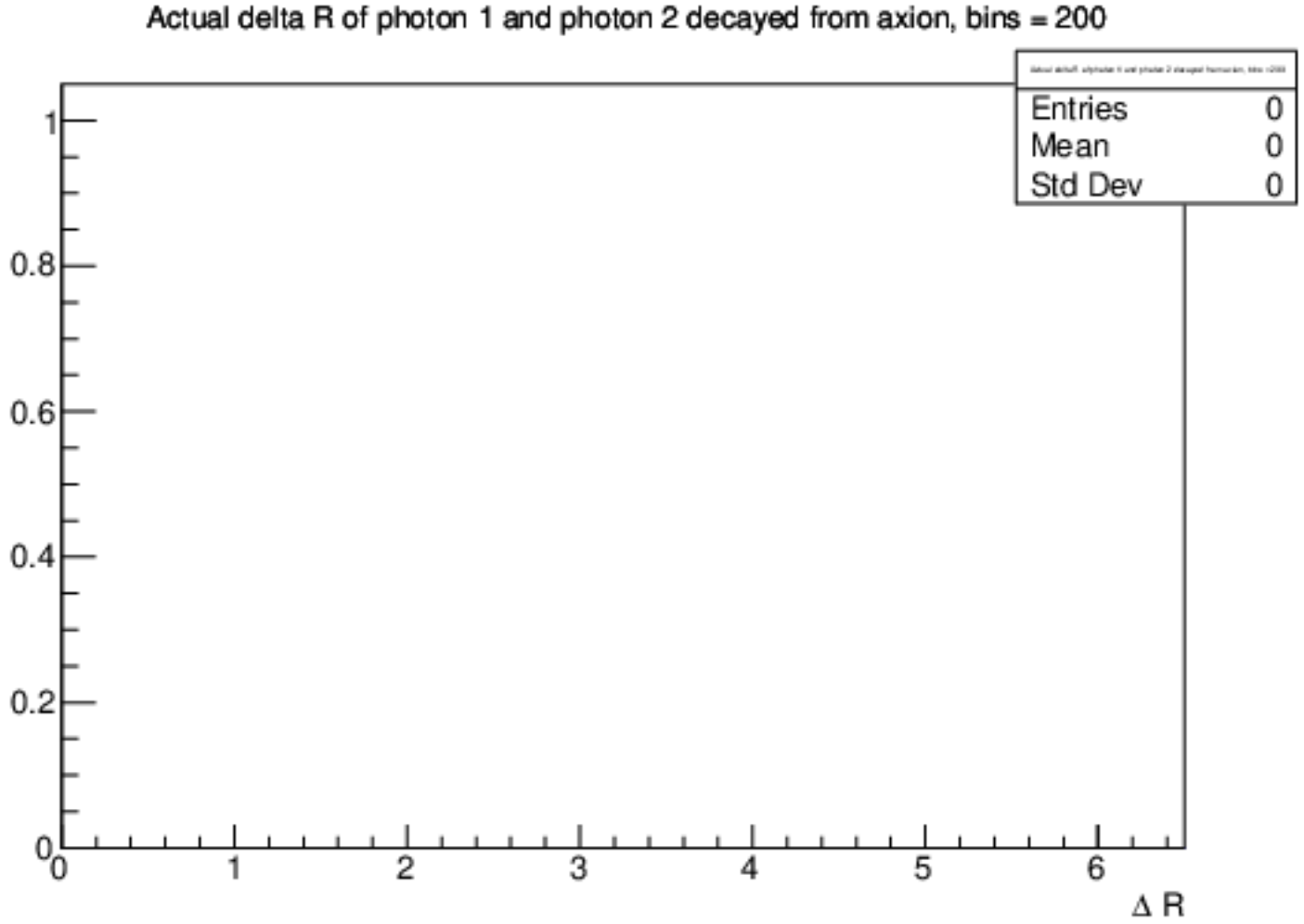
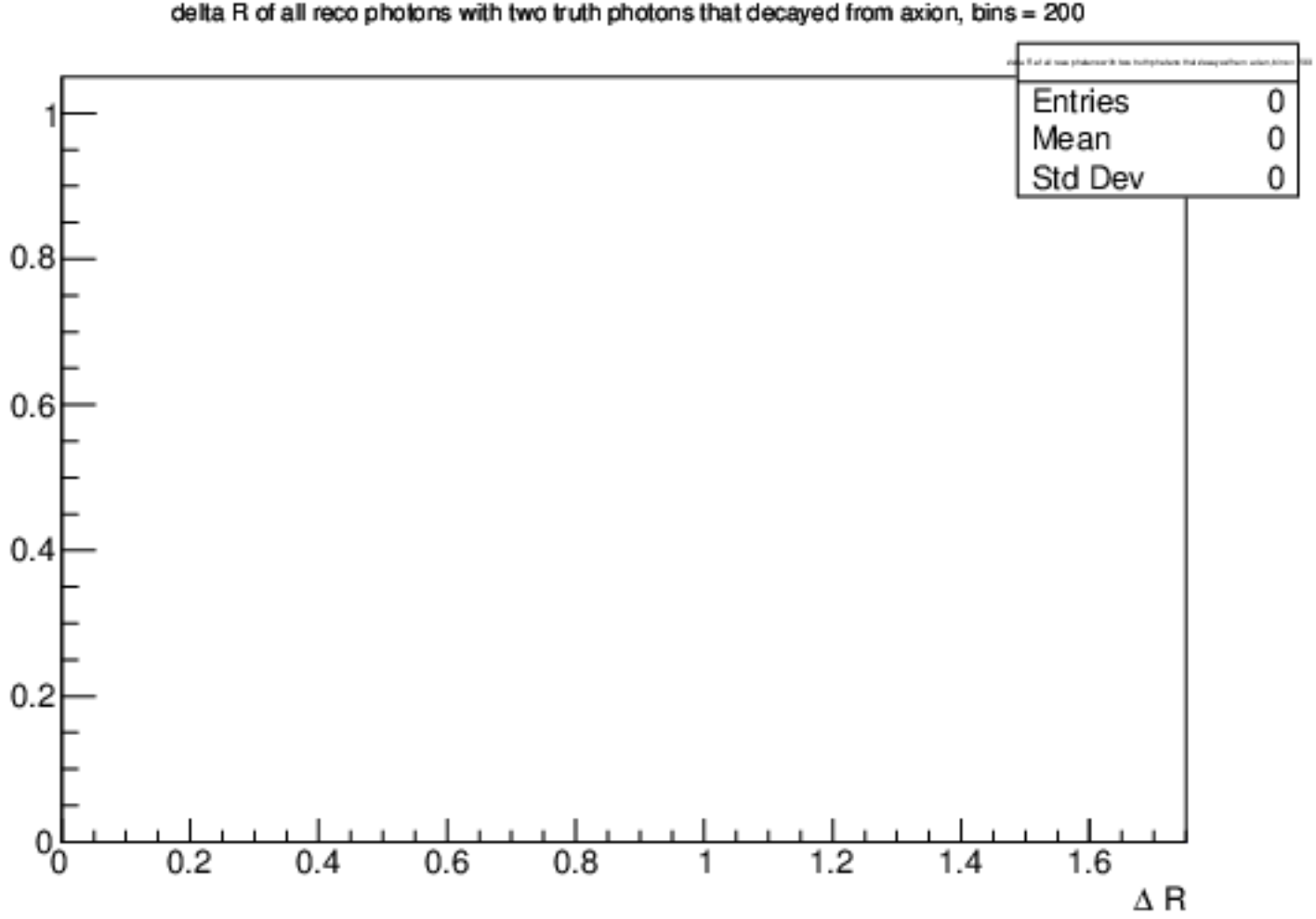
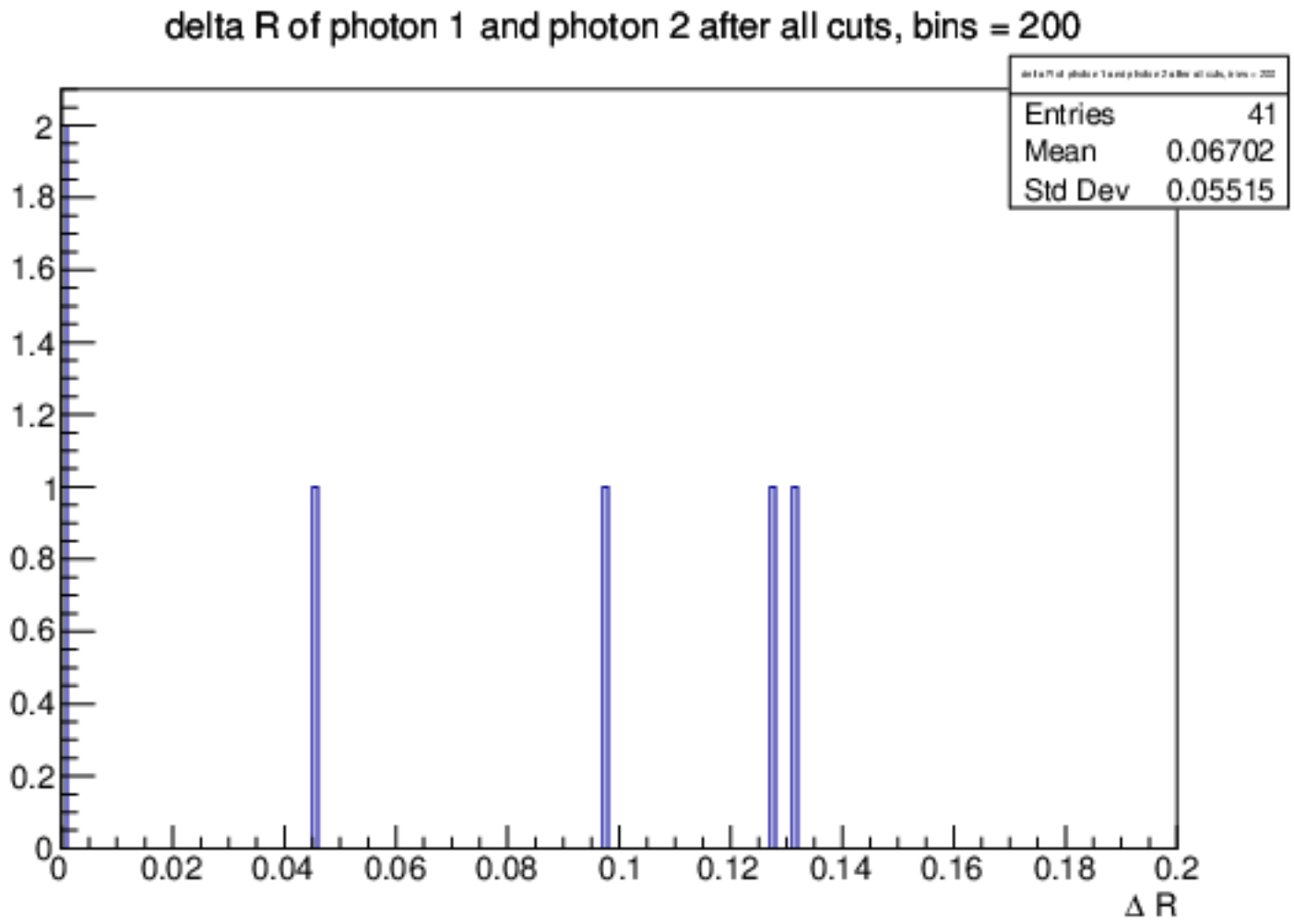
