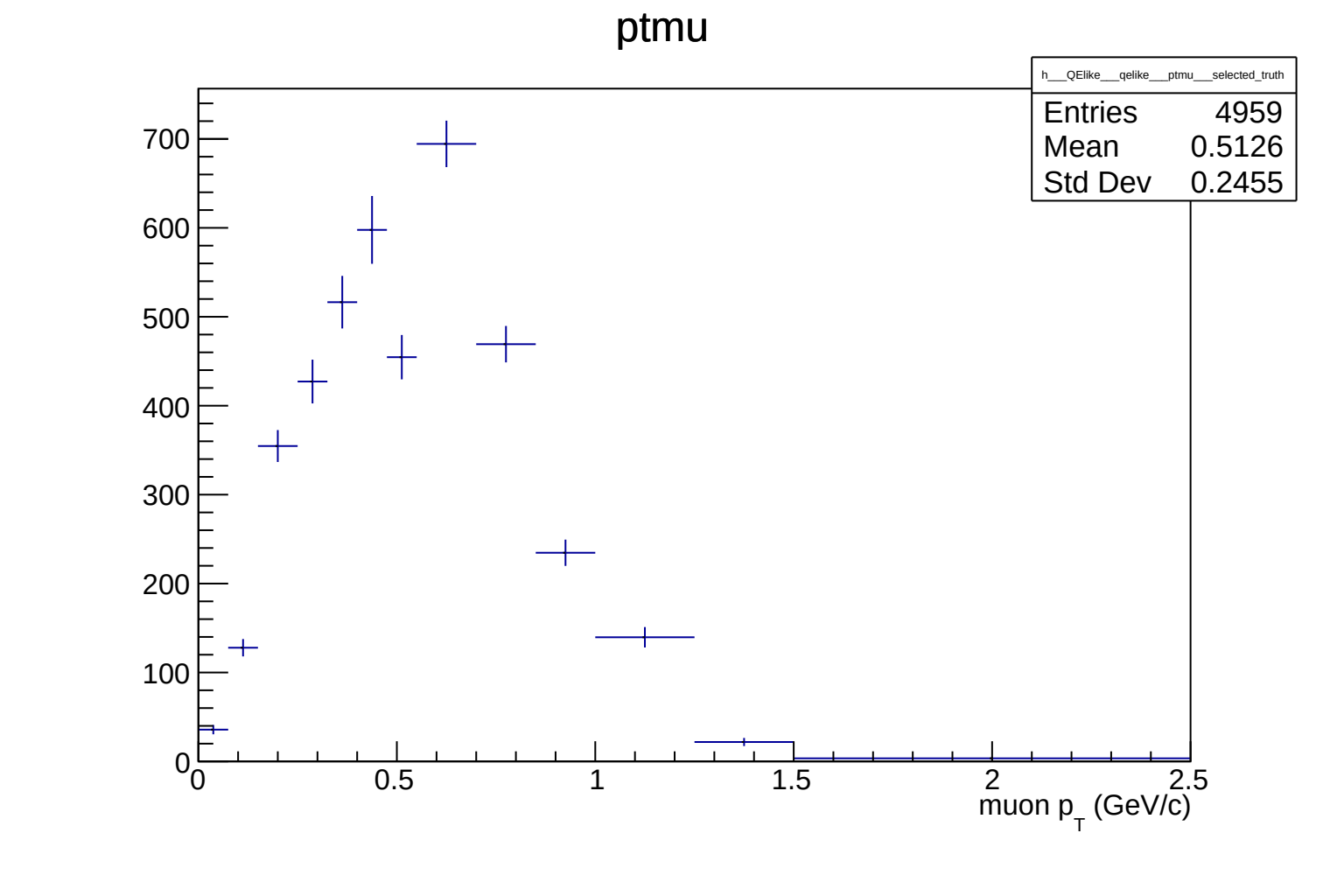

Q2QE
h___QElikeNot___qelikenot___Q2QE___reconstructed
Entries 3877
Mean 0.3892
Std Dev 0.3692
500
400
300
200
100
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Q2 (QE) (GeV2)

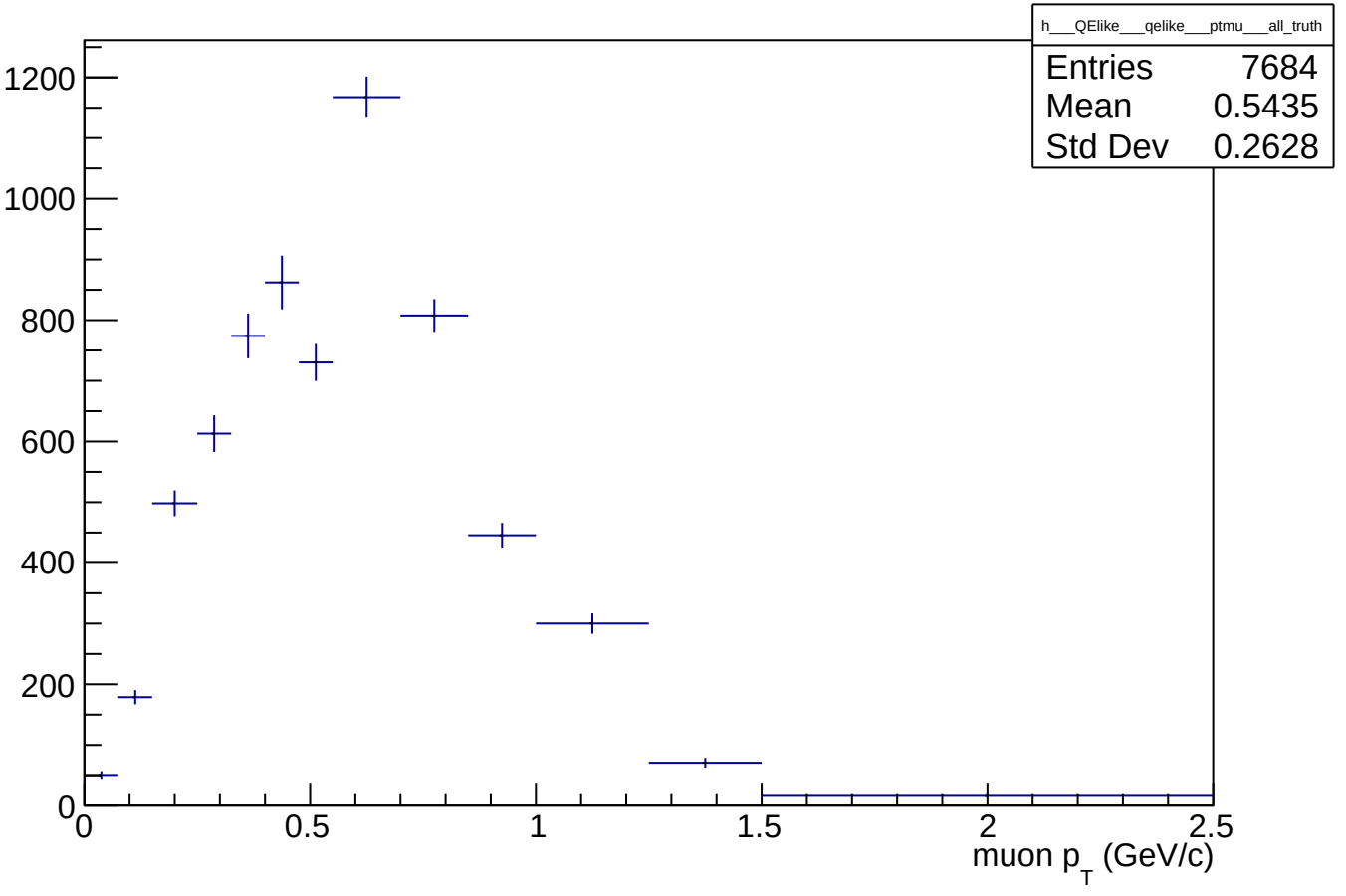

ptmu
h___QElike___data___ptmu___reconstructed
Entries 189
Mean 0.5741
Std Dev 0.2841
40
35
30
25
20
15
10
5
0
0
0.5
1
1.5
2
2.5
muon p_T (GeV/c)

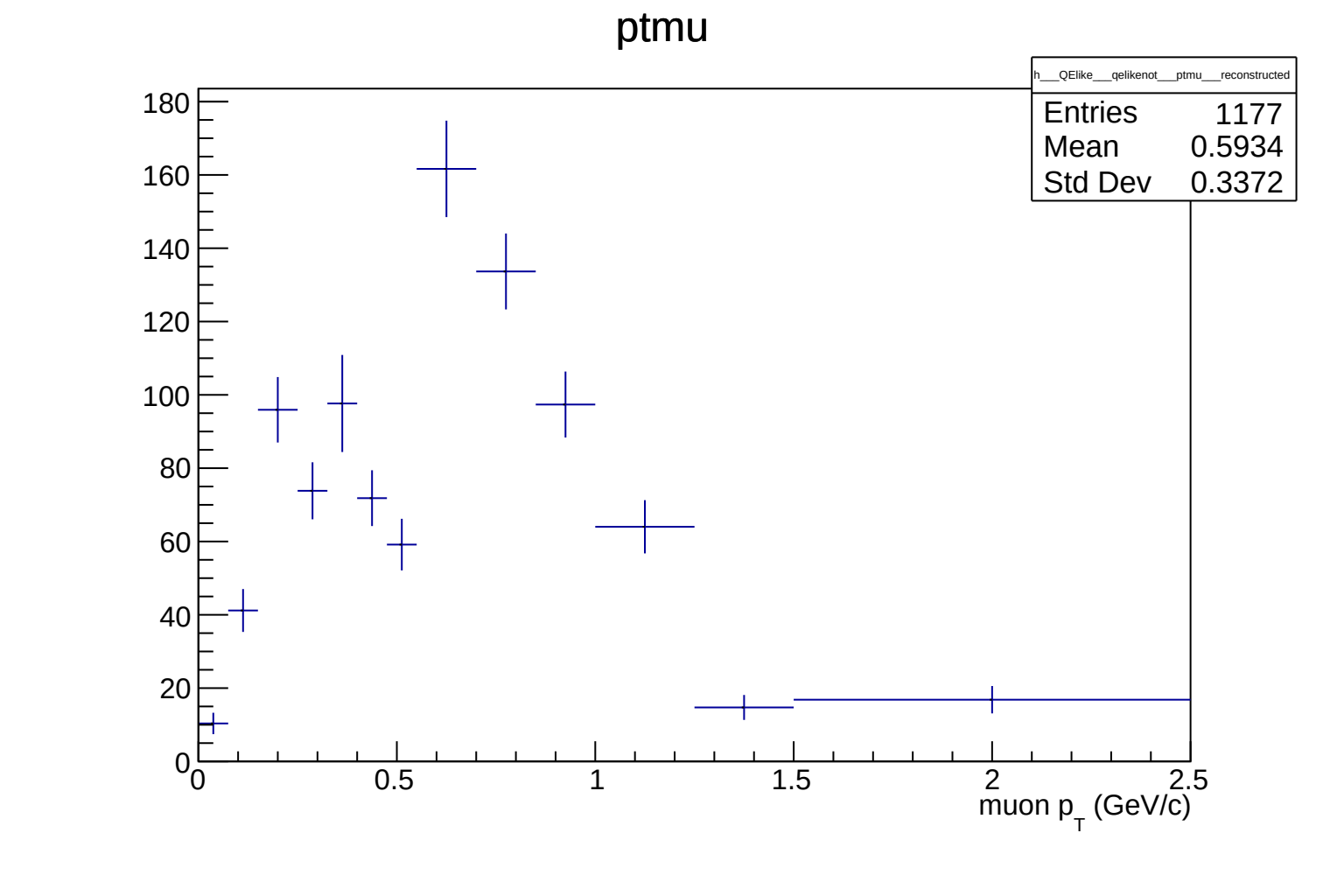

ptmu
h___QElike___qelike___ptmu___reconstructed
Entries 4959
Mean 0.5203
Std Dev 0.2721
700
600
500
400
300
200
100
0
0
0.5
1
1.5
2
2.5
muon p_T (GeV/c)

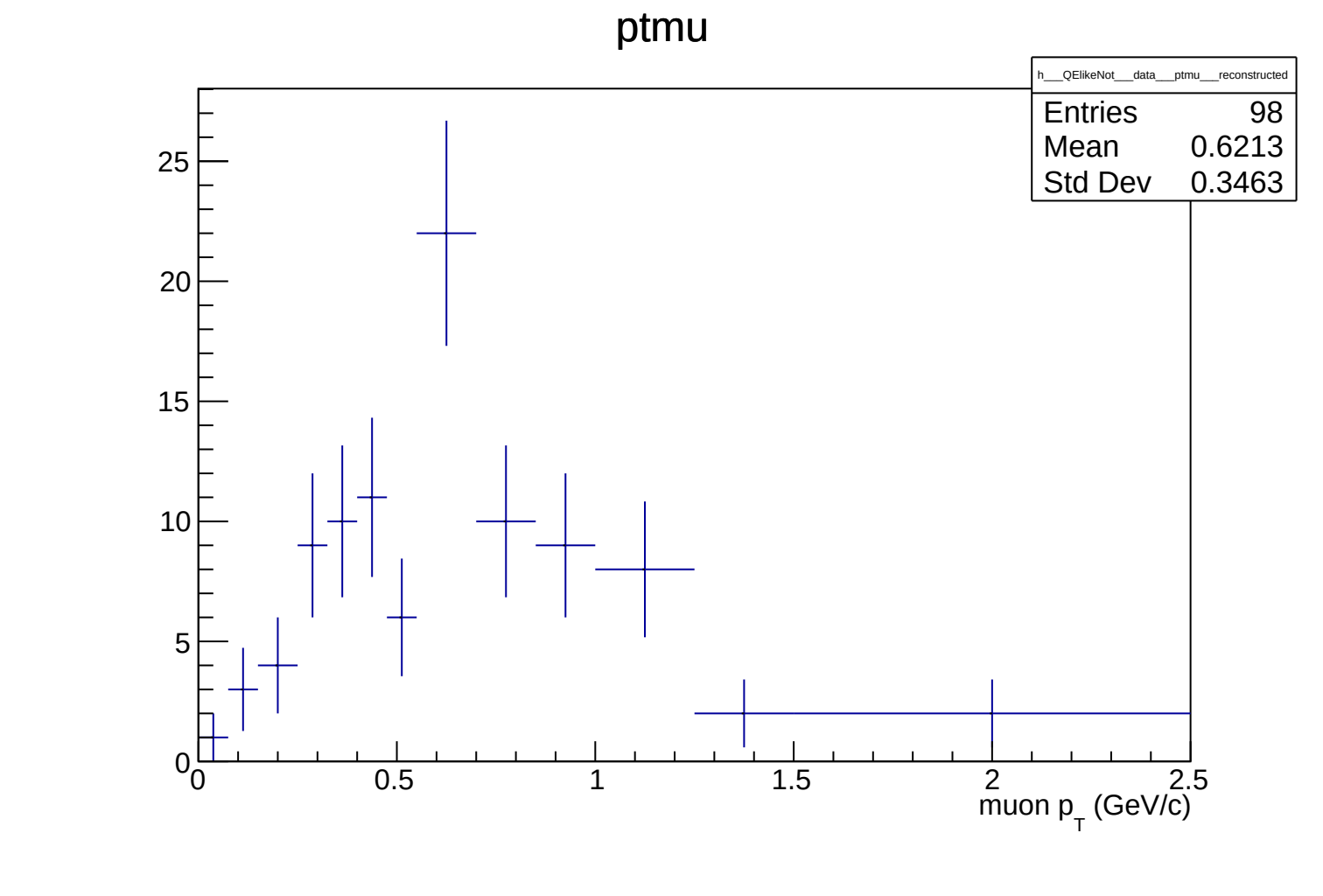

h___QElike___qelike___ptmu___response Reco
h___QElike___qelike___ptmu___response_reco
Entries 4959
Mean 0.5203
Std Dev 0.2721
700
600
500
400
300
200
100
0
0
0.5
1
1.5
2
2.5

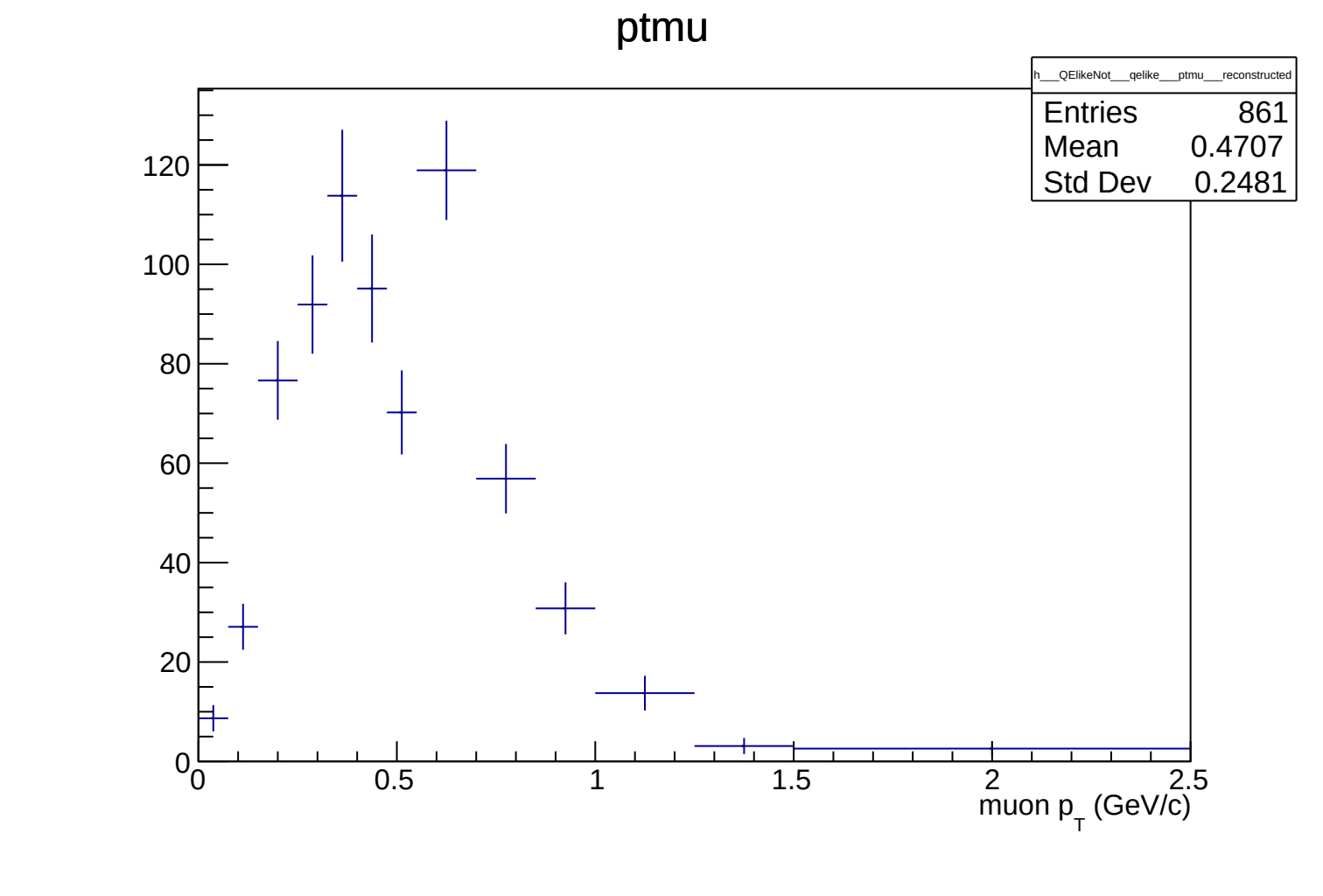

h___QElike___qelike___ptmu___response Truth
h___QElike___qelike___ptmu___response_truth
Entries 4959
Mean 0.5126
Std Dev 0.2455
700
600
500
400
300
200
100
0
0
0.5
1
1.5
2
2.5

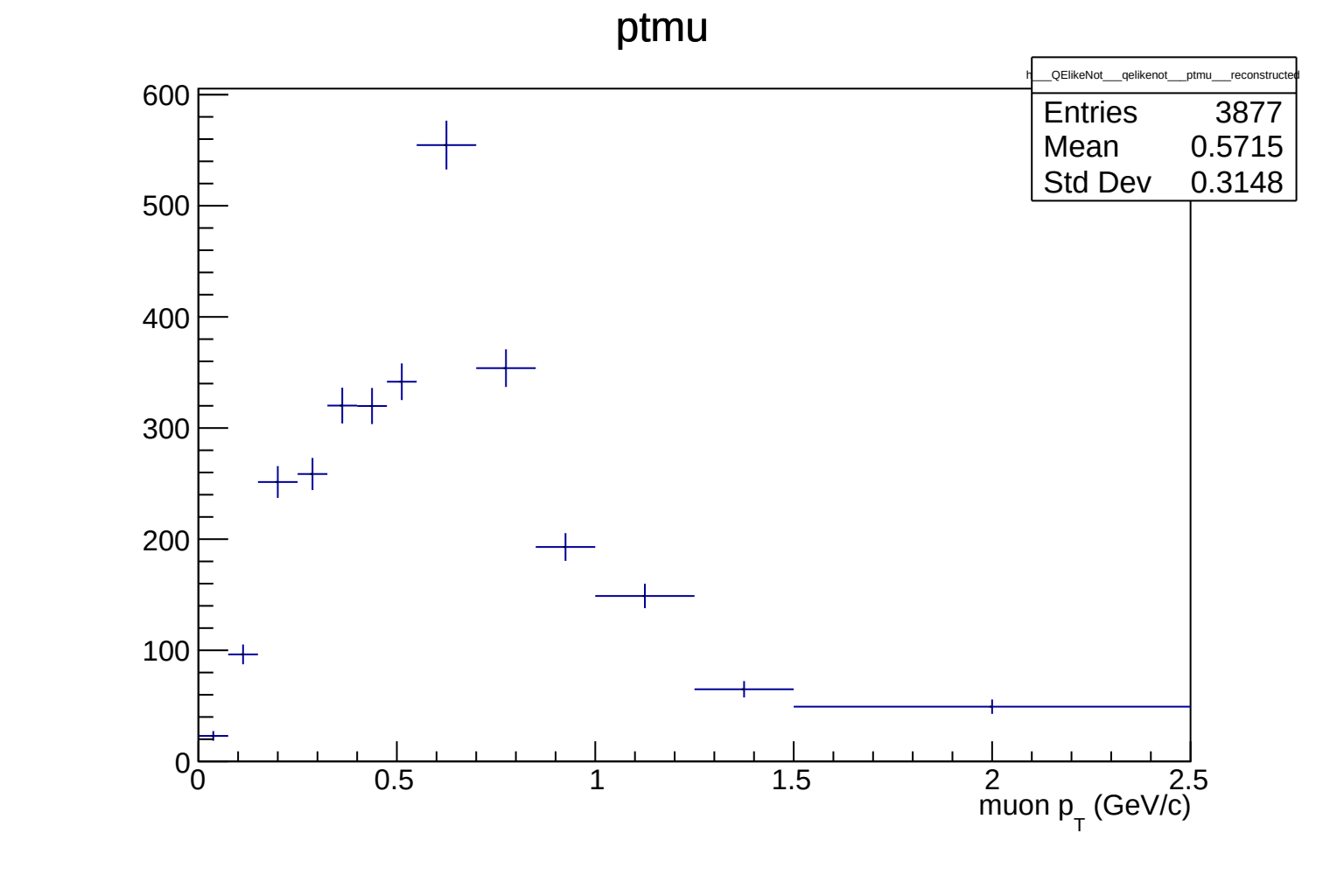

ptmu
h___QElike___qelike___ptmu___selected_truth
Entries 4959
Mean 0.5126
Std Dev 0.2455
700
600
500
400
300
200
100
0
0
0.5
1
1.5
2
2.5
muon p_T (GeV/c)

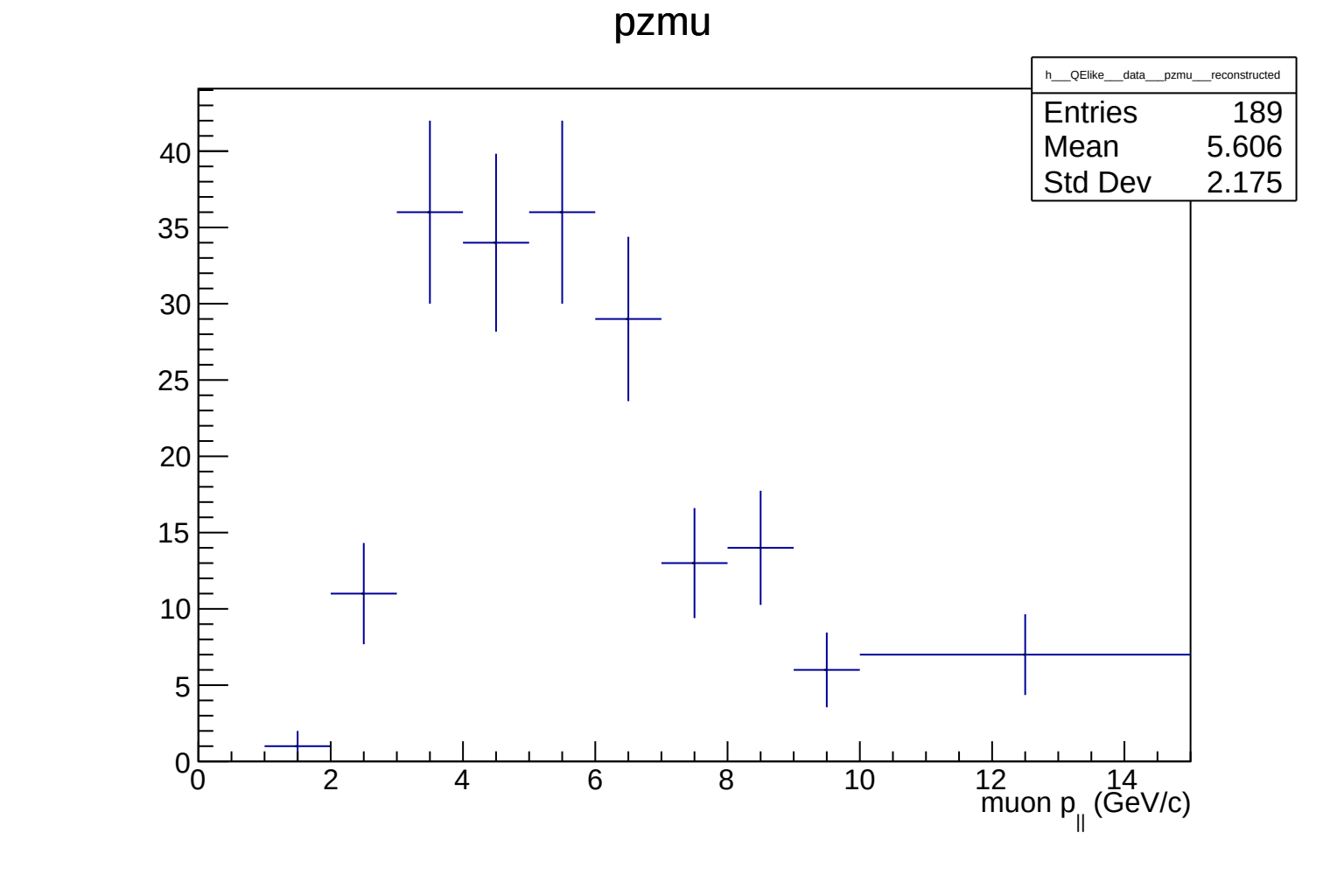

ptmu
h___QElike___qelike___ptmu___all_truth
Entries 7684
Mean 0.5435
Std Dev 0.2628
1200
1000
800
600
400
200
0
0
0.5
1
1.5
2
2.5
muon p_T (GeV/c)

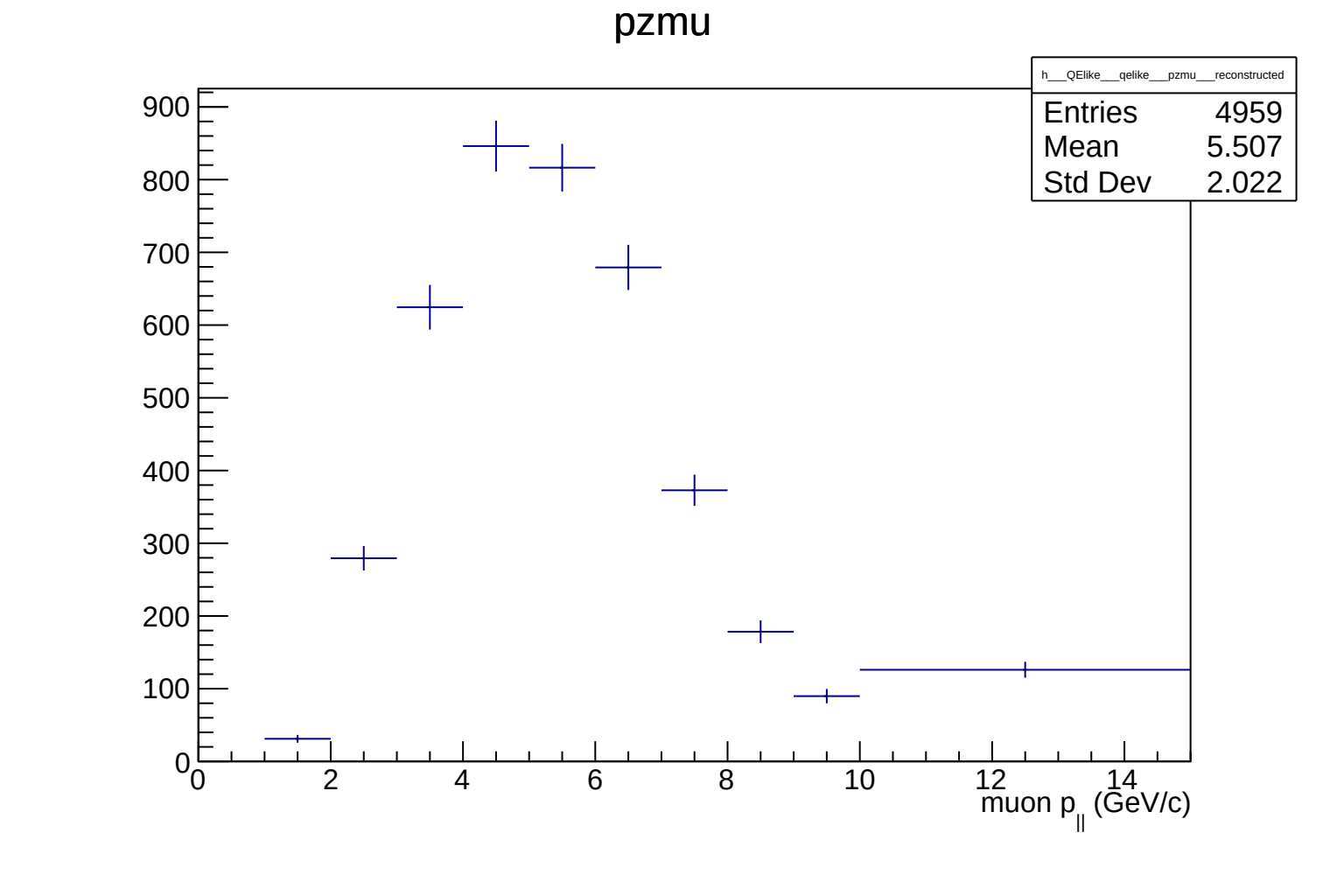

ptmu
h___QElike___qelikenot___ptmu___reconstructed
Entries 1177
Mean 0.5934
Std Dev 0.3372
180
160
140
120
100
80
60
40
20
0
0
0.5
1
1.5
2
2.5
muon p_T (GeV/c)

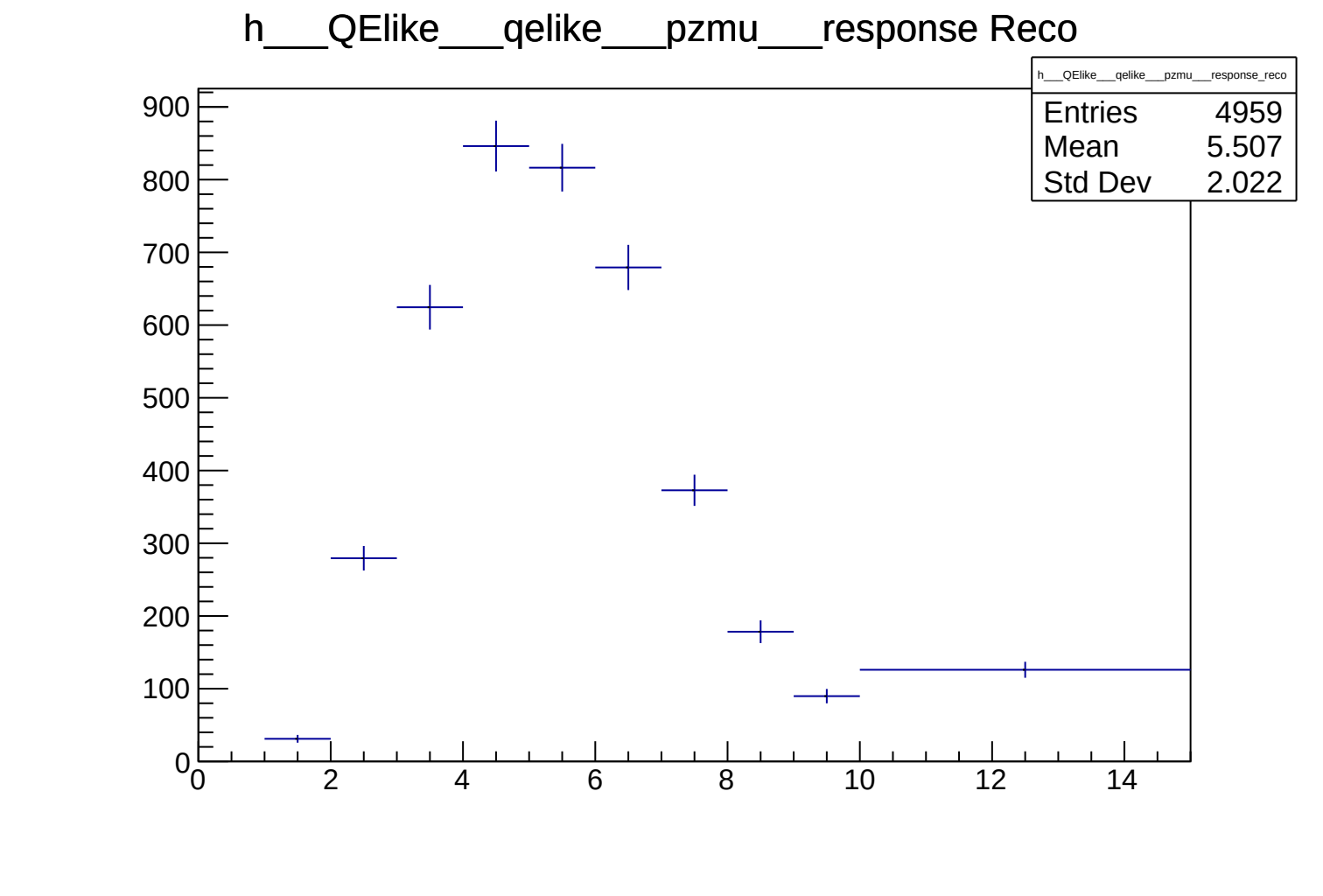

ptmu
h___QElikeNot___data___ptmu___reconstructed
Entries 98
Mean 0.6213
Std Dev 0.3463
25
20
15
10
5
0
0
0.5
1
1.5
2
2.5
muon p_T (GeV/c)