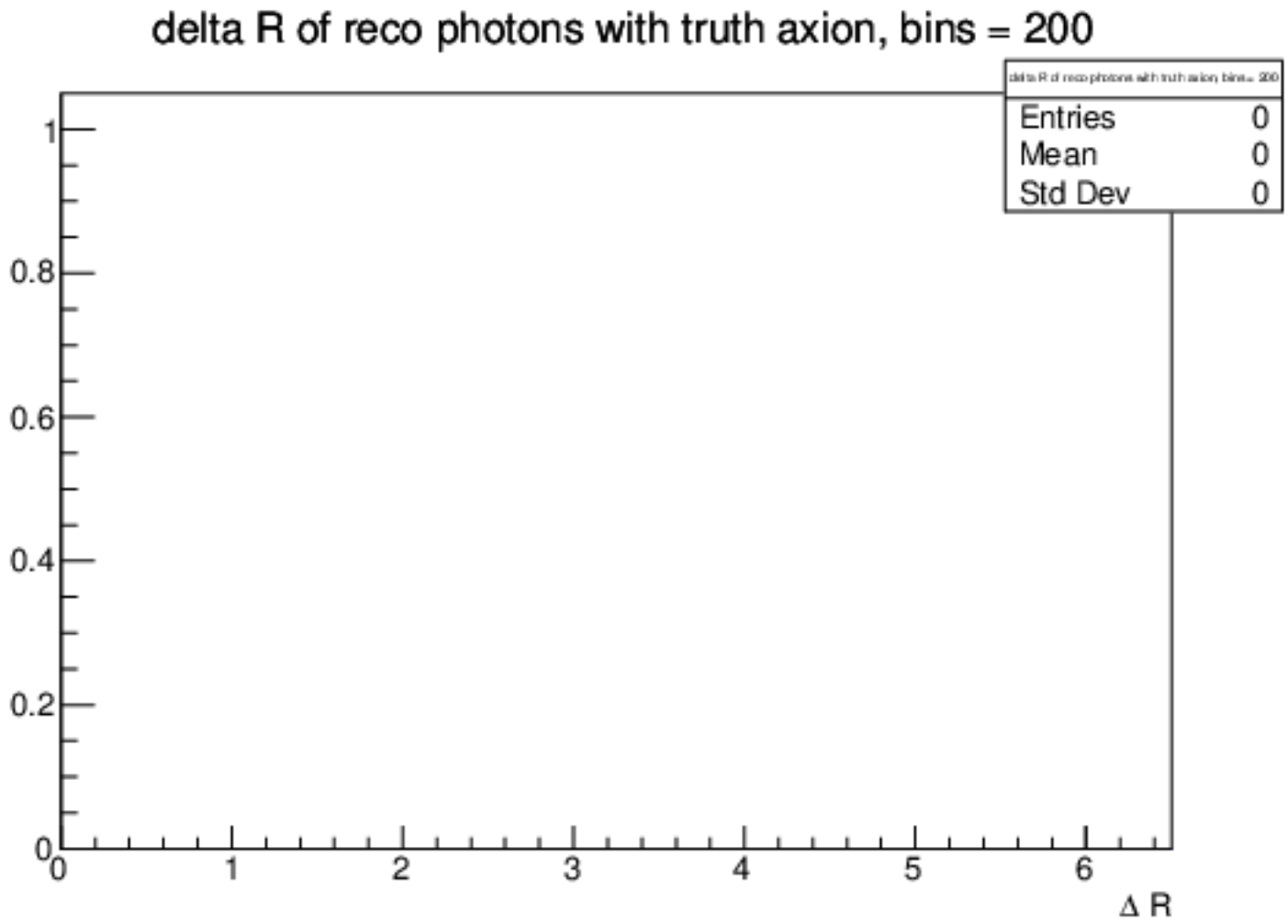
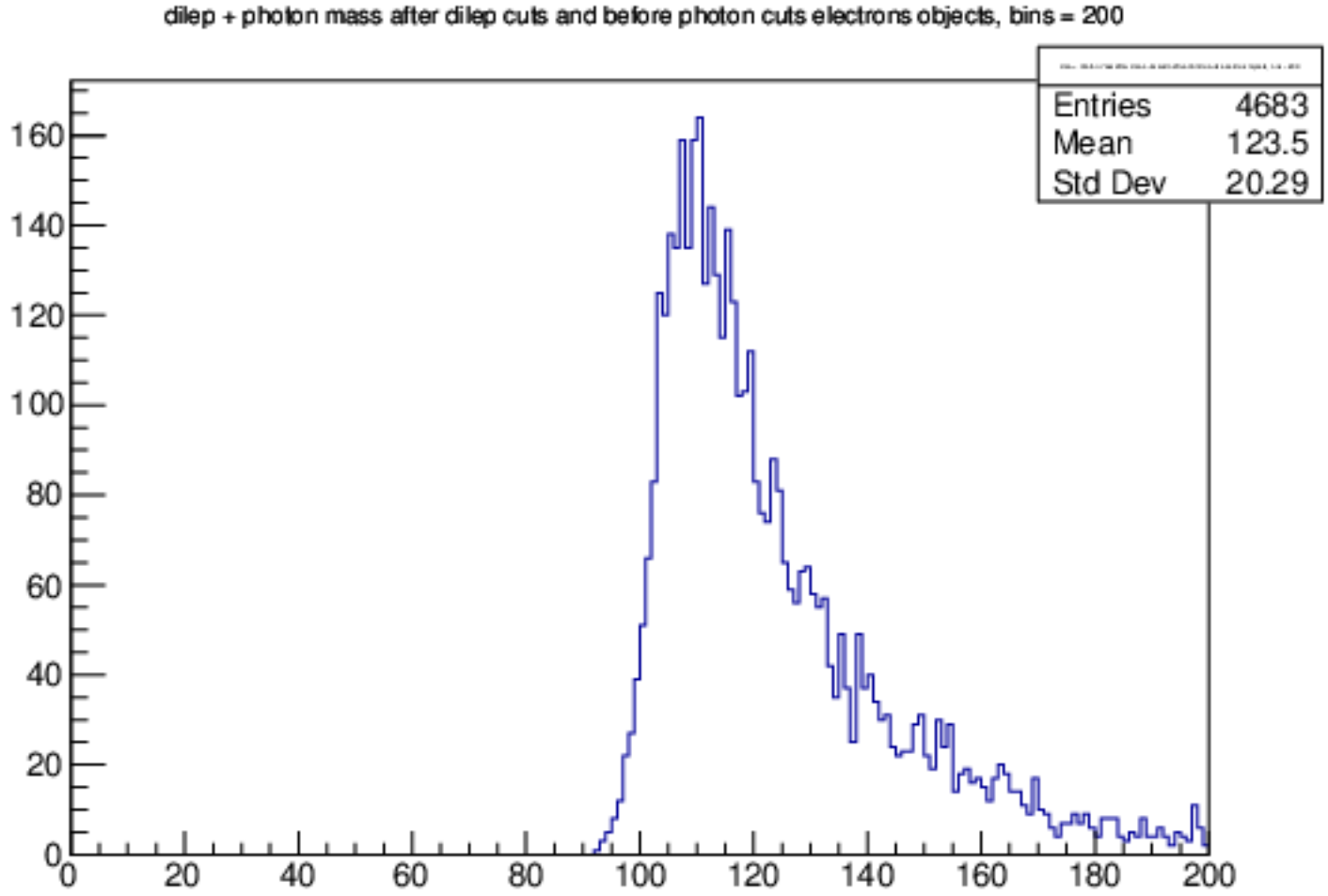
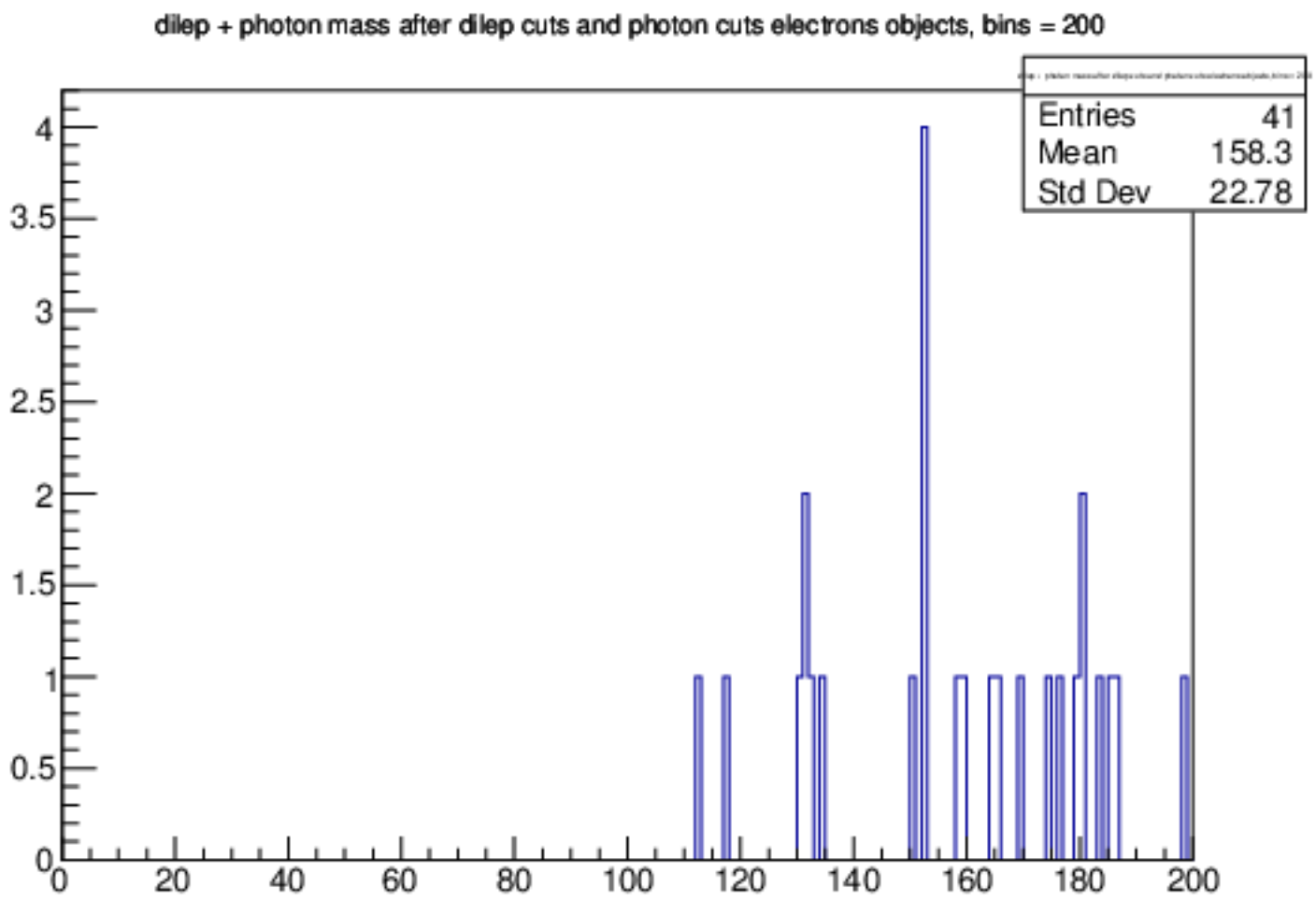

Actual delta R of photon 1 and photon 2 decayed from axion, bins = 200
Entries 0
Mean 0
Std Dev 0
1
0.8
0.6
0.4
0.2
0
0
1
2
3
4
5
6
Δ R

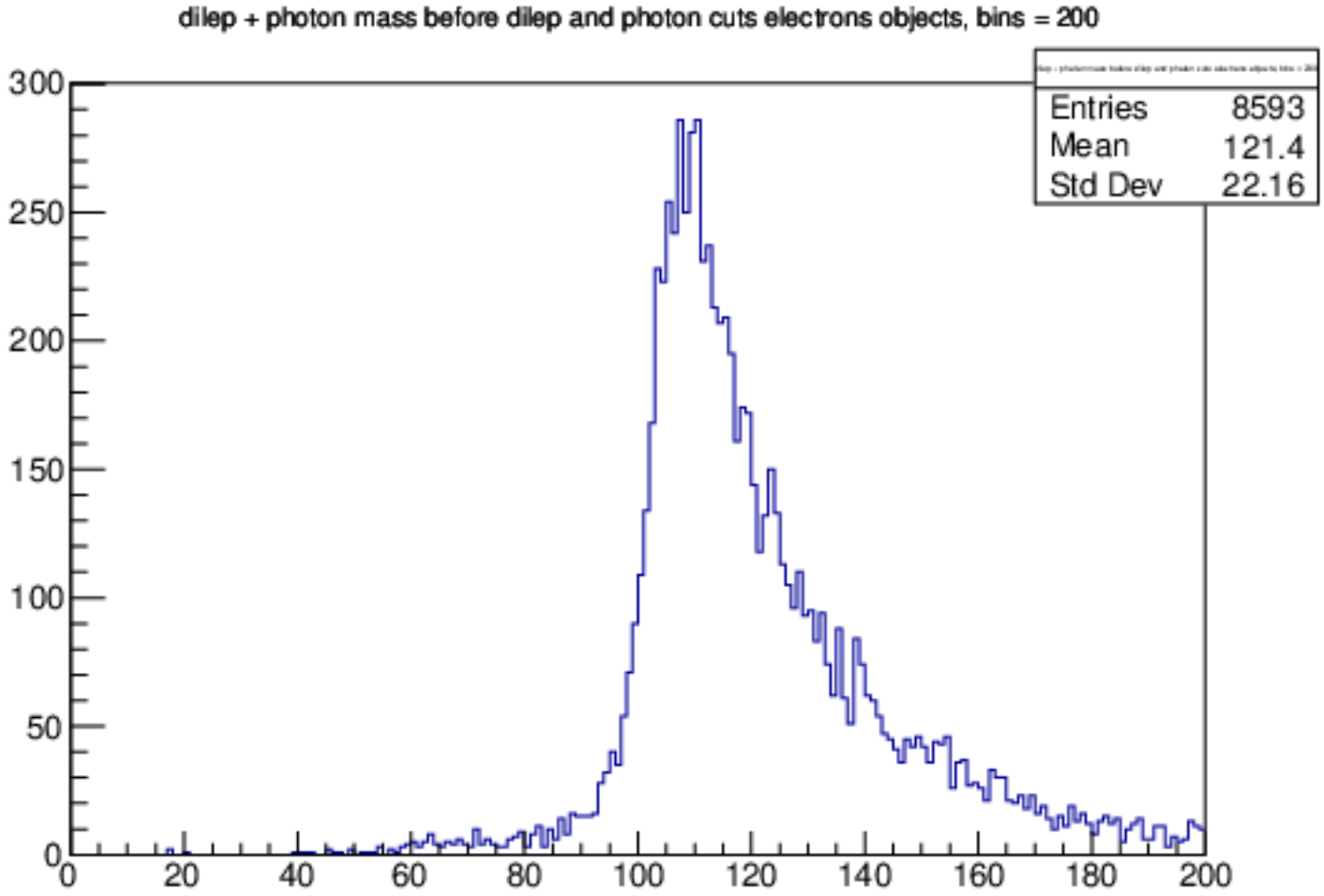

delta R of all reco photons with two truth photons that decayed from axion, bins = 200
Entries 0
Mean 0
Std Dev 0
1
0.8
0.6
0.4
0.2
0
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
Δ R

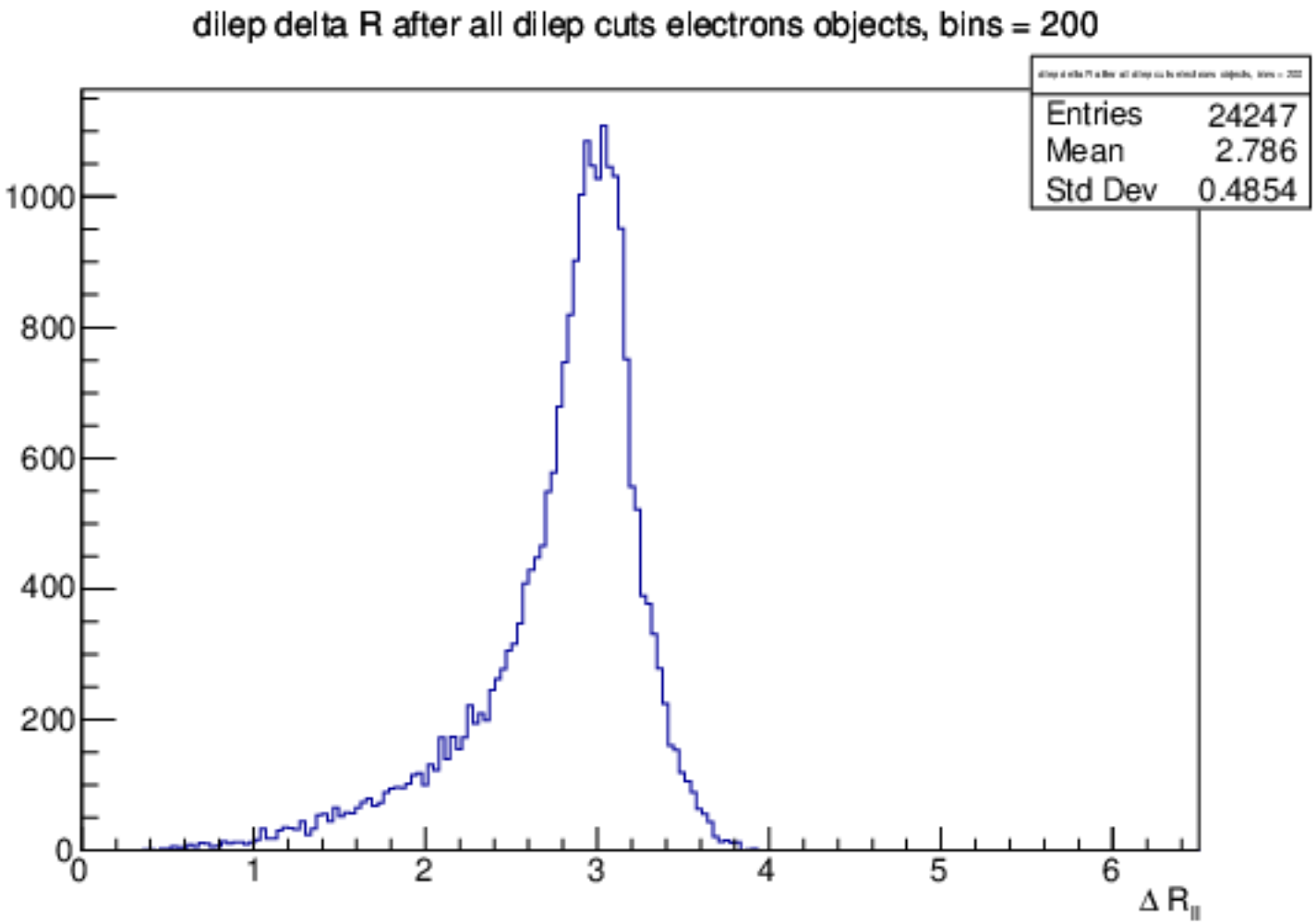

delta R of photon 1 and photon 2 after all cuts, bins = 200
Entries 41
Mean 0.06702
Std Dev 0.05515
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0 0.02 0.04 0.06 0.08 0.1 0.12 0.14 0.16 0.18 0.2
Δ R