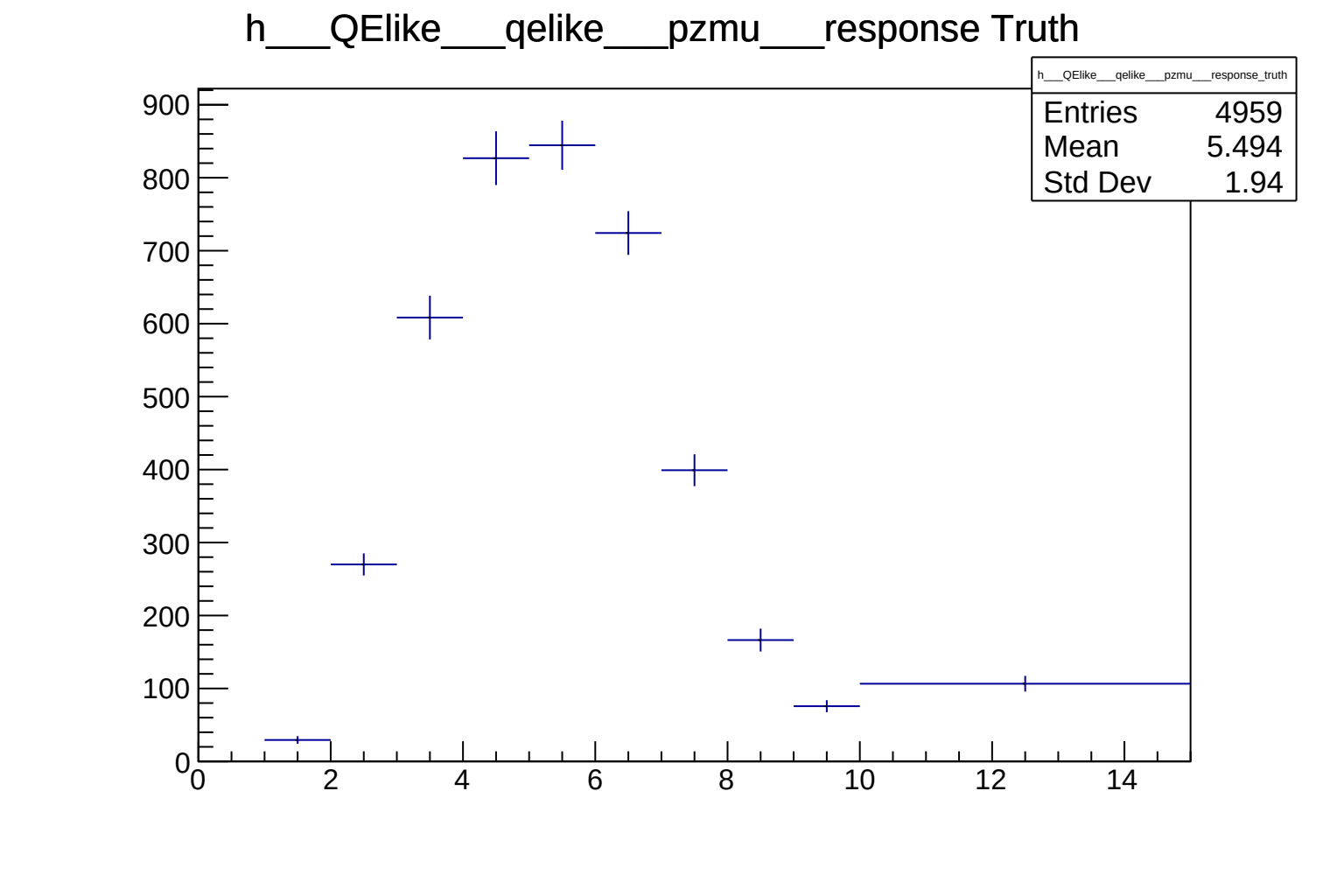

ptmu
h___QElikeNot___qelike___ptmu___reconstructed
Entries 861
Mean 0.4707
Std Dev 0.2481
120
100
80
60
40
20
0
0
0.5
1
1.5
2
2.5
muon p_T (GeV/c)

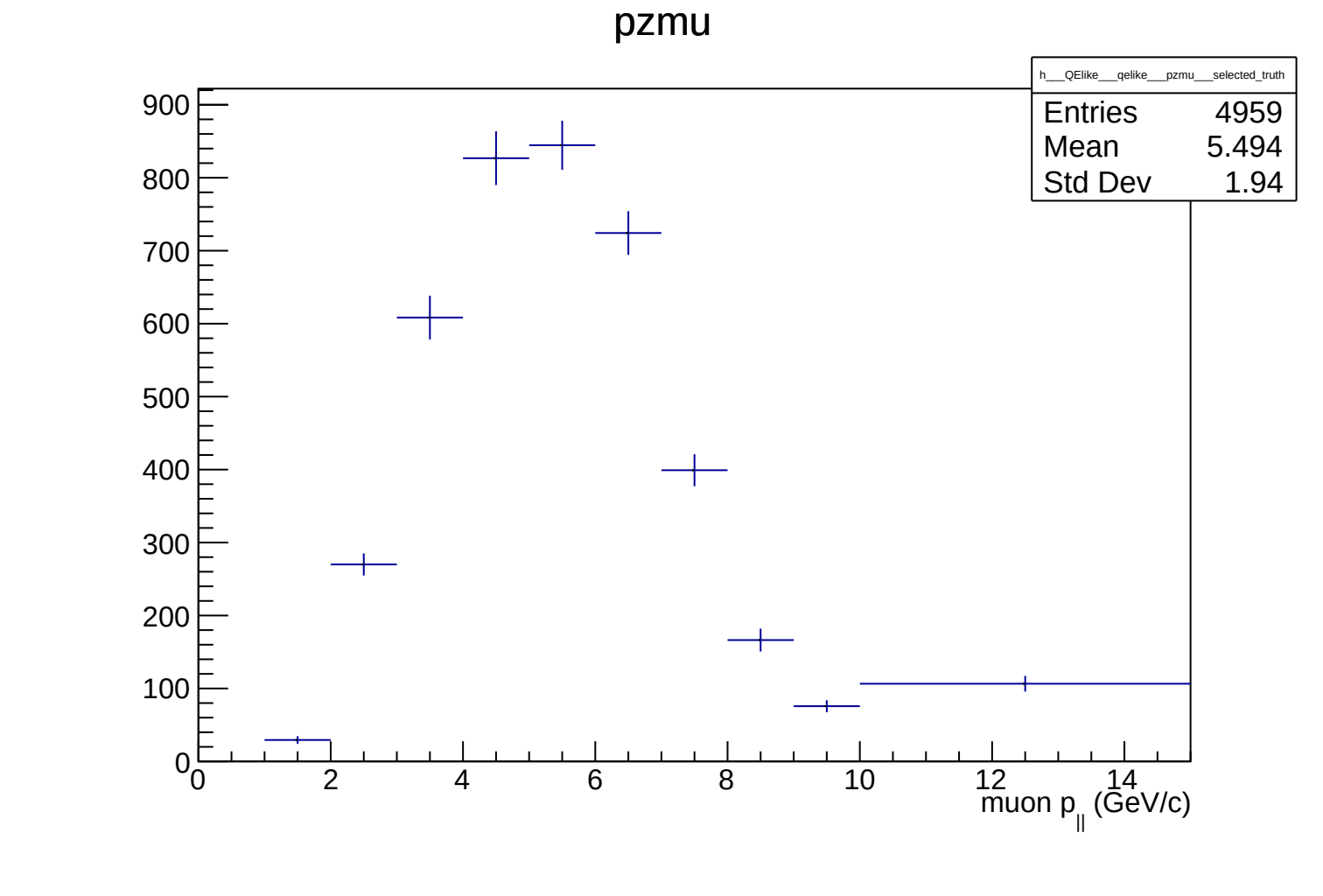

ptmu
h___QElikeNot___qelikenot___ptmu___reconstructed
Entries 3877
Mean 0.5715
Std Dev 0.3148
600
500
400
300
200
100
0
0
0.5
1
1.5
2
2.5
muon p_T (GeV/c)

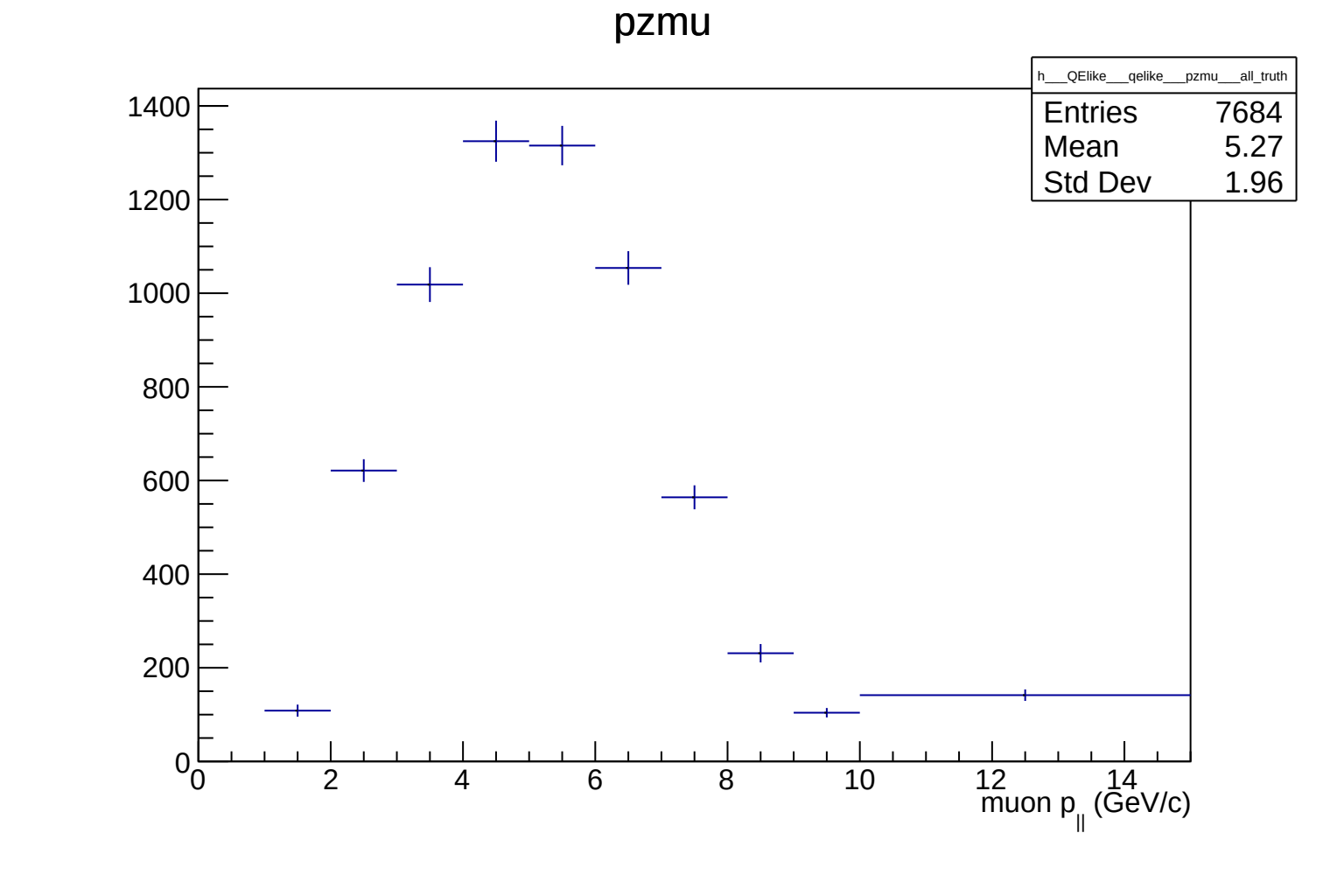

pzmu
h___QElike___data___pzmu___reconstructed
Entries 189
Mean 5.606
Std Dev 2.175
0
5
10
15
20
25
30
35
40
0
2
4
6
8
10
12
14
muon p|| (GeV/c)

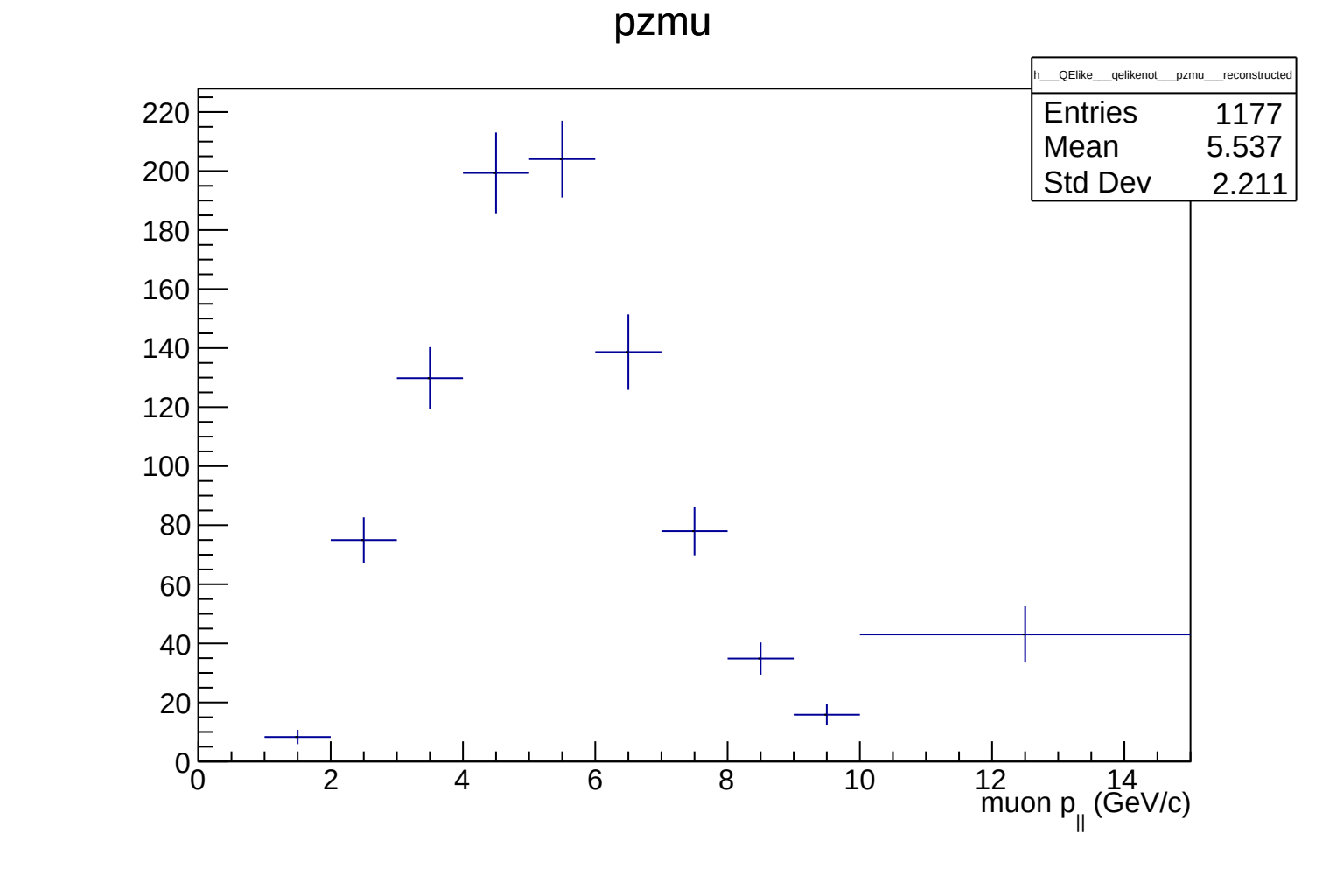

pzmu
h___QElike___qelike___pzmu___reconstructed
Entries 4959
Mean 5.507
Std Dev 2.022
900
800
700
600
500
400
300
200
100
0
0
2
4
6
8
10
12
14
muon p|| (GeV/c)