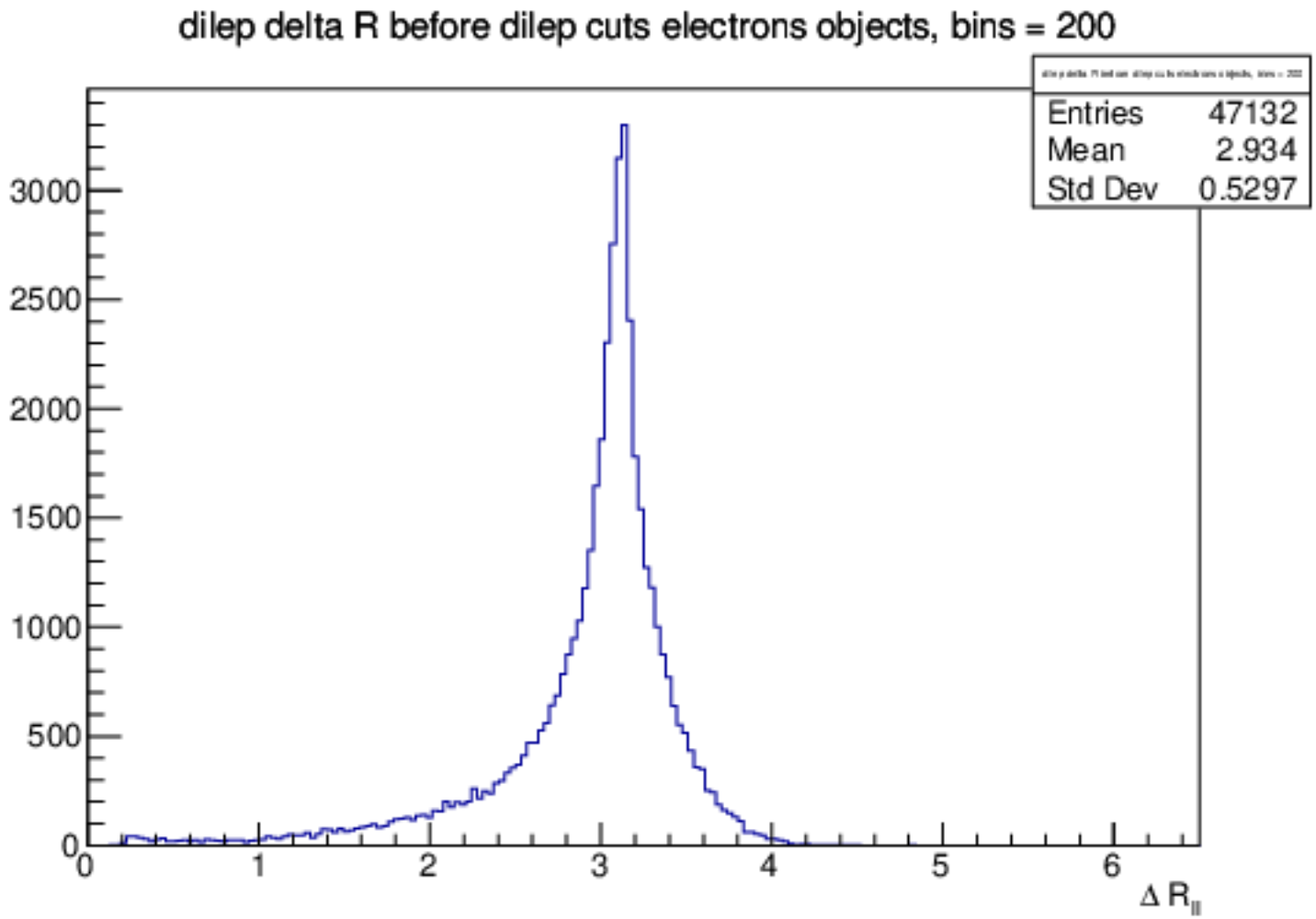

delta R of reco photons with truth axion, bins = 200
delta R of reco photons with truth axion, bins = 200
Entries 0
Mean 0
Std Dev 0
1
0.8
0.6
0.4
0.2
0
0
1
2
3
4
5
6
Δ R

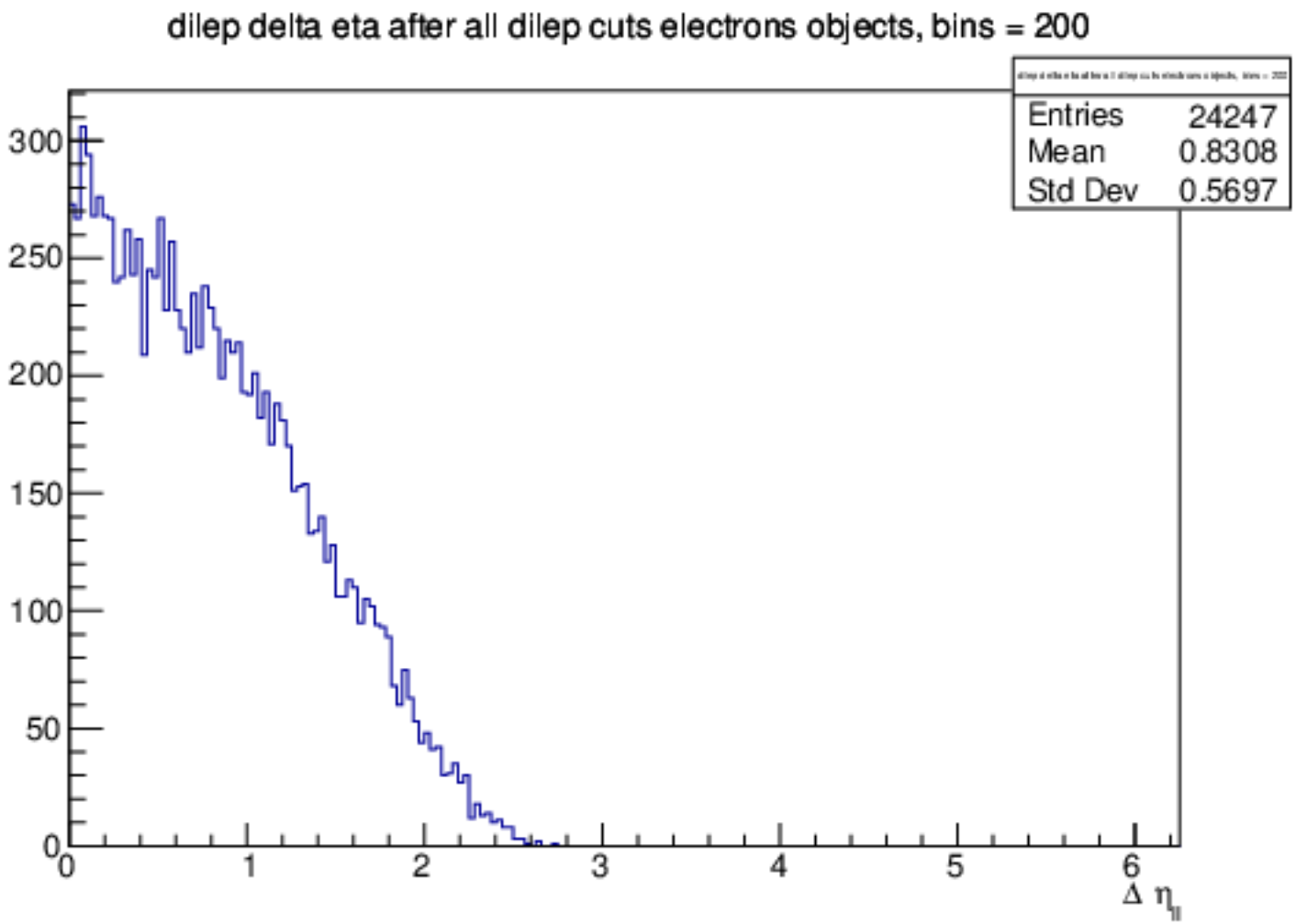

dilep + photon mass after dilep cuts and before photon cuts electrons objects, bins = 200
Entries 4683
Mean 123.5
Std Dev 20.29
0
20
40
60
80
100
120
140
160
180
200

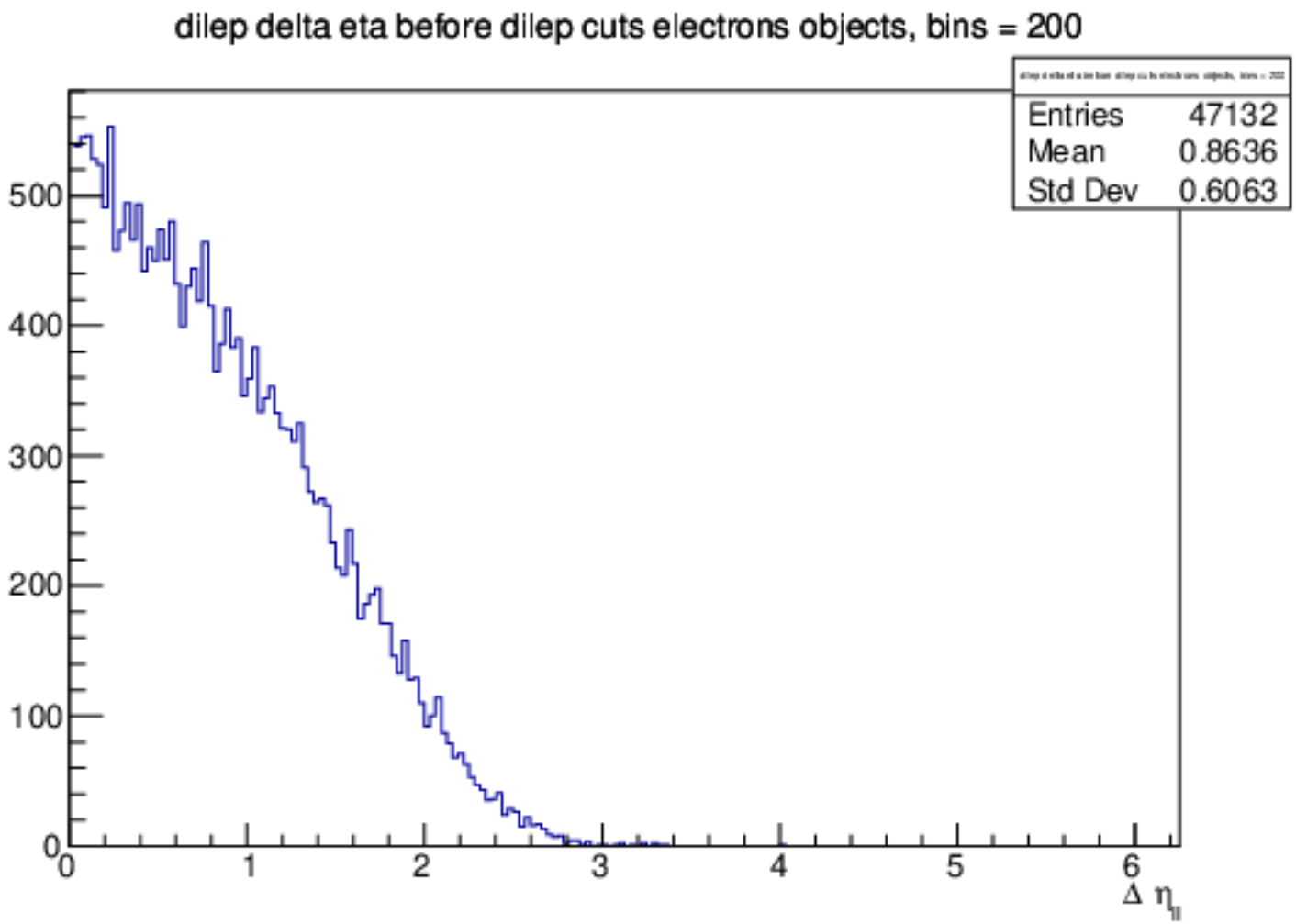

dilep + photon mass after dilep cuts and photon cuts electrons objects, bins = 200
Entries 41
Mean 158.3
Std Dev 22.78
0
0.5
1
1.5
2
2.5
3
3.5
4
0
20
40
60
80
100
120
140
160
180
200