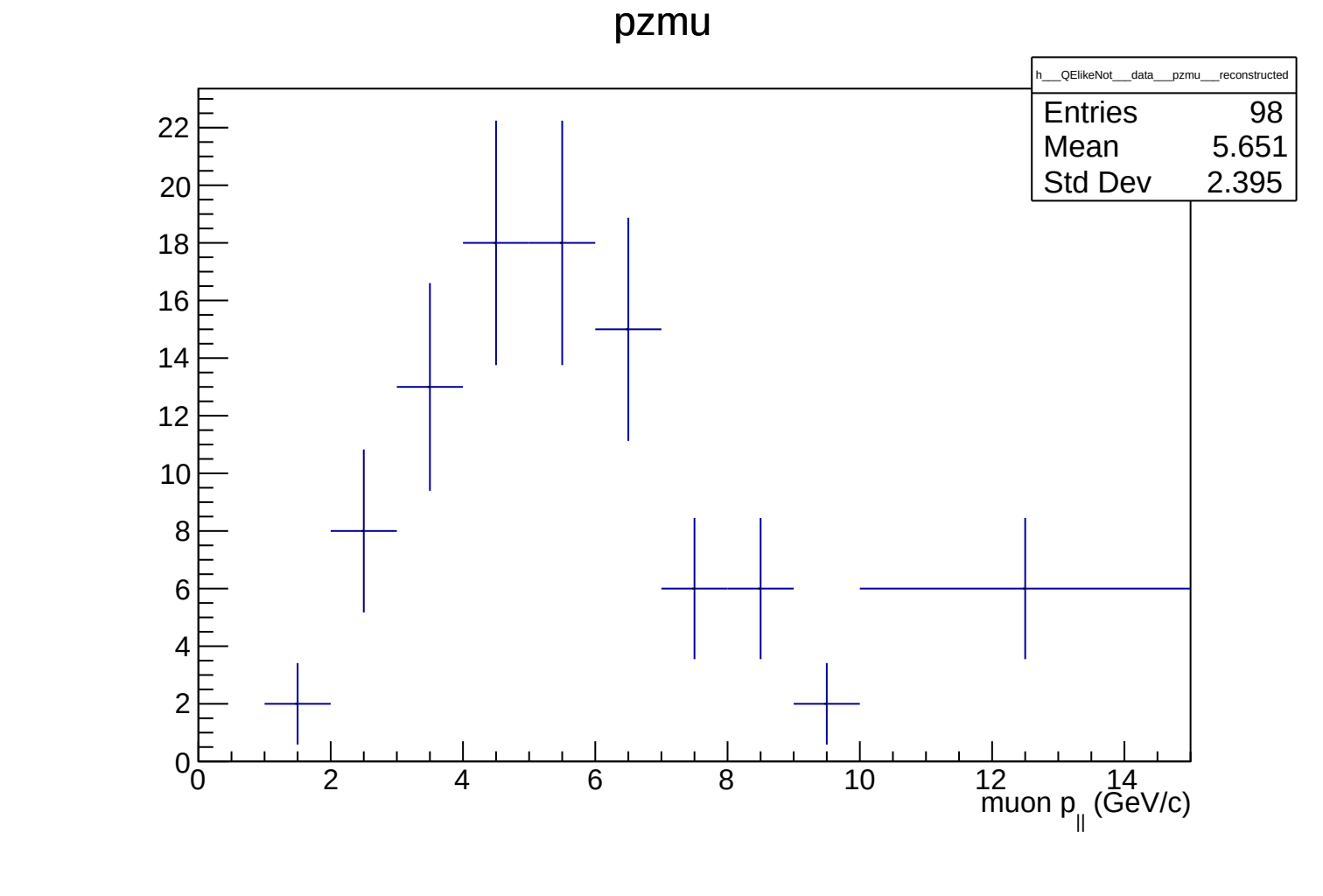

h___QElike___qelike___pzmu___response Reco
h___QElike___qelike___pzmu___response_reco
Entries 4959
Mean 5.507
Std Dev 2.022
900
800
700
600
500
400
300
200
100
0
0
2
4
6
8
10
12
14

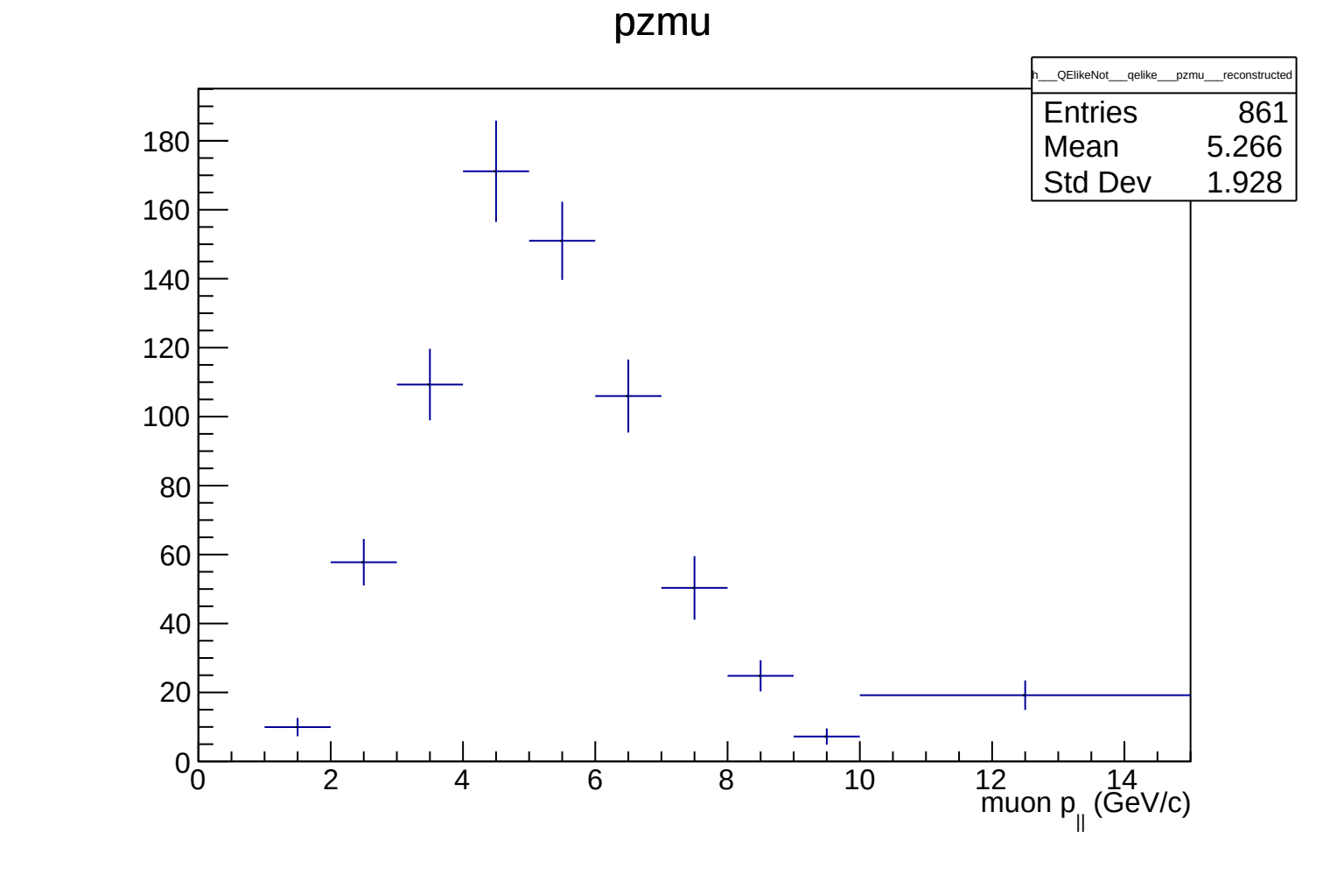

h___QElike___qelike___pzmu___response Truth
h___QElike___qelike___pzmu___response_truth
Entries 4959
Mean 5.494
Std Dev 1.94
900
800
700
600
500
400
300
200
100
0
0
2
4
6
8
10
12
14

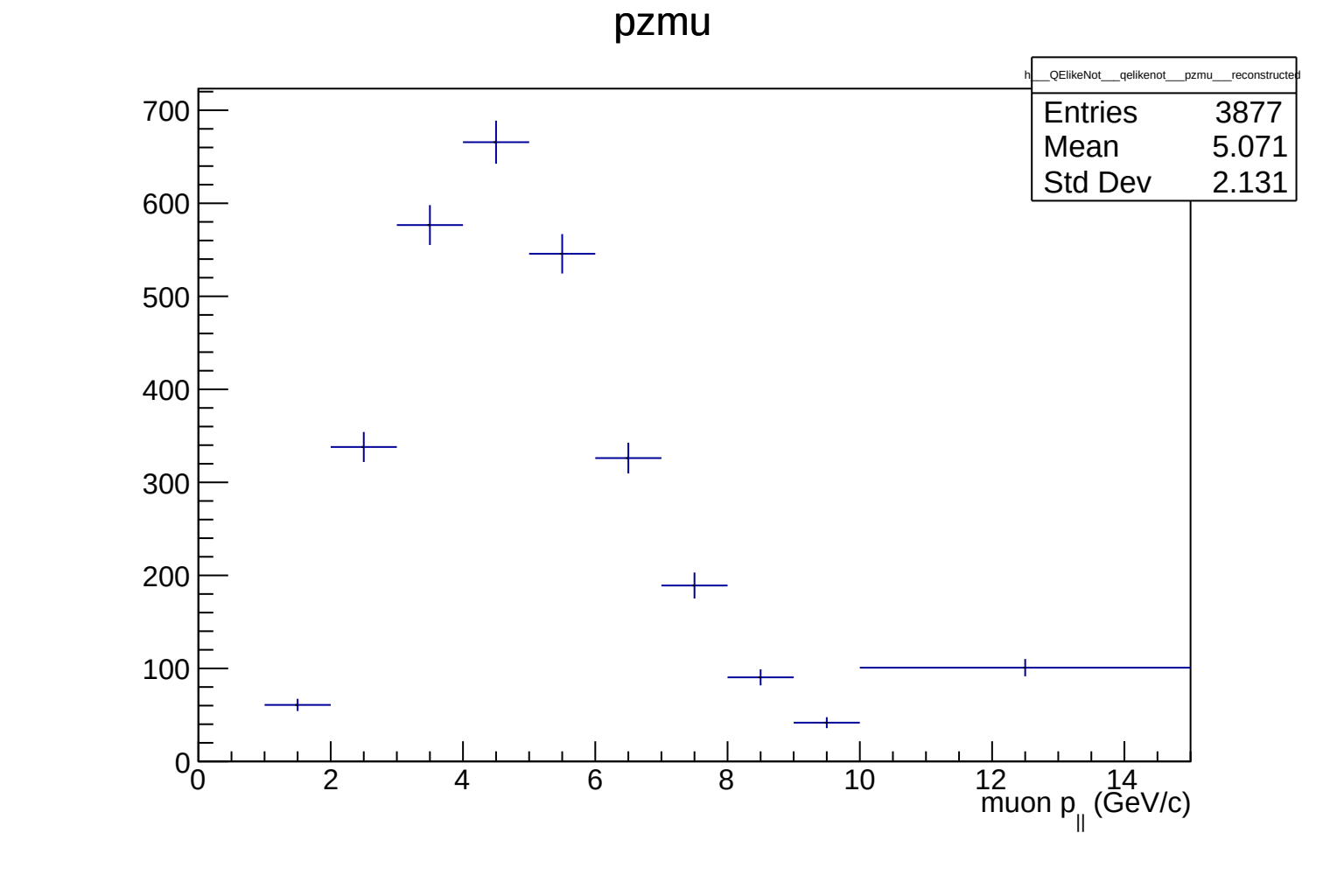

pzmu
h___QElike___qelike___pzmu___selected_truth
Entries 4959
Mean 5.494
Std Dev 1.94
900
800
700
600
500
400
300
200
100
0
0
2
4
6
8
10
12
14
muon p|| (GeV/c)

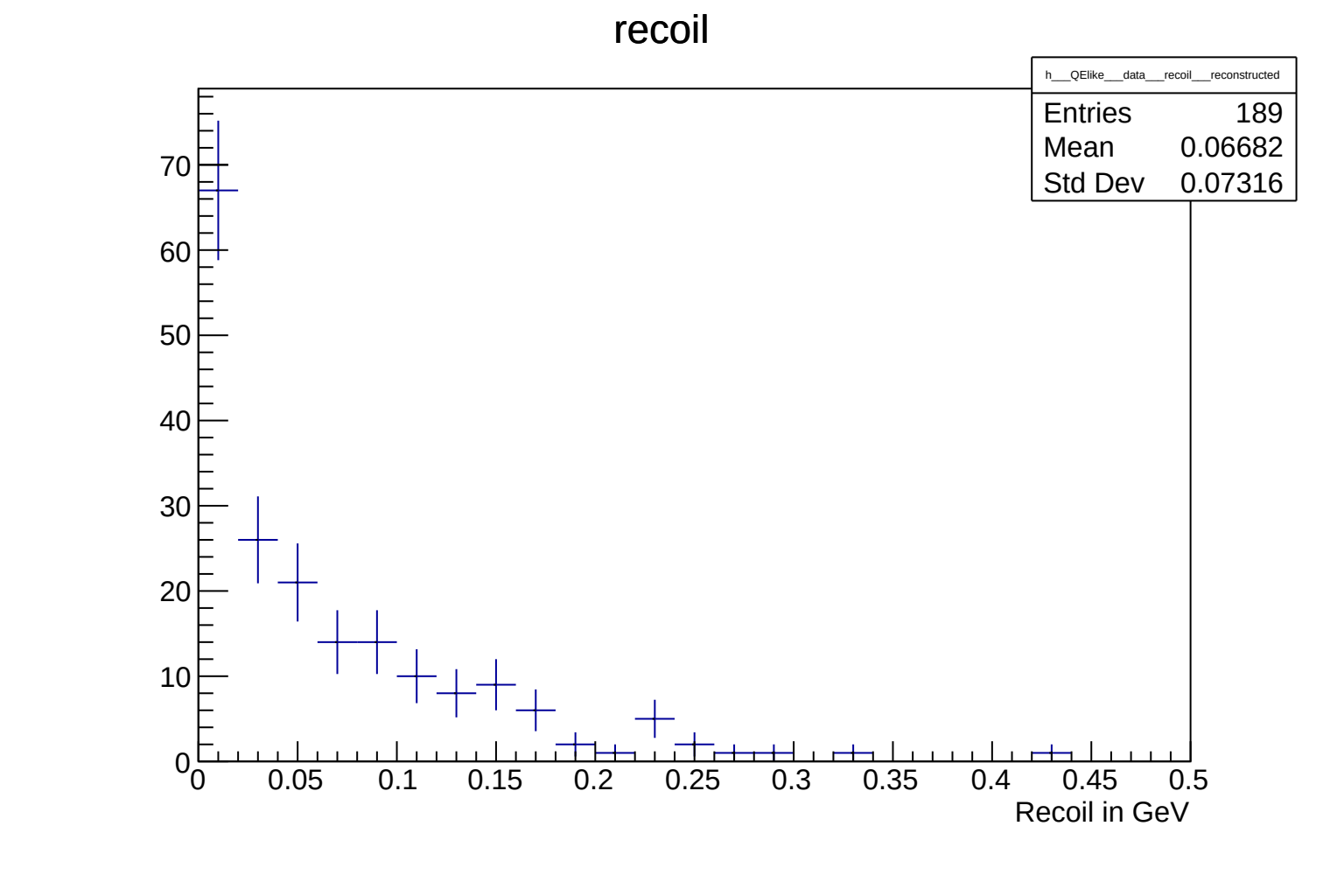

pzmu
h___QElike___qelike___pzmu___all_truth
Entries 7684
Mean 5.27
Std Dev 1.96
1400
1200
1000
800
600
400
200
0
0
2
4
6
8
10
12
14
muon p|| (GeV/c)

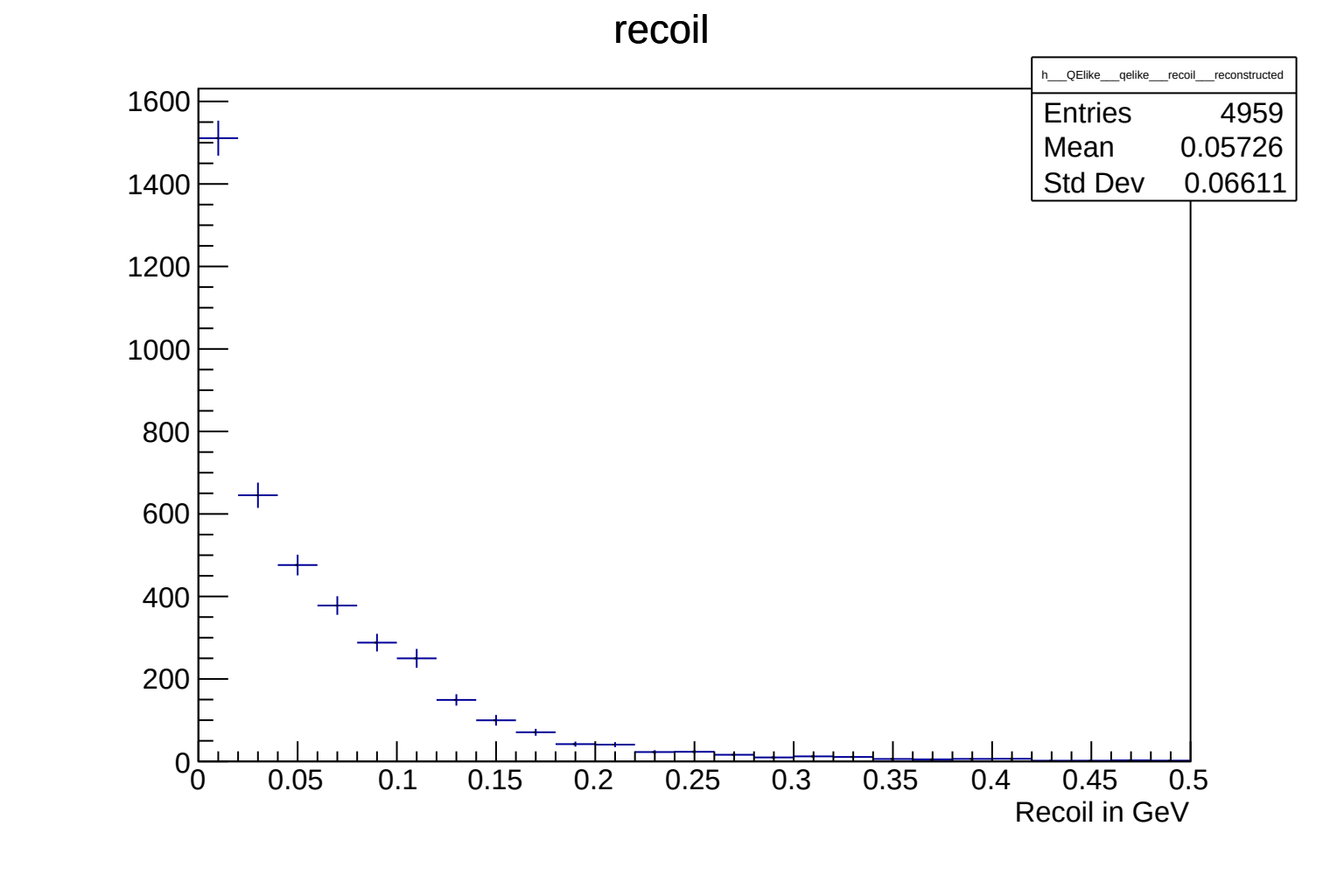

pzmu
h___QElike___qelikenot___pzmu___reconstructed
Entries 1177
Mean 5.537
Std Dev 2.211
220
200
180
160
140
120
100
80
60
40
20
0
0
2
4
6
8
10
12
14
muon p|| (GeV/c)

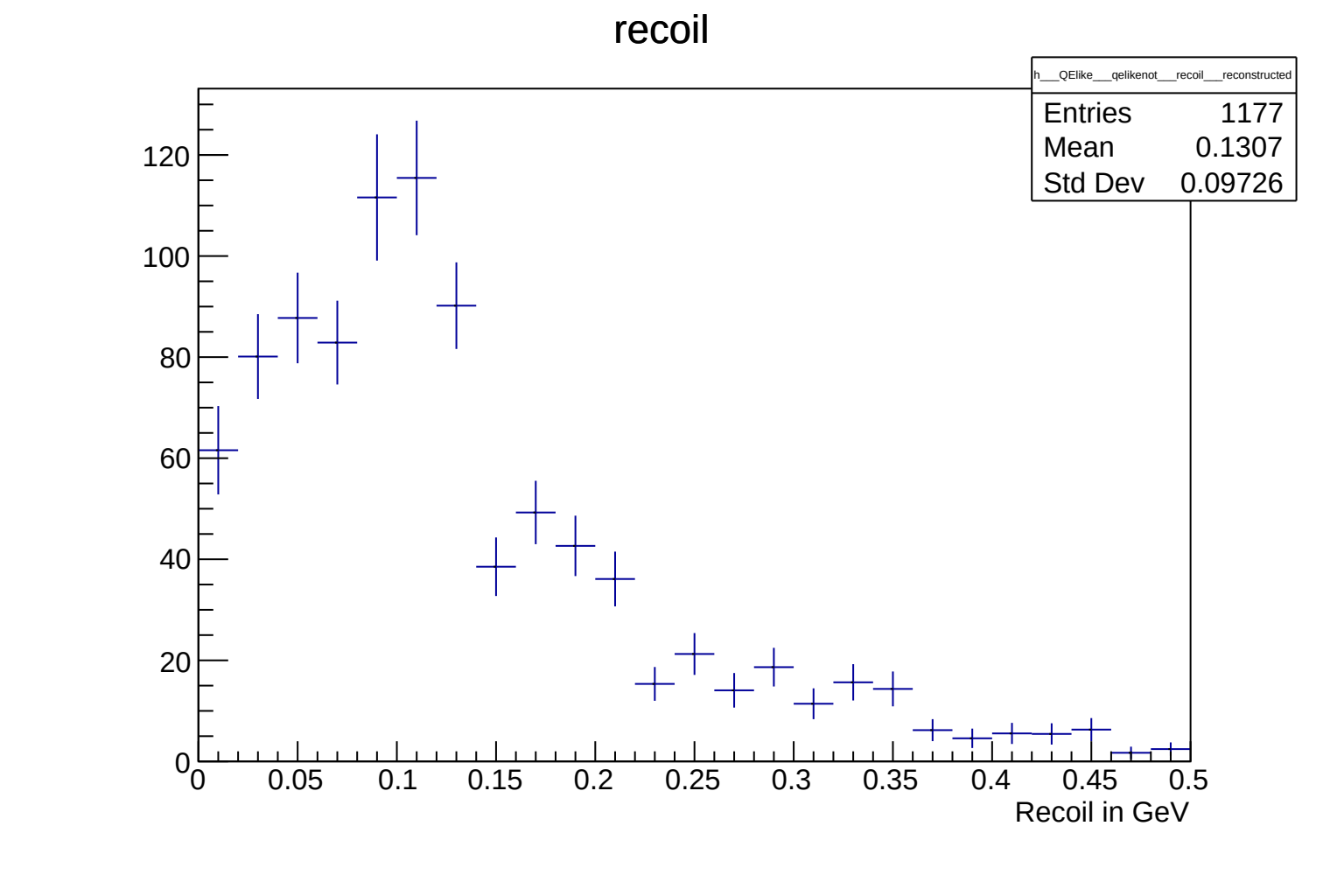

pzmu
h___QElikeNot___data___pzmu___reconstructed
Entries 98
Mean 5.651
Std Dev 2.395
0
2
4
6
8
10
12
14
16
18
20
22
0
2
4
6
8
10
12
14
muon p|| (GeV/c)

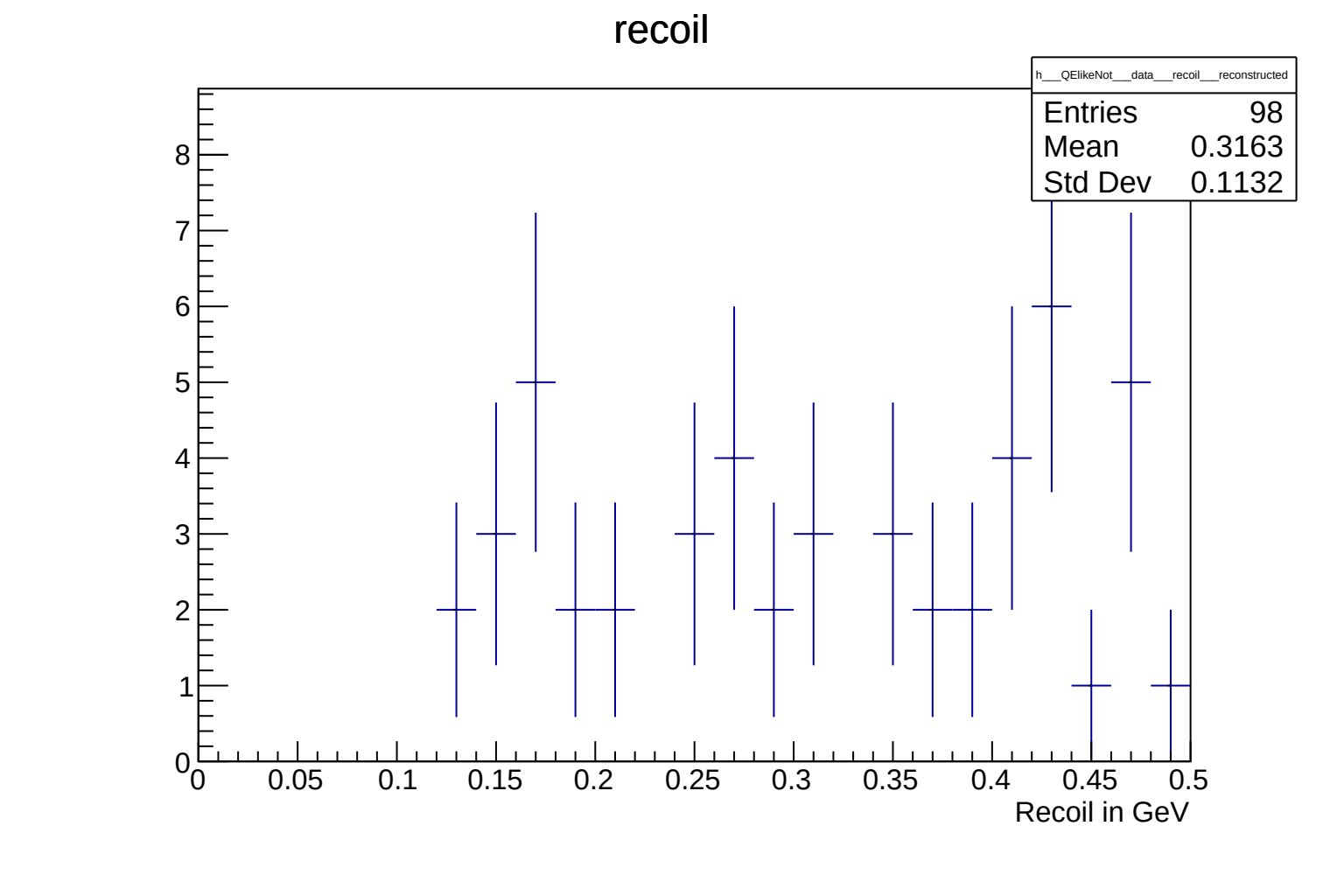

pzmu
n___QElikeNot___qelike___pzmu___reconstructed
Entries 861
Mean 5.266
Std Dev 1.928
180
160
140
120
100
80
60
40
20
0
0
2
4
6
8
10
12
14
muon p|| (GeV/c)

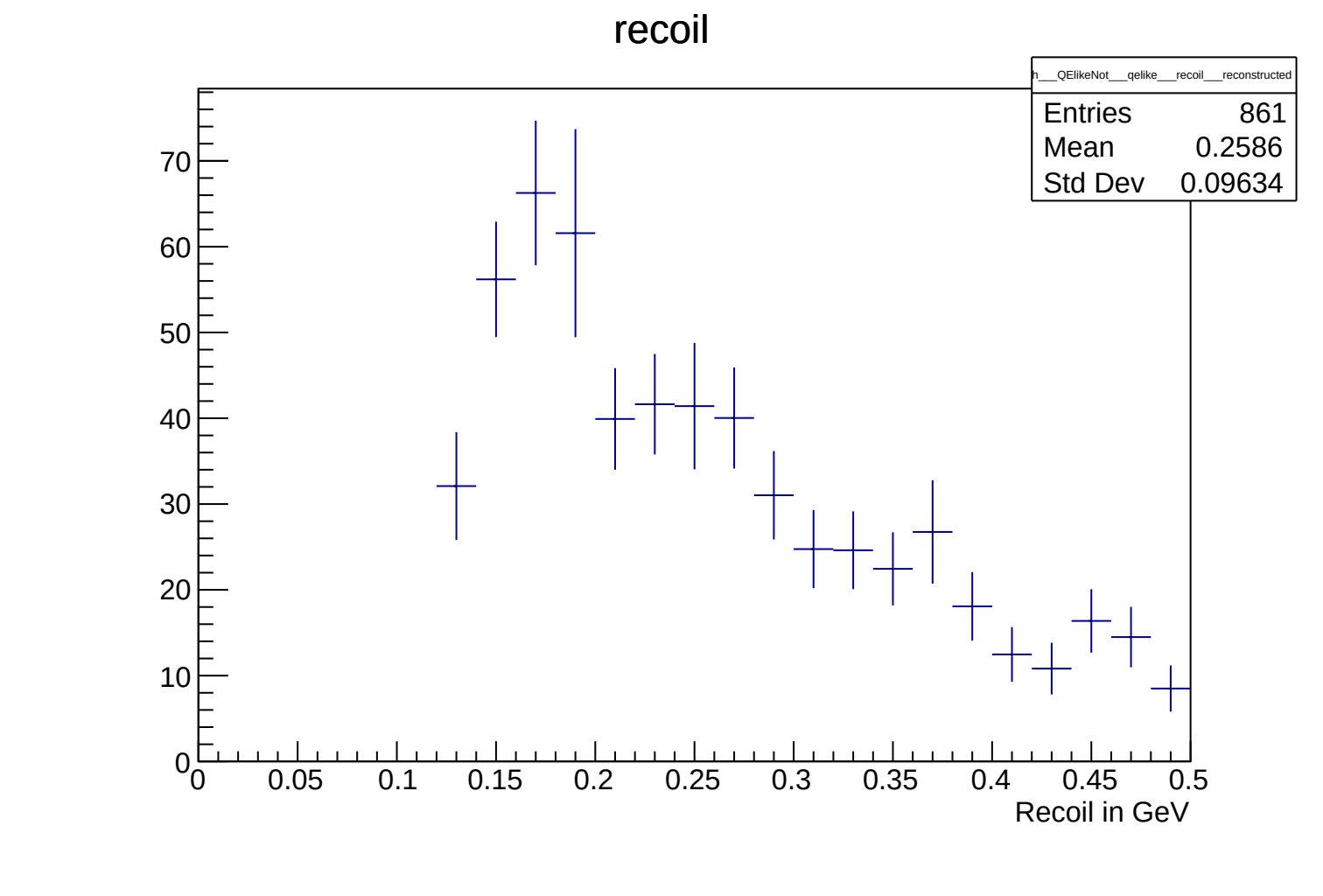

pzmu
h___QElikeNot___qelikenot___pzmu___reconstructed
Entries 3877
Mean 5.071
Std Dev 2.131
700
600
500
400
300
200
100
0
0
2
4
6
8
10
12
14
muon p|| (GeV/c)

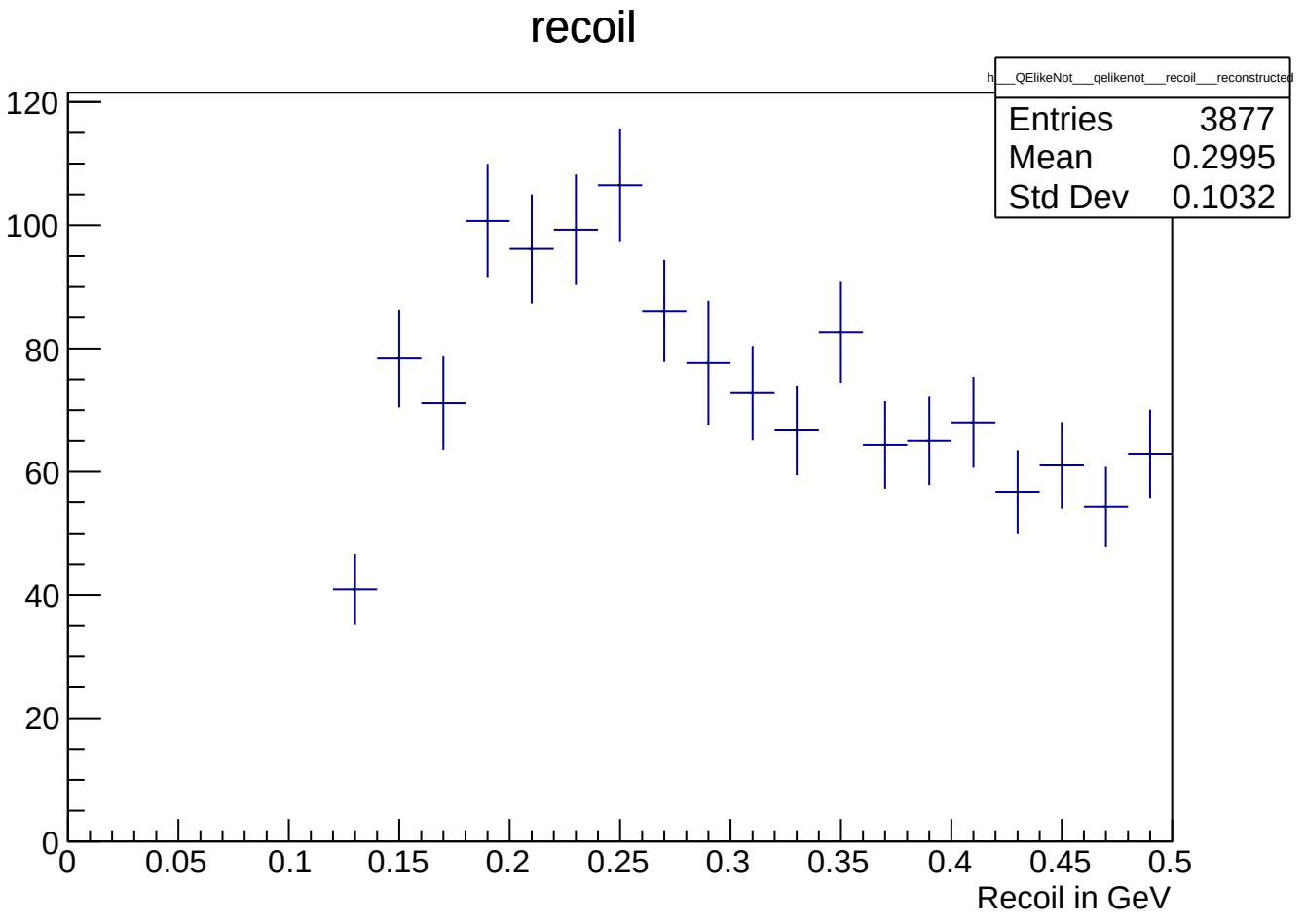

recoil
h___QElike___data___recoil___reconstructed
Entries 189
Mean 0.06682
Std Dev 0.07316
70
60
50
40
30
20
10
0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
Recoil in GeV