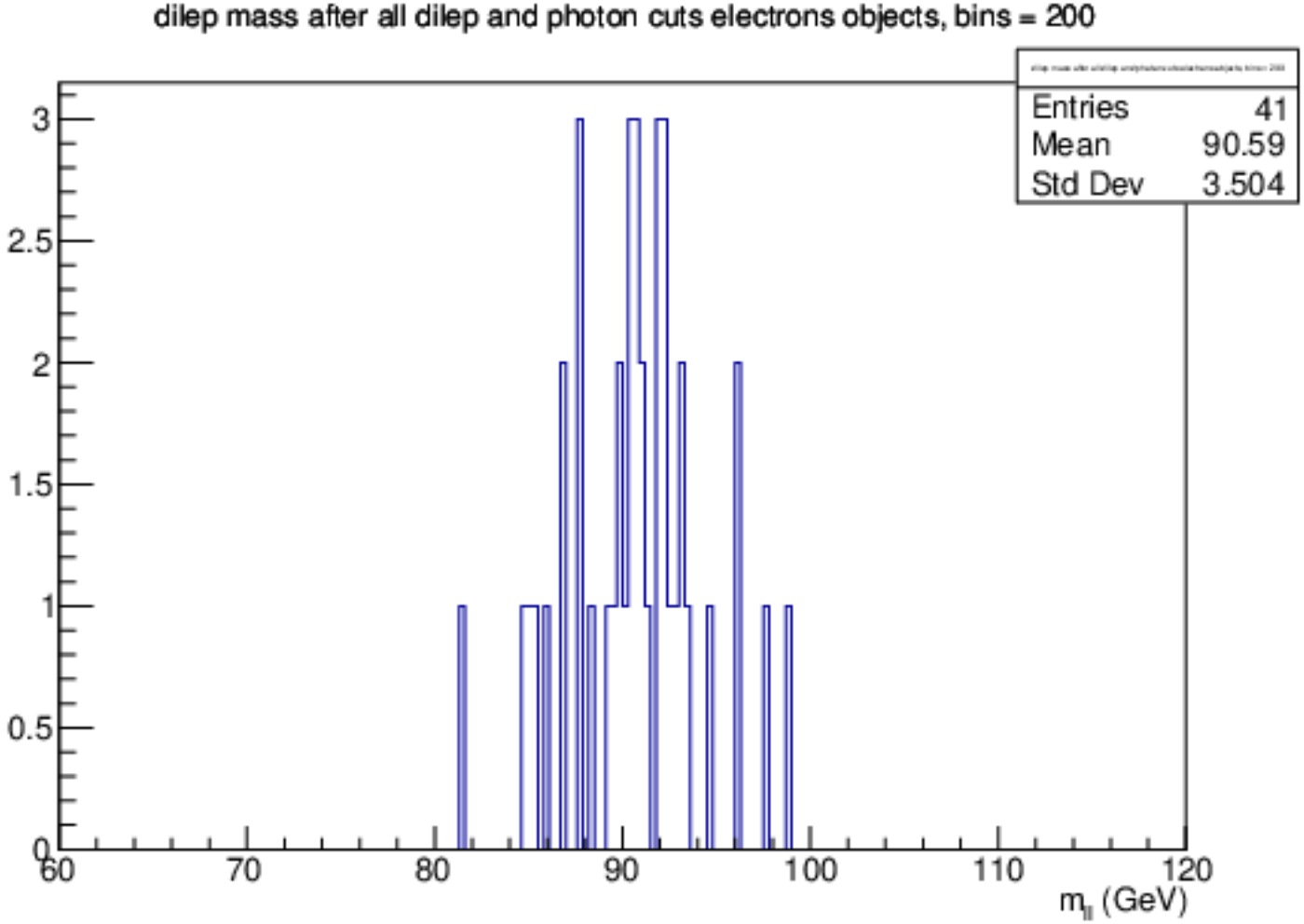

dilep + photon mass before dilep and photon cuts electrons objects, bins = 200
Entries 8593
Mean 121.4
Std Dev 22.16
300
250
200
150
100
50
0
0
20
40
60
80
100
120
140
160
180
200

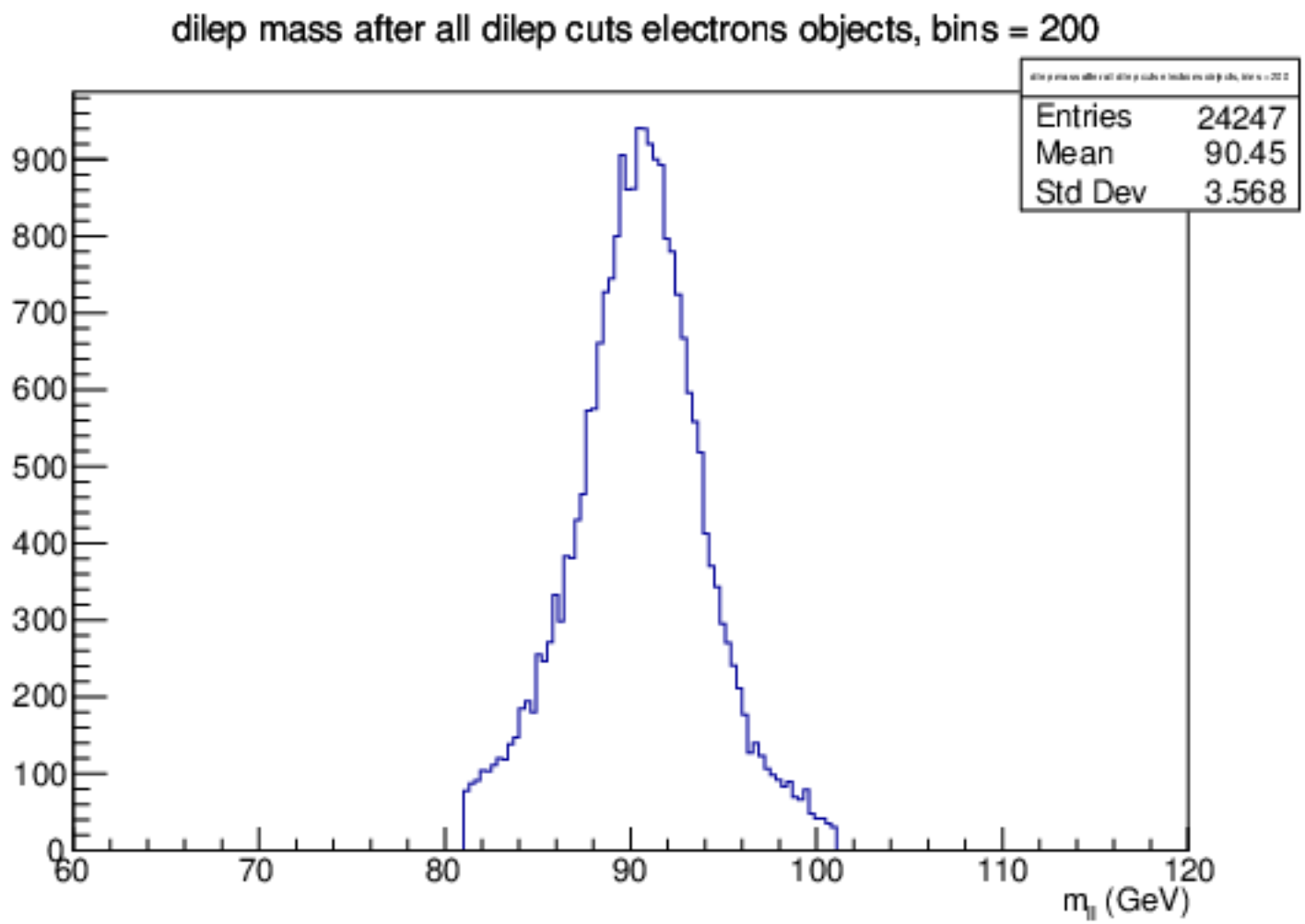

dilep delta R after all dilep cuts electrons objects, bins = 200
Entries 24247
Mean 2.786
Std Dev 0.4854
1000
800
600
400
200
0
0
1
2
3
4
5
6
Δ R_ll