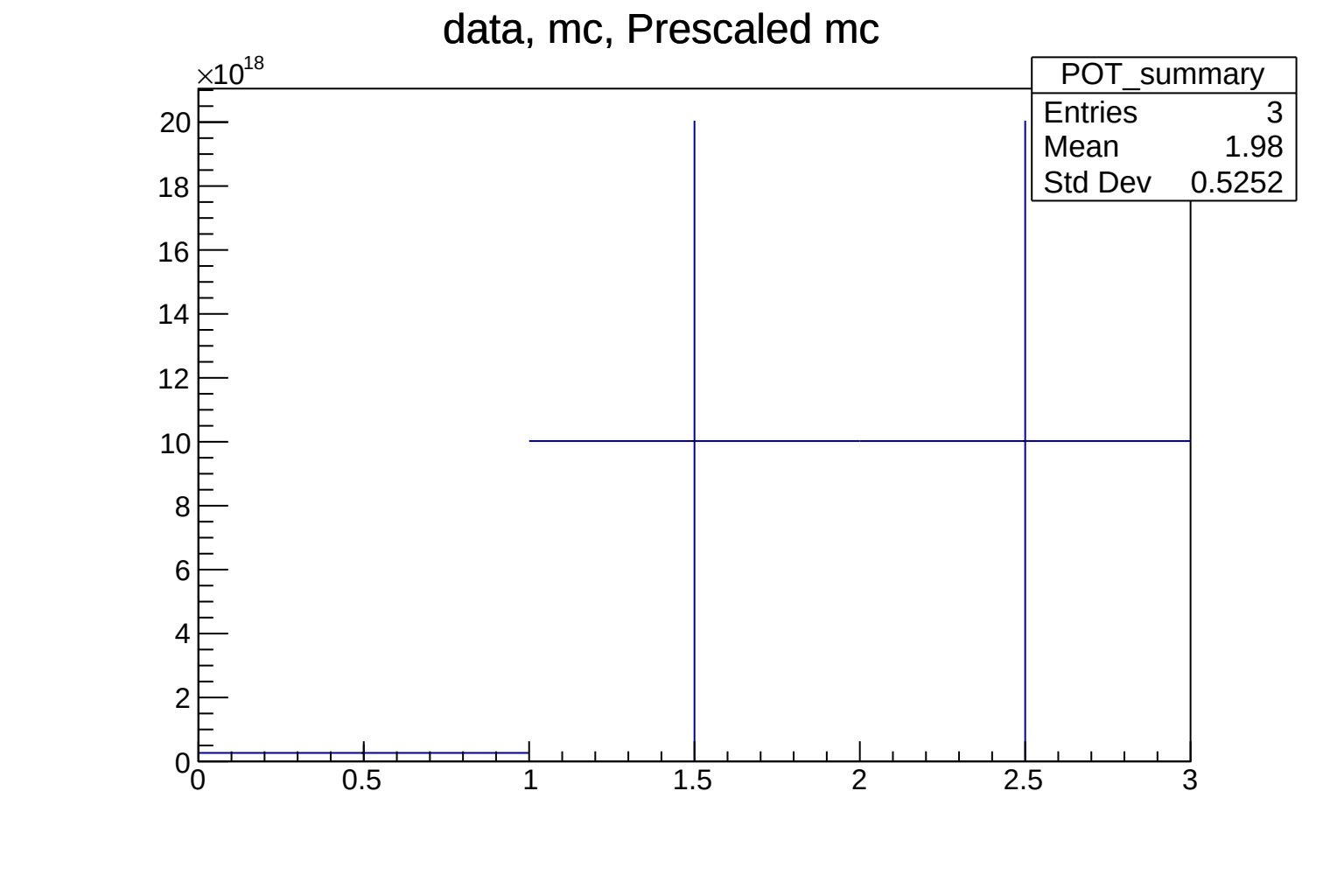

recoil
h___QElike___qelike___recoil___reconstructed
Entries 4959
Mean 0.05726
Std Dev 0.06611
1600
1400
1200
1000
800
600
400
200
0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
Recoil in GeV

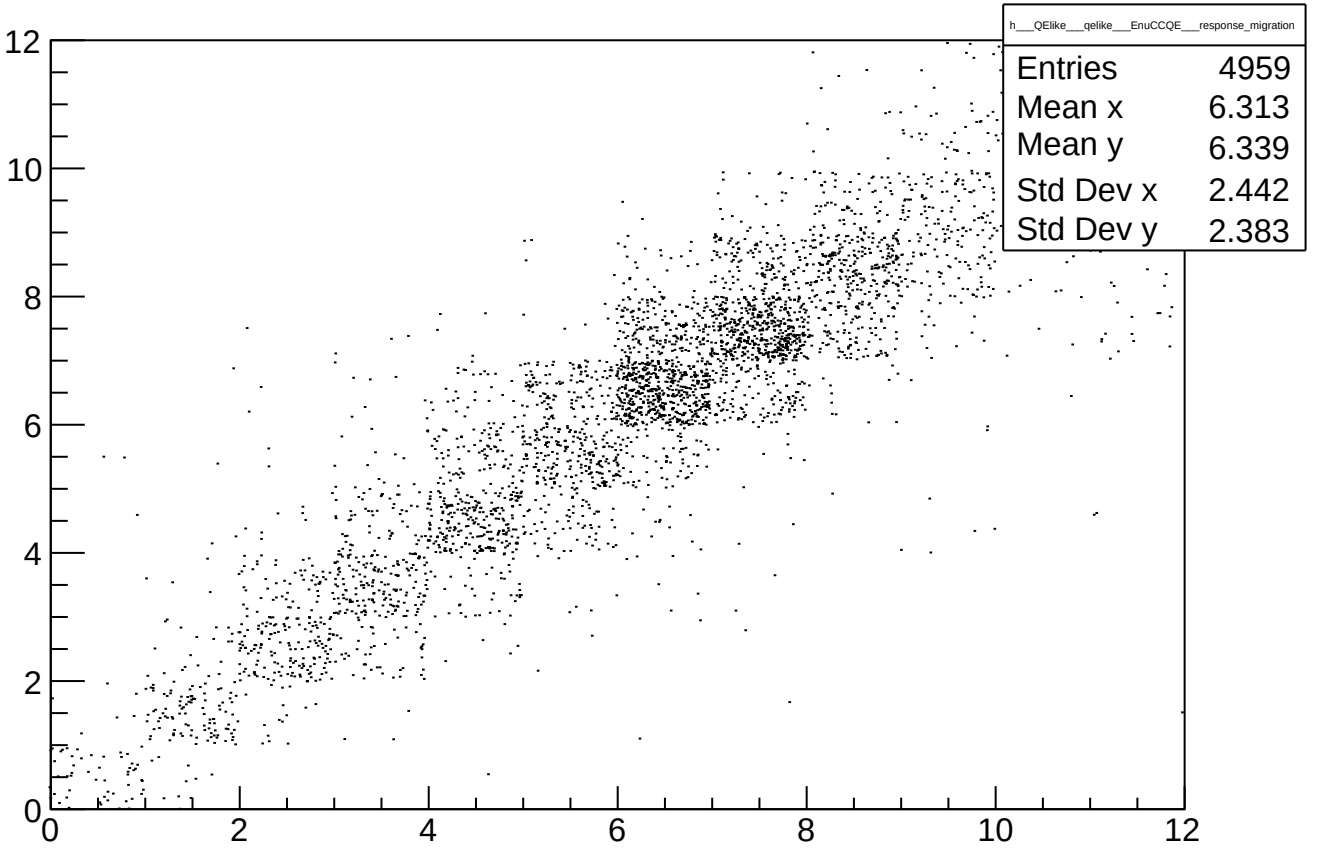

recoil
h___QElike___qelikenot___recoil___reconstructed
Entries 1177
Mean 0.1307
Std Dev 0.09726
120
100
80
60
40
20
0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
Recoil in GeV

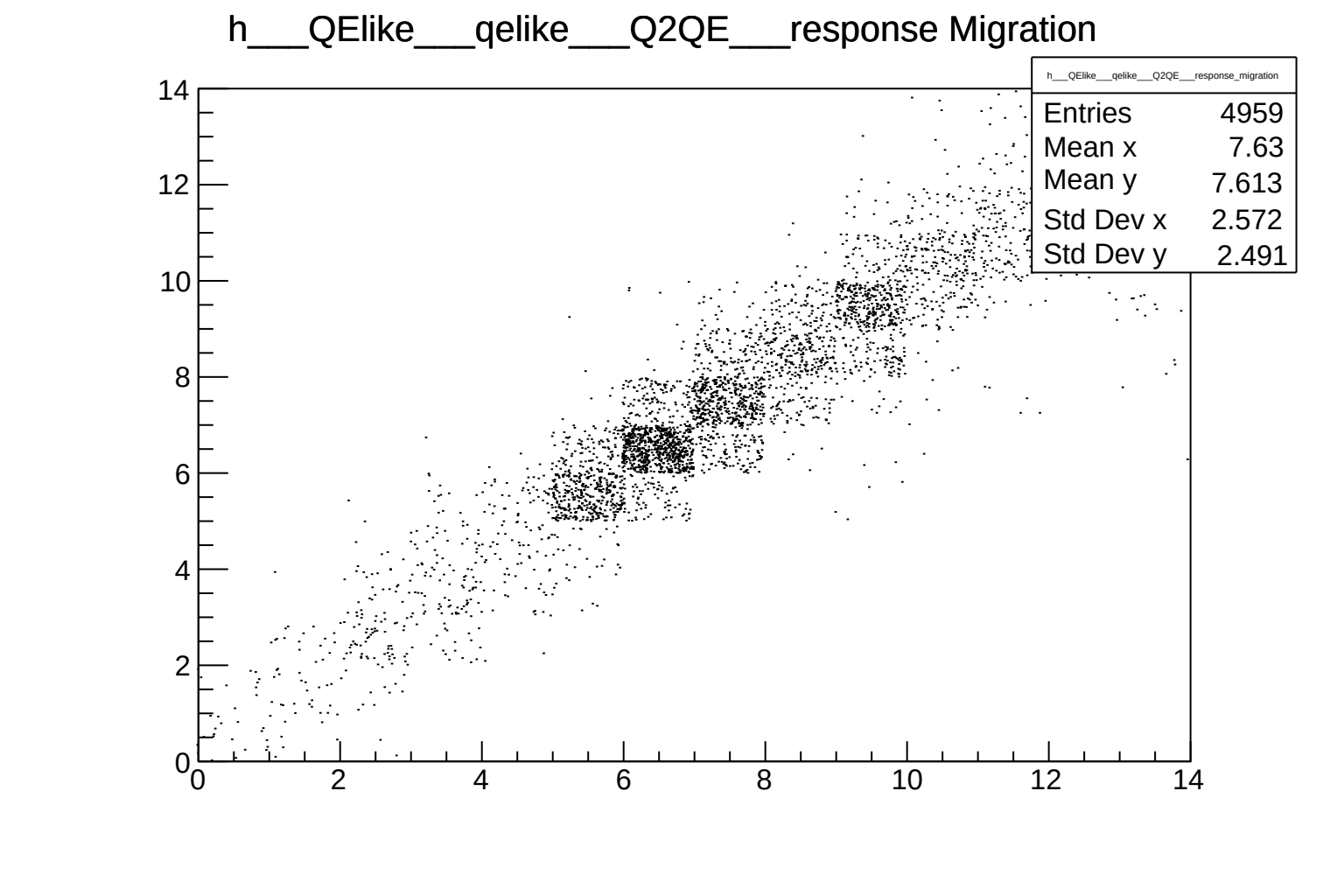

recoil
h___QElikeNot___data___recoil___reconstructed
Entries 98
Mean 0.3163
Std Dev 0.1132
0
1
2
3
4
5
6
7
8
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
Recoil in GeV

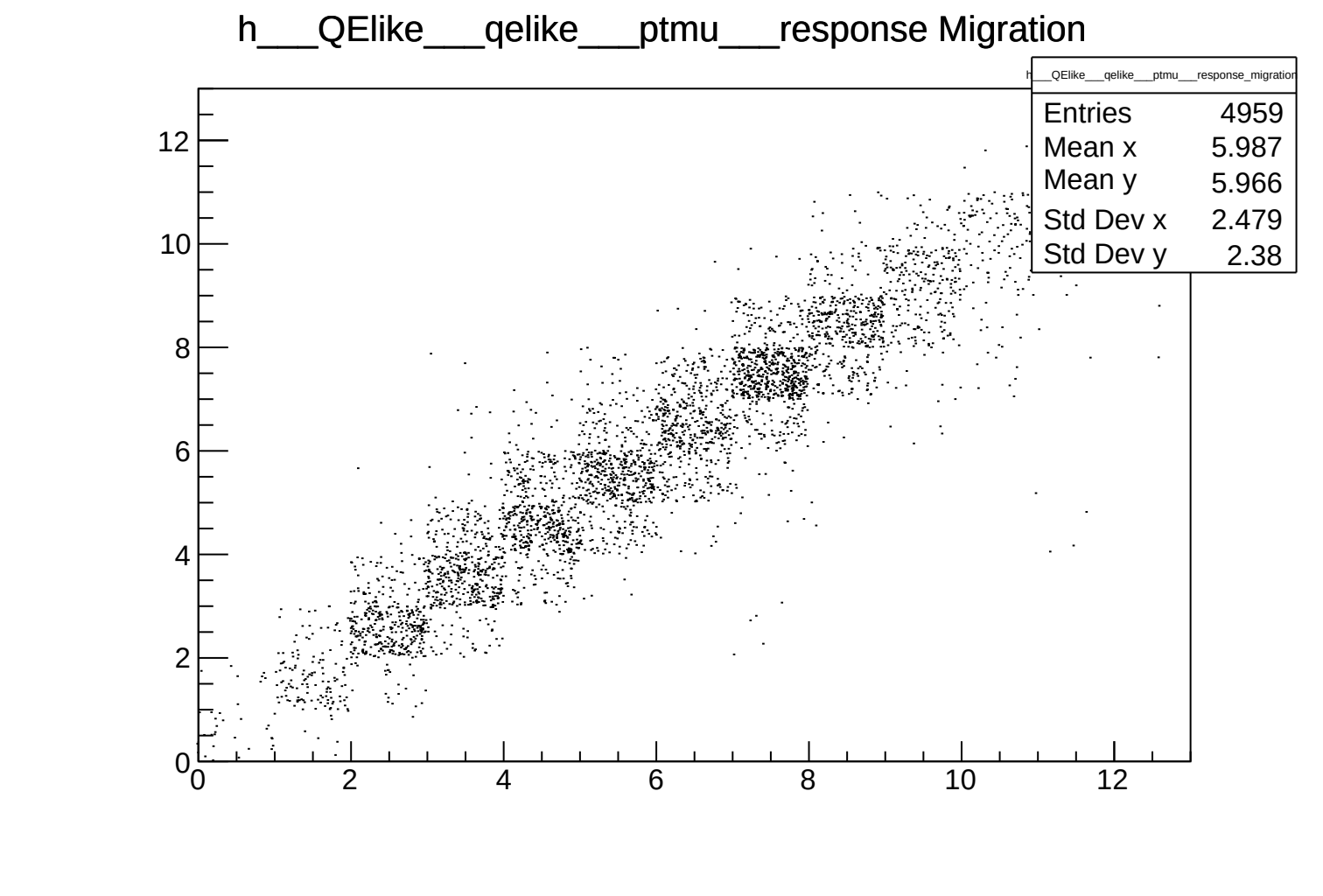

recoil
n___QElikeNot___qelike___recoil___reconstructed
Entries 861
Mean 0.2586
Std Dev 0.09634
70
60
50
40
30
20
10
0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
Recoil in GeV