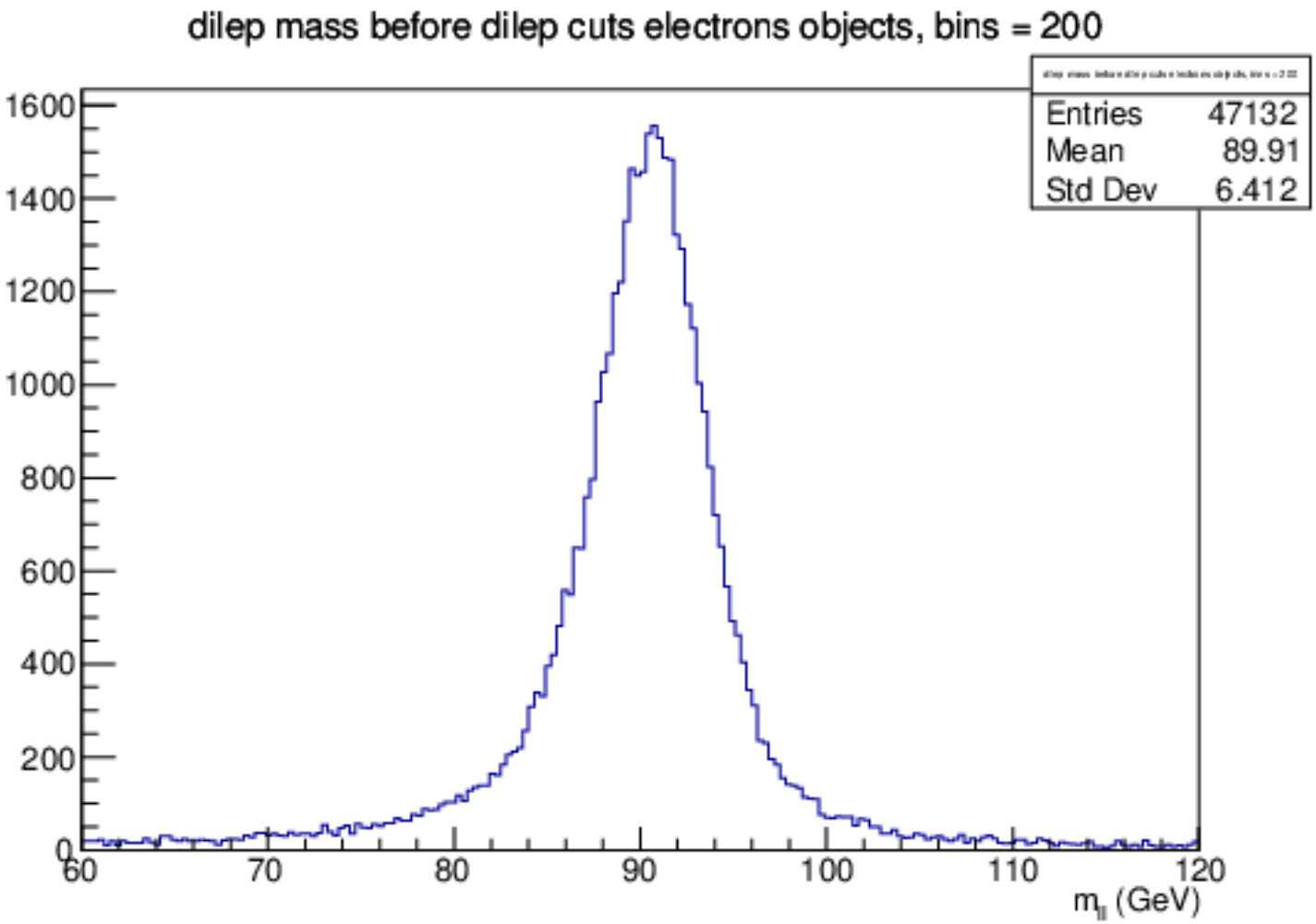

dilep delta R before dilep cuts electrons objects, bins = 200
Entries 47132
Mean 2.934
Std Dev 0.5297
3000
2500
2000
1500
1000
500
0
0
1
2
3
4
5
6
Δ R_ll

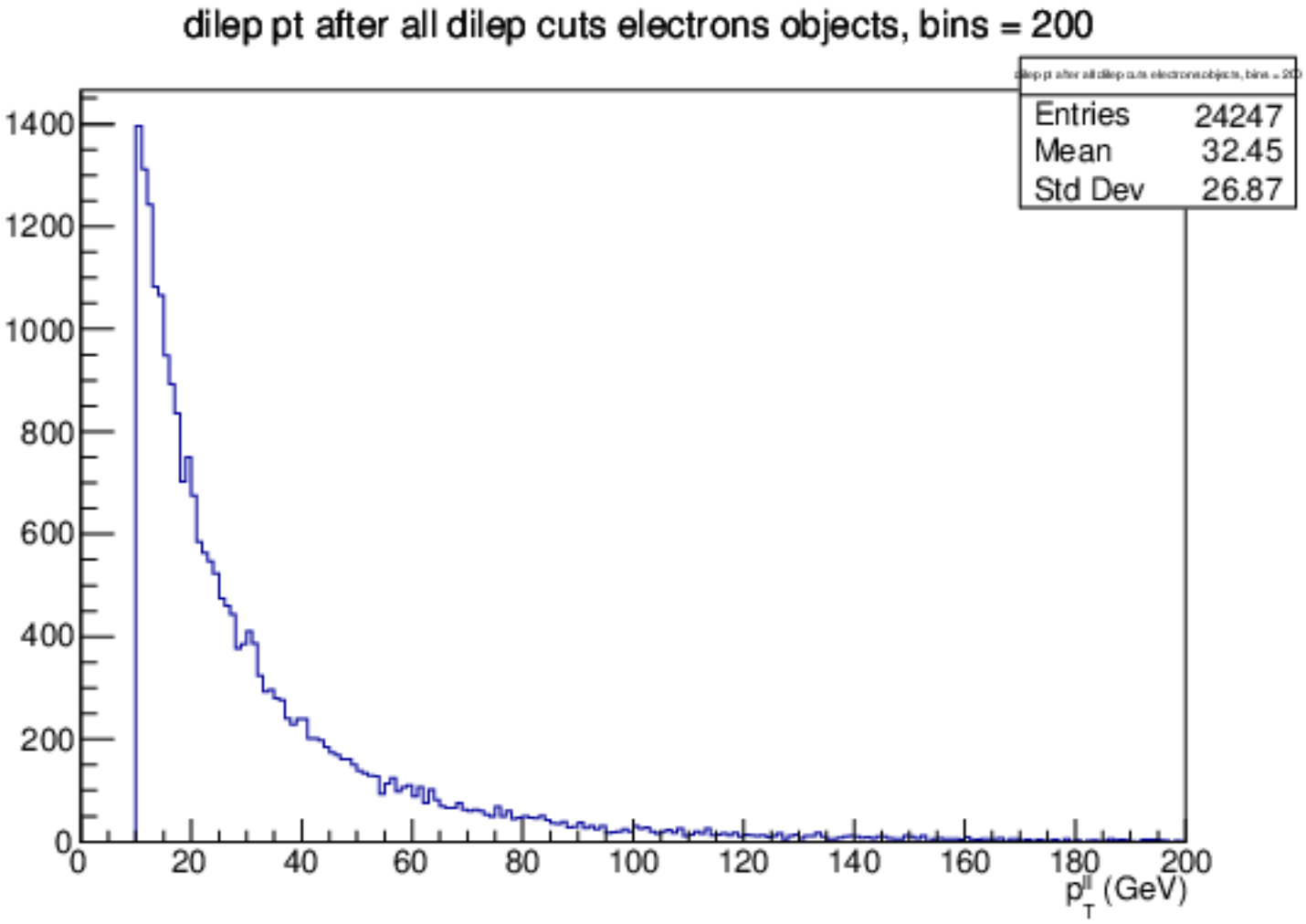

dilep delta eta after all dilep cuts electrons objects, bins = 200
Entries 24247
Mean 0.8308
Std Dev 0.5697
300
250
200
150
100
50
0
0
1
2
3
4
5
6
Δ η_ll

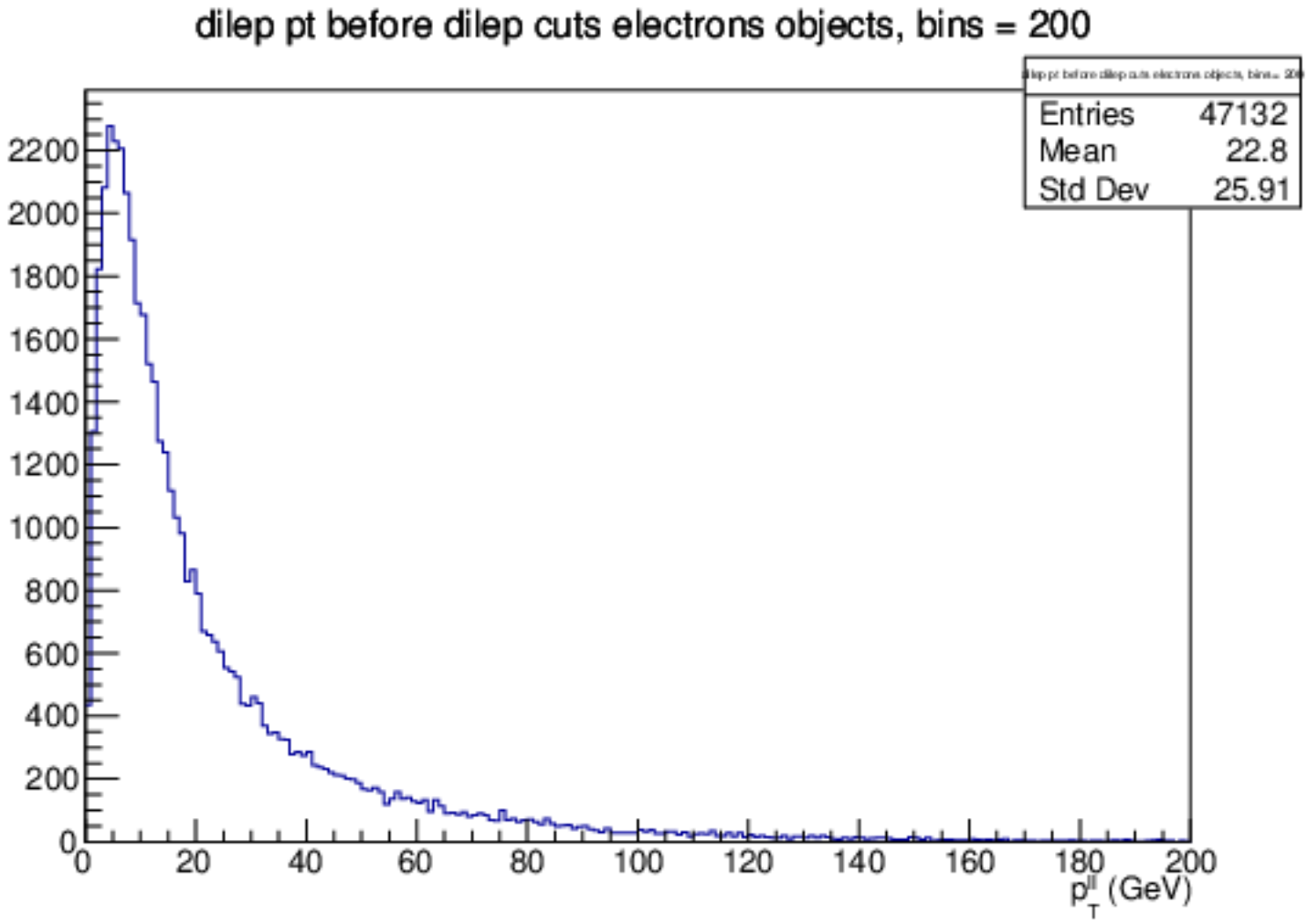

dilep delta eta before dilep cuts electrons objects, bins = 200
Entries 47132
Mean 0.8636
Std Dev 0.6063
500
400
300
200
100
0
0
1
2
3
4
5
6
Δ η_ll