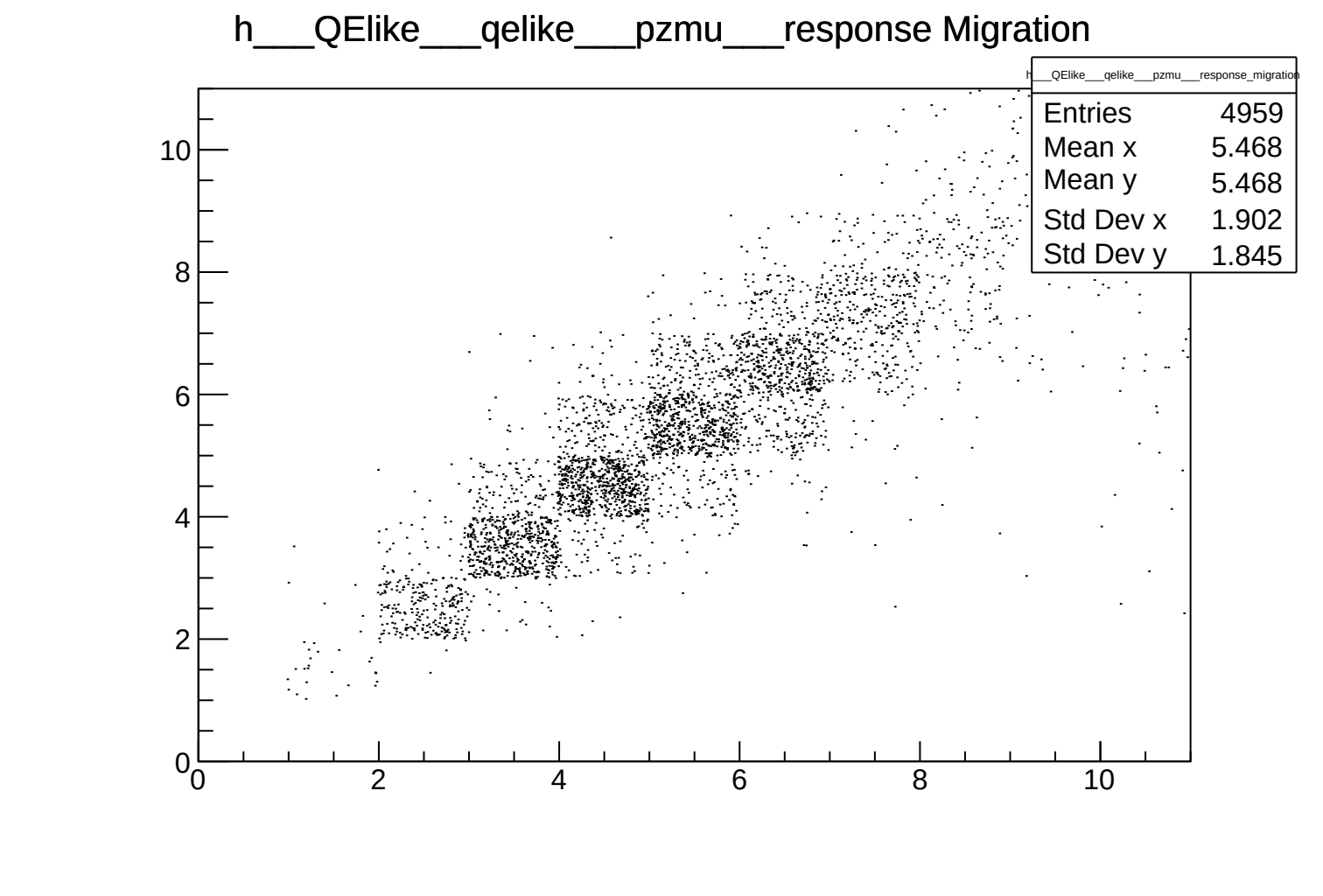

recoil
h___QElikeNot___qelikenot___recoil___reconstructed
Entries 3877
Mean 0.2995
Std Dev 0.1032
120
100
80
60
40
20
0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
Recoil in GeV

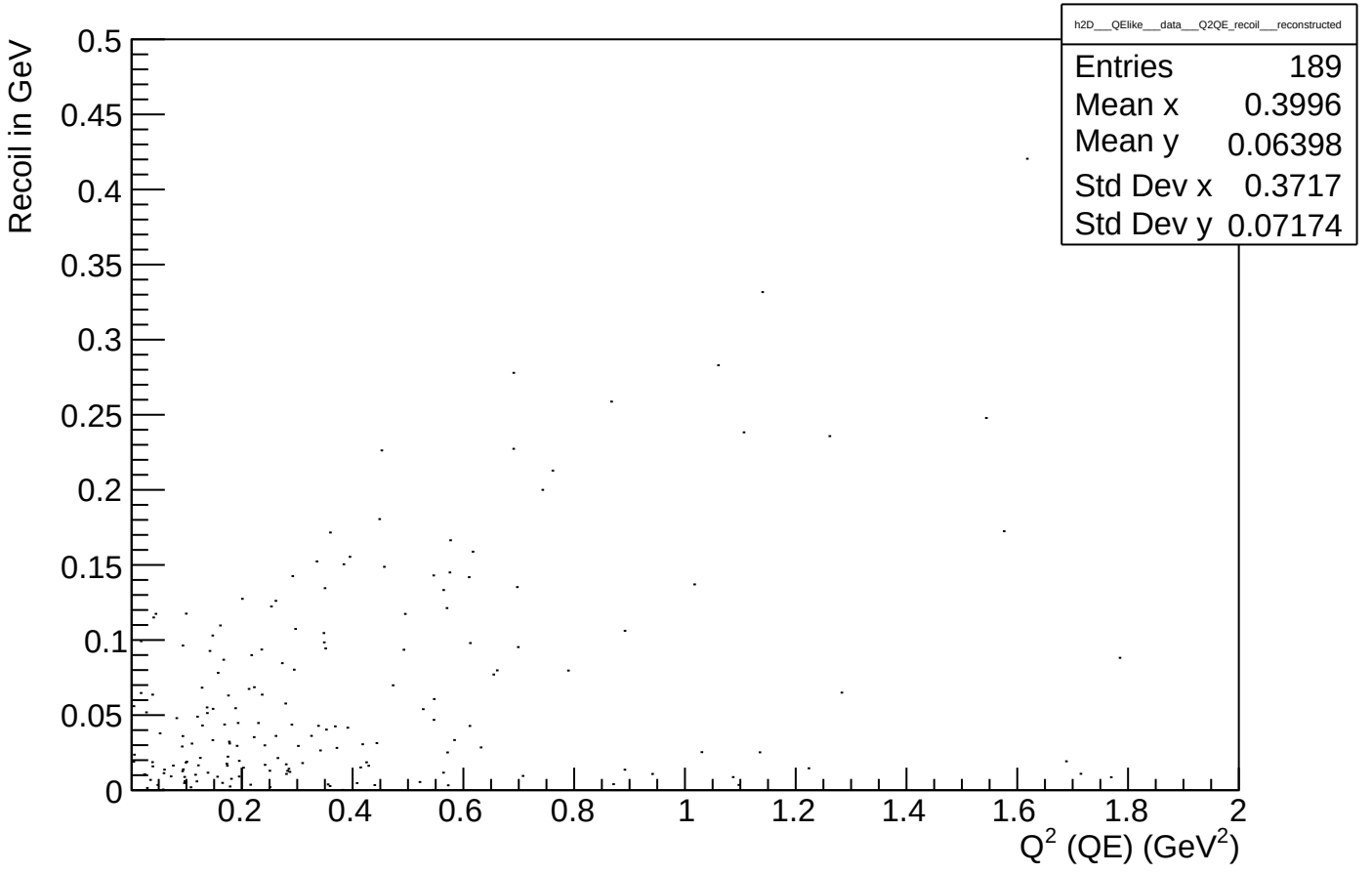

data, mc, Prescaled mc
×10^18
POT_summary
Entries 3
Mean 1.98
Std Dev 0.5252
20
18
16
14
12
10
8
6
4
2
0
0
0.5
1
1.5
2
2.5
3

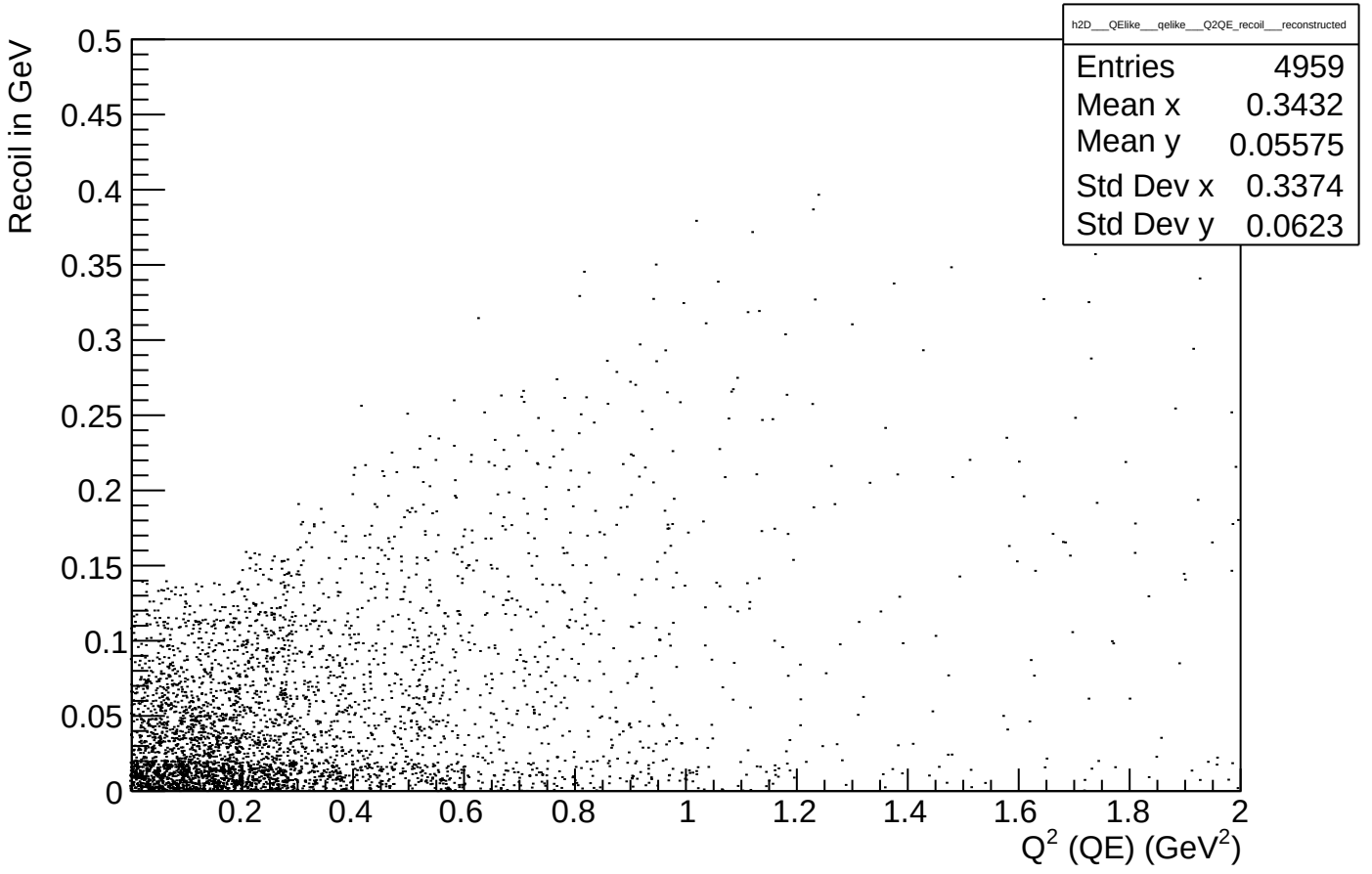

h___QElike___qelike___EnuCCQE___response Migration
h___QElike___qelike___EnuCCQE___response_migration
Entries 4959
Mean x 6.313
Mean y 6.339
Std Dev x 2.442
Std Dev y 2.383
0
2
4
6
8
10
12

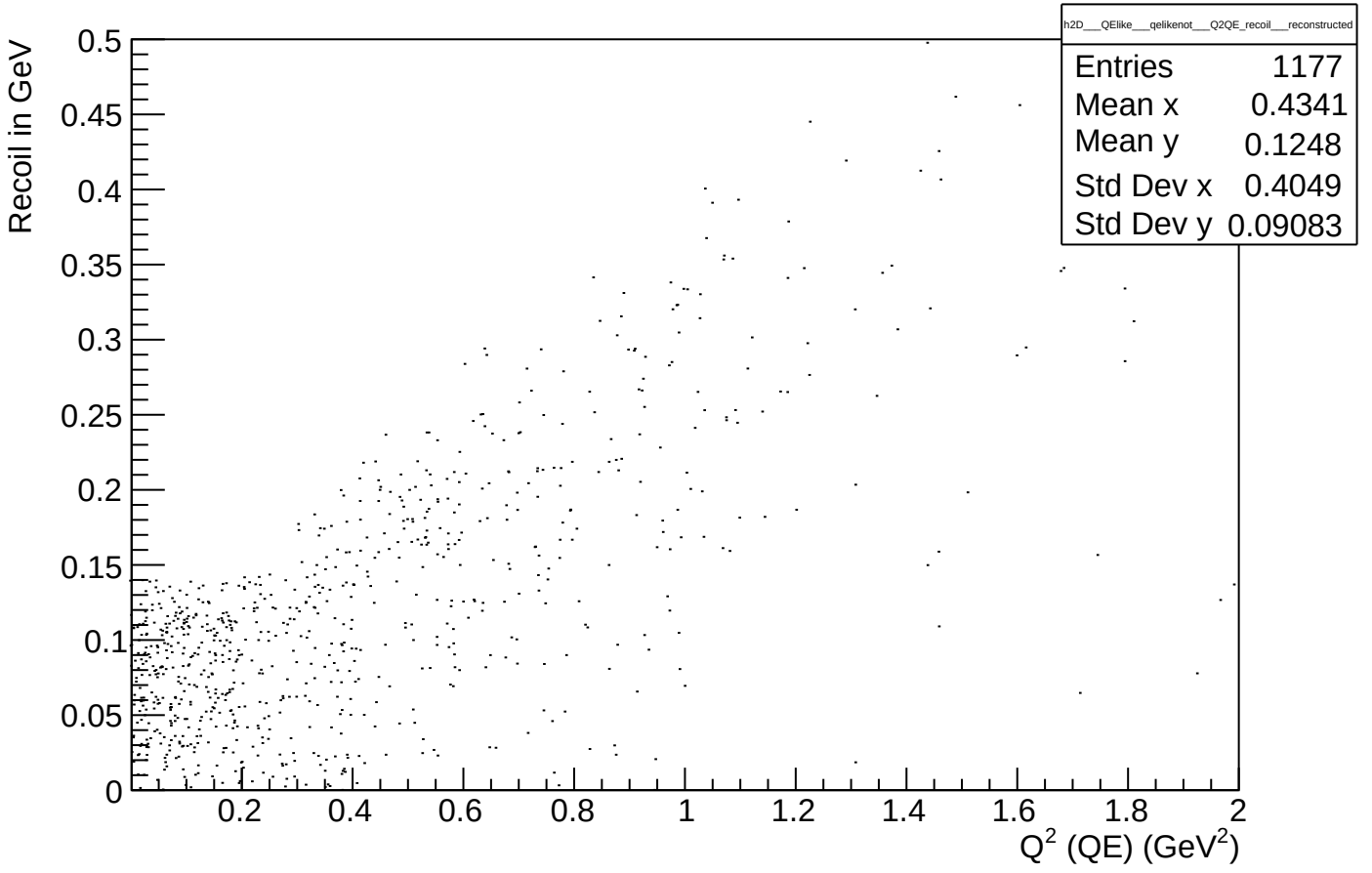

h___QElike___qelike___Q2QE___response Migration
h___QElike___qelike___Q2QE___response_migration
Entries 4959
Mean x 7.63
Mean y 7.613
Std Dev x 2.572
Std Dev y 2.491
0
2
4
6
8
10
12
14