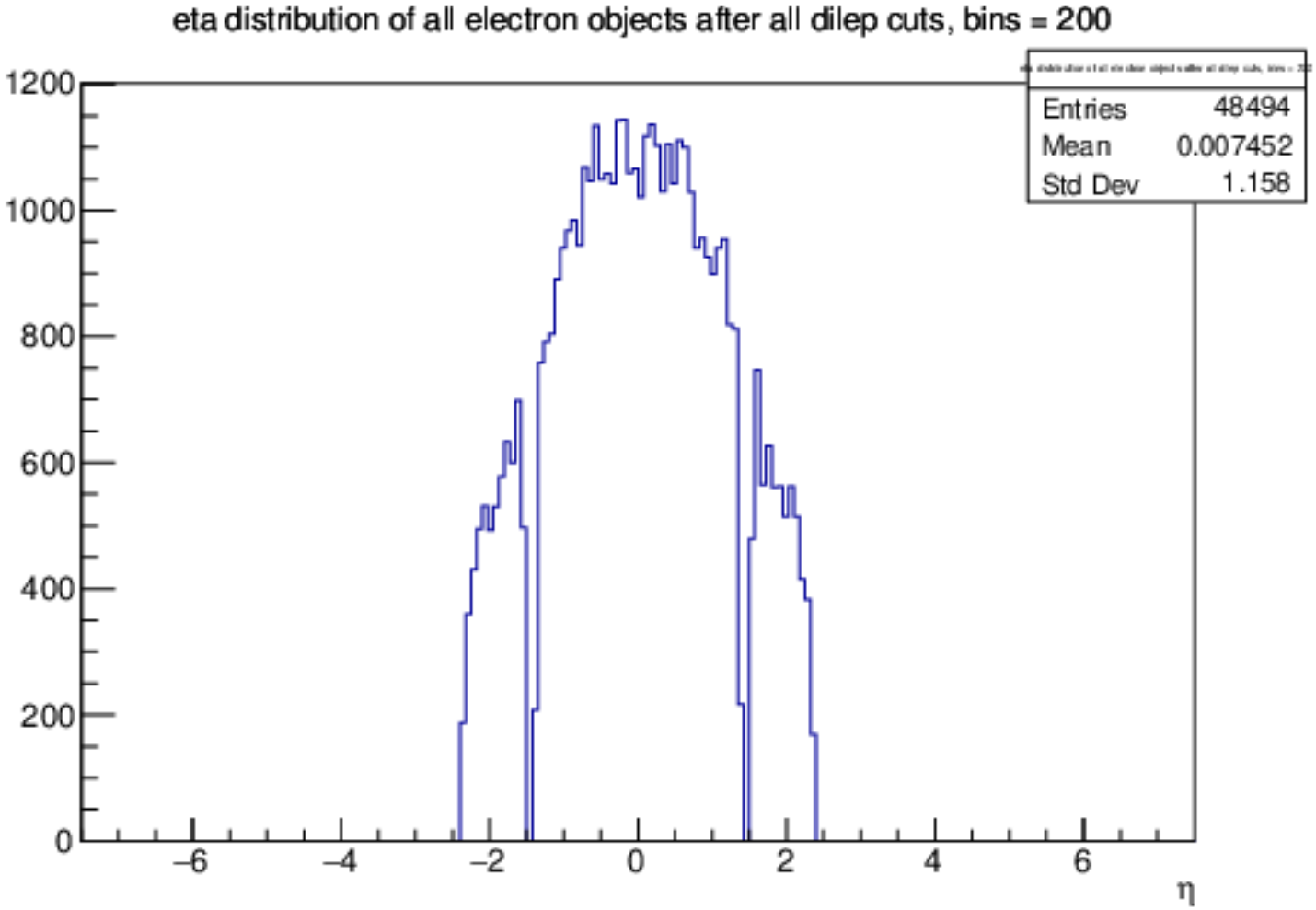

dilep mass after all dilep and photon cuts electrons objects, bins = 200
Entries 41
Mean 90.59
Std Dev 3.504
3
2.5
2
1.5
1
0.5
0
60
70
80
90
100
110
120
m_ll (GeV)

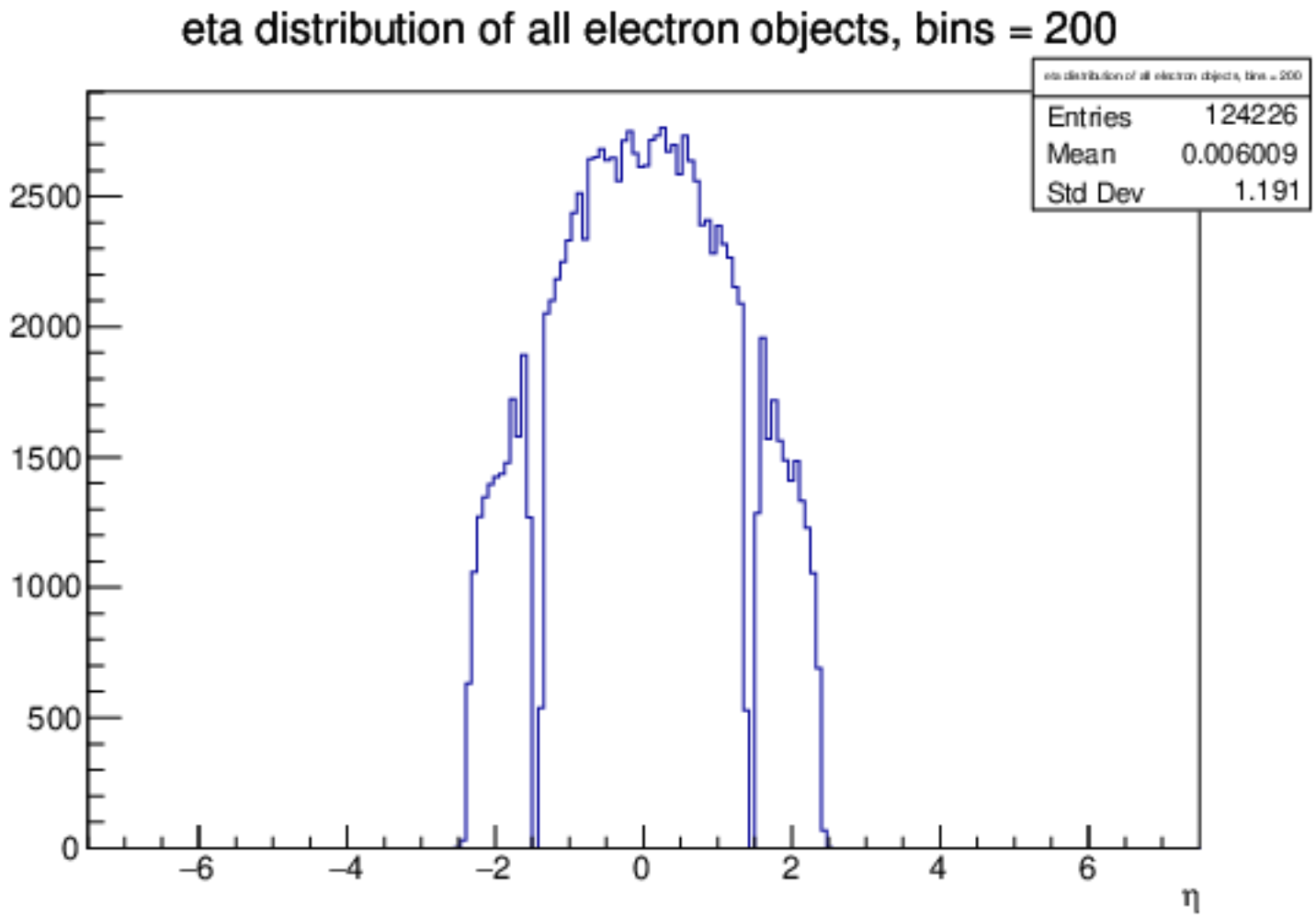

dilep mass after all dilep cuts electrons objects, bins = 200
Entries 24247
Mean 90.45
Std Dev 3.568
900
800
700
600
500
400
300
200
100
0
60
70
80
90
100
110
120
m_ll (GeV)