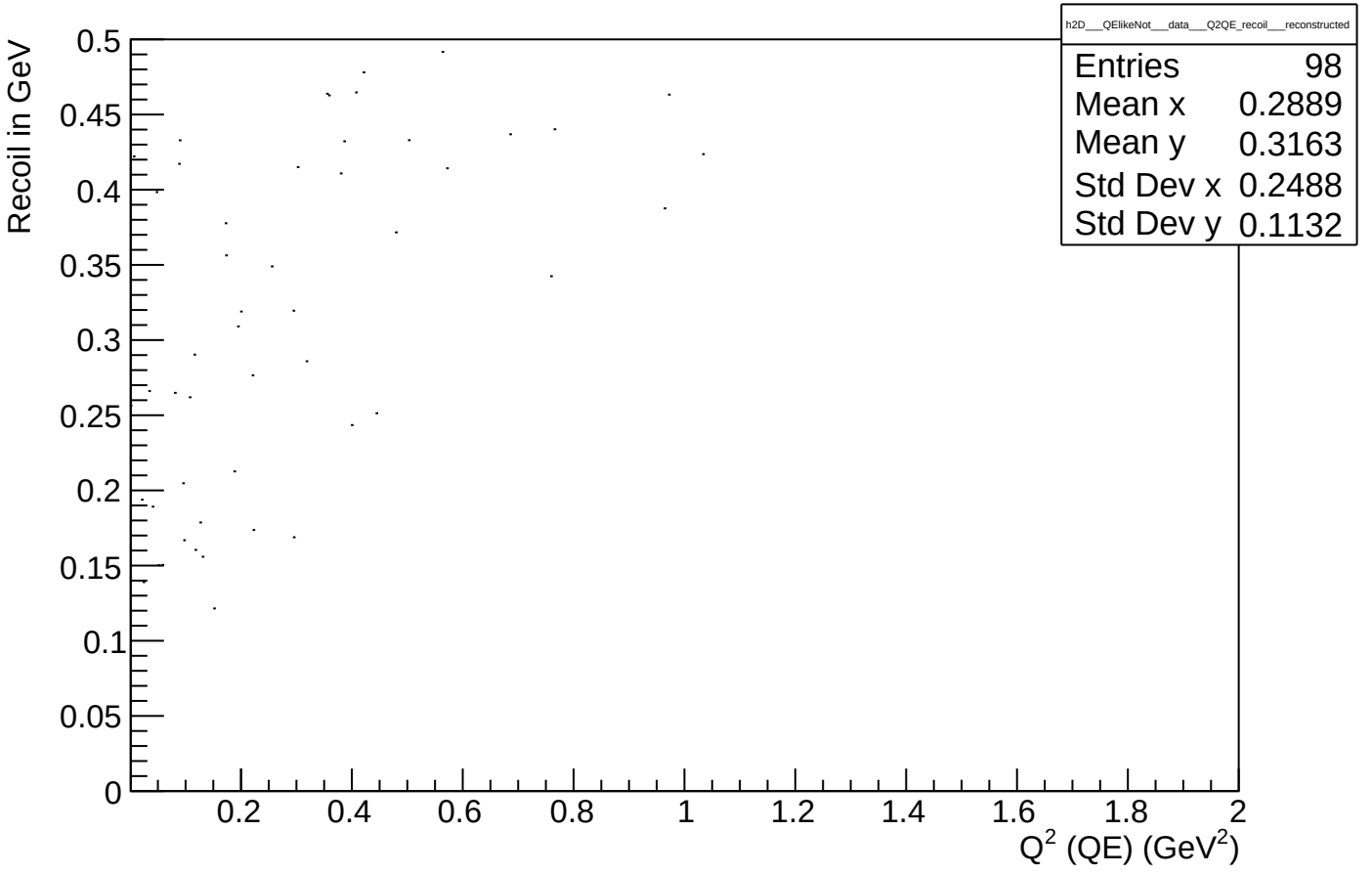

h___QElike___qelike___ptmu___response Migration
h___QElike___qelike___ptmu___response_migration
Entries 4959
Mean x 5.987
Mean y 5.966
Std Dev x 2.479
Std Dev y 2.38
0
2
4
6
8
10
12

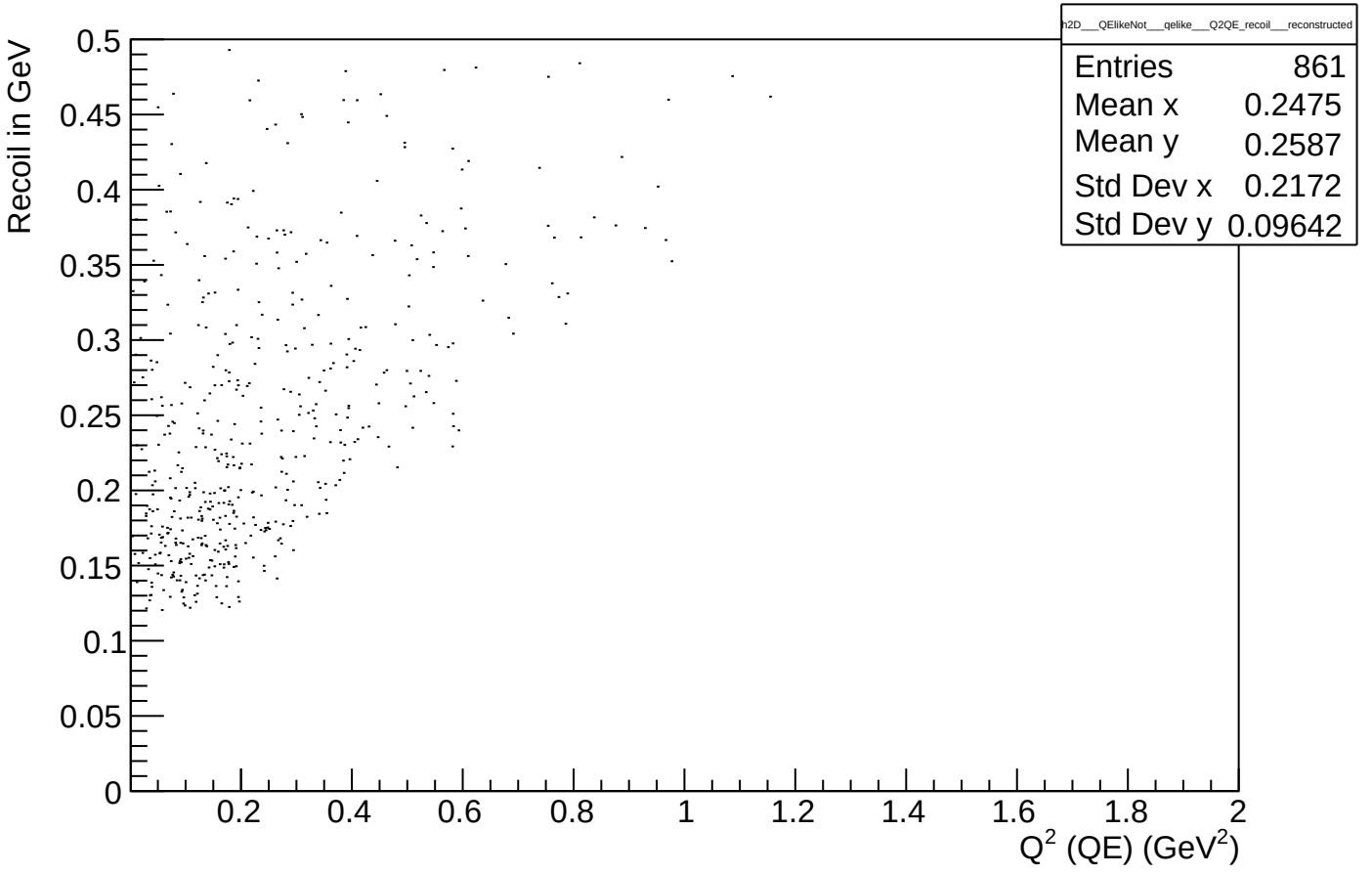

h___QElike___qelike___pzmu___response Migration
h___QElike___qelike___pzmu___response_migration
Entries 4959
Mean x 5.468
Mean y 5.468
Std Dev x 1.902
Std Dev y 1.845
0
2
4
6
8
10

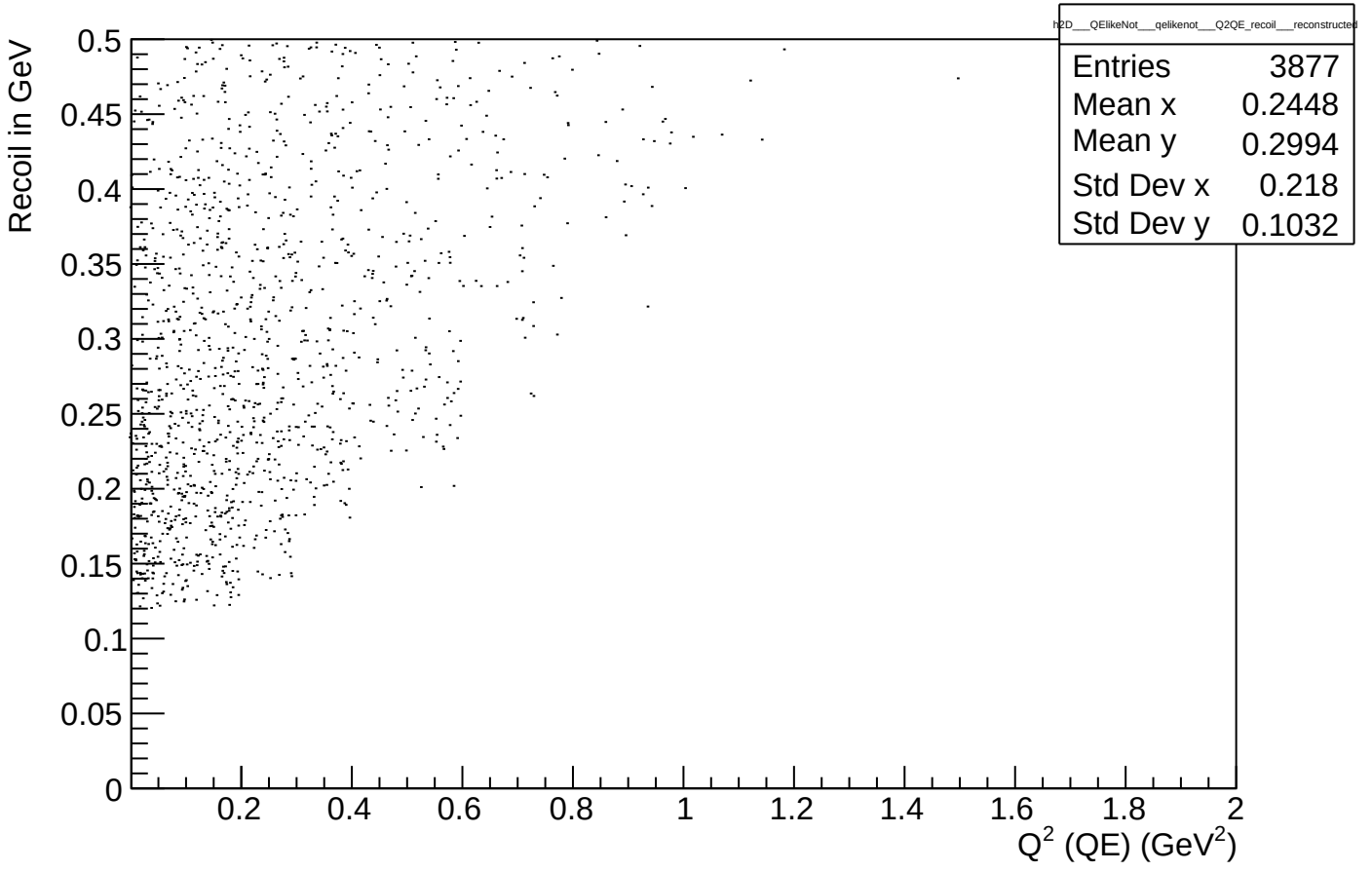

Q2QE_recoil
h2D___QElike___data___Q2QE_recoil___reconstructed
Entries 189
Mean x 0.3996
Mean y 0.06398
Std Dev x 0.3717
Std Dev y 0.07174
Recoil in GeV
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Q2 (QE) (GeV2)

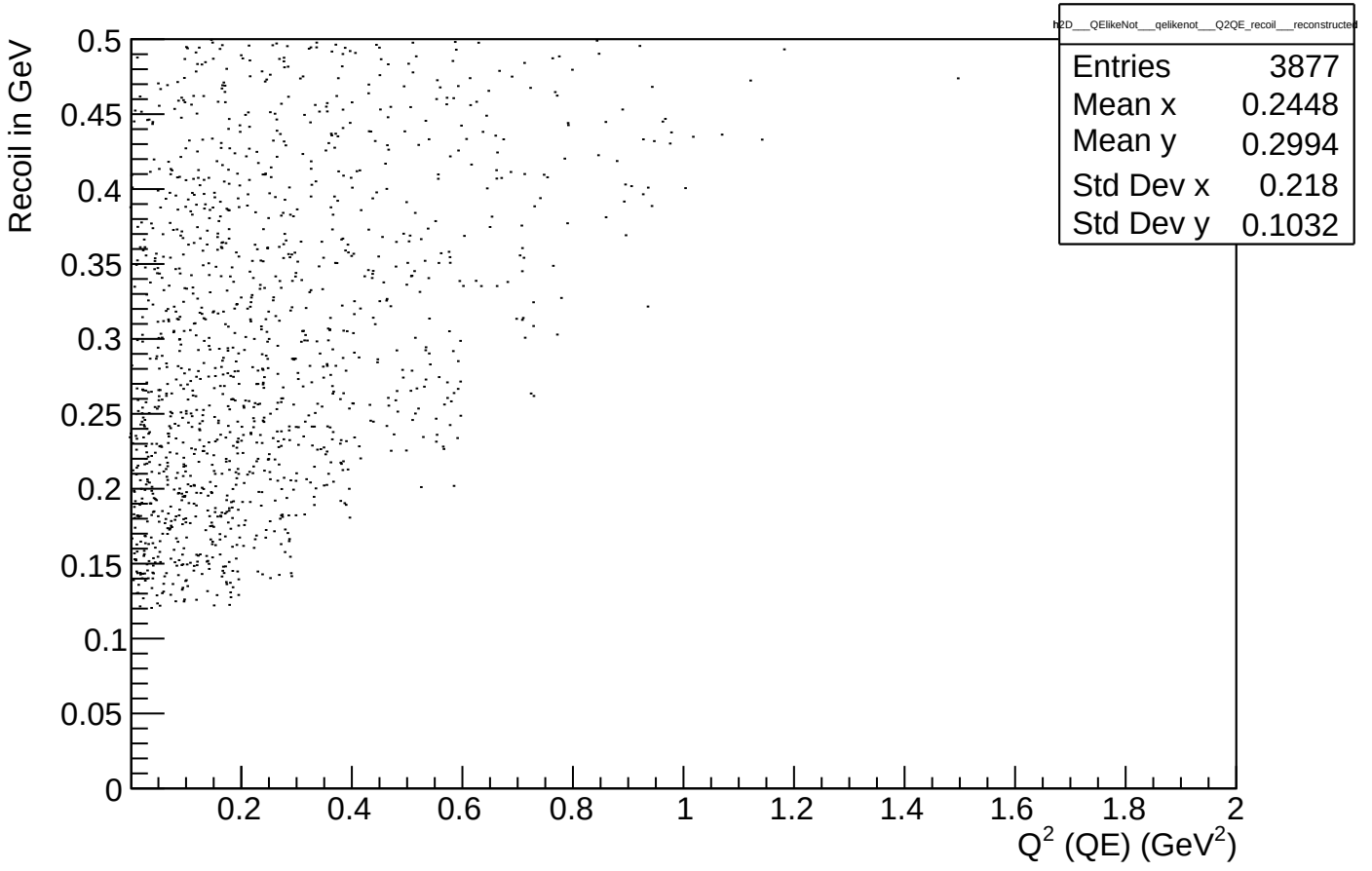

Q2QE_recoil
h2D___QElike___qelike___Q2QE_recoil___reconstructed
Entries 4959
Mean x 0.3432
Mean y 0.05575
Std Dev x 0.3374
Std Dev y 0.0623
Recoil in GeV
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Q2 (QE) (GeV2)


Q2QE_recoil
h2D___QElike___qelikenot___Q2QE_recoil___reconstructed
Entries 1177
Mean x 0.4341
Mean y 0.1248
Std Dev x 0.4049
Std Dev y 0.09083
Recoil in GeV
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Q2 (QE) (GeV2)


Q2QE_recoil
h2D___QElikeNot___data___Q2QE_recoil___reconstructed
Entries 98
Mean x 0.2889
Mean y 0.3163
Std Dev x 0.2488
Std Dev y 0.1132
Recoil in GeV
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Q2 (QE) (GeV2)


Q2QE_recoil
h2D___QElikeNot___qelike___Q2QE_recoil___reconstructed
Entries 861
Mean x 0.2475
Mean y 0.2587
Std Dev x 0.2172
Std Dev y 0.09642
Recoil in GeV
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Q2 (QE) (GeV2)


Q2QE_recoil
h2D___QElikeNot___qelikenot___Q2QE_recoil___reconstructed
Entries 3877
Mean x 0.2448
Mean y 0.2994
Std Dev x 0.218
Std Dev y 0.1032
Recoil in GeV
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Q2 (QE) (GeV2)


Q2QE_recoil
h2D___QElikeNot___qelikenot___Q2QE_recoil___reconstructed
Entries 3877
Mean x 0.2448
Mean y 0.2994
Std Dev x 0.218
Std Dev y 0.1032
Recoil in GeV
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Q2 (QE) (GeV2)