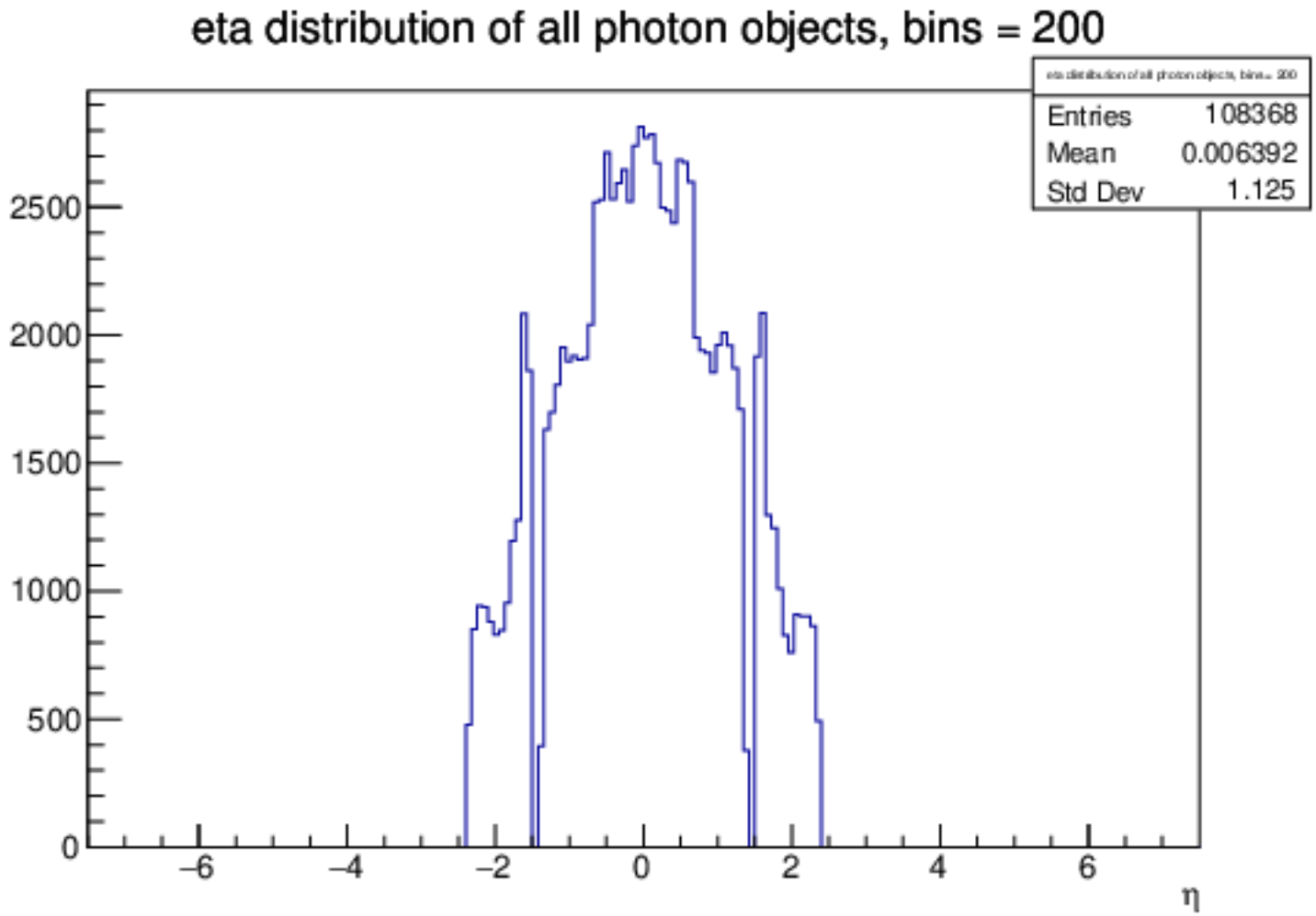

dilep mass before dilep cuts electrons objects, bins = 200
Entries 47132
Mean 89.91
Std Dev 6.412
1600
1400
1200
1000
800
600
400
200
0
60
70
80
90
100
110
120
m_ll (GeV)

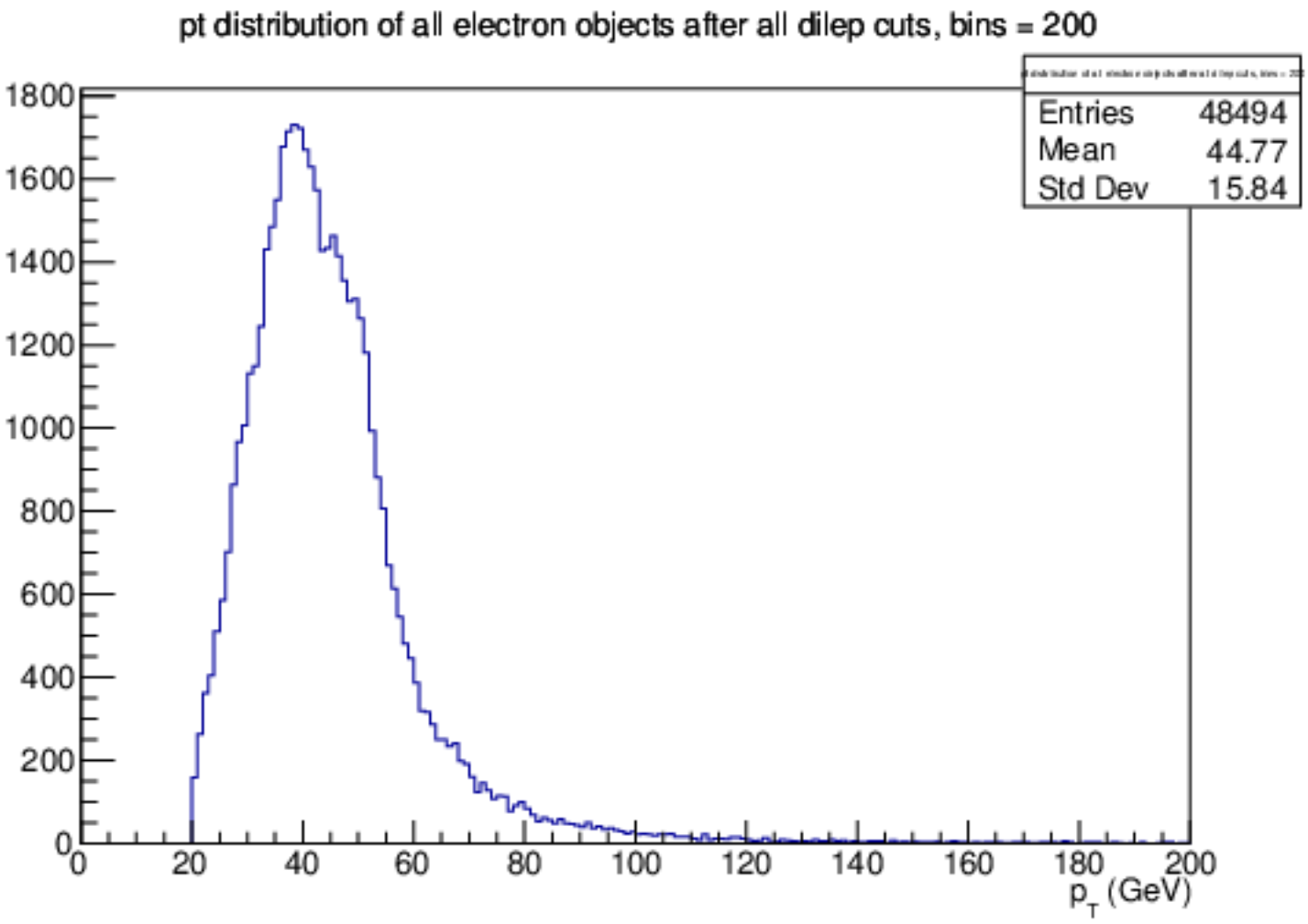

dilep pt after all dilep cuts electrons objects, bins = 200
Entries 24247
Mean 32.45
Std Dev 26.87
1400
1200
1000
800
600
400
200
0
0
20
40
60
80
100
120
140
160
180
200
p_T^{ll} (GeV)

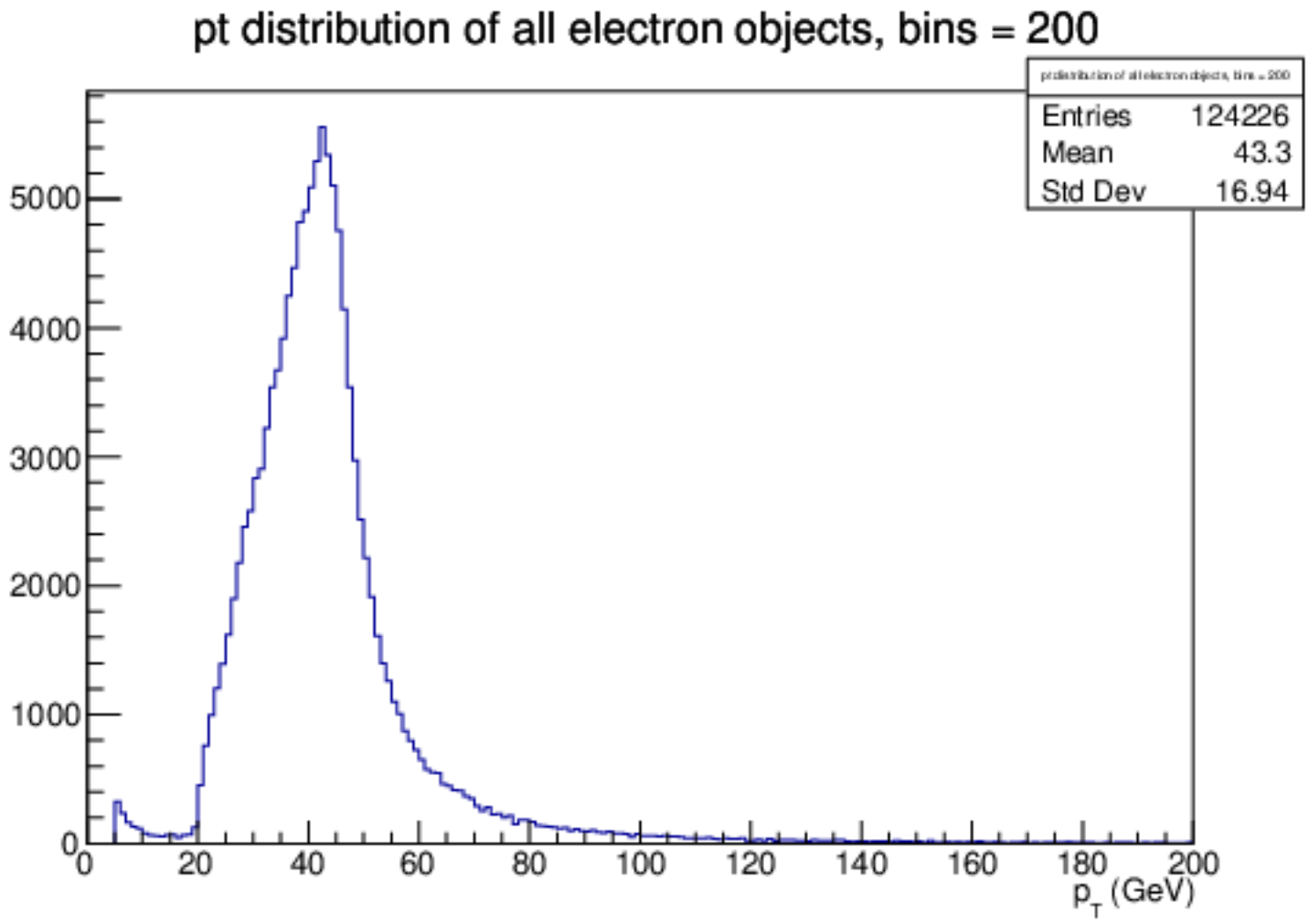

dilep pt before dilep cuts electrons objects, bins = 200
Entries 47132
Mean 22.8
Std Dev 25.91
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
0
20
40
60
80
100
120
140
160
180
200
p_T^{ll} (GeV)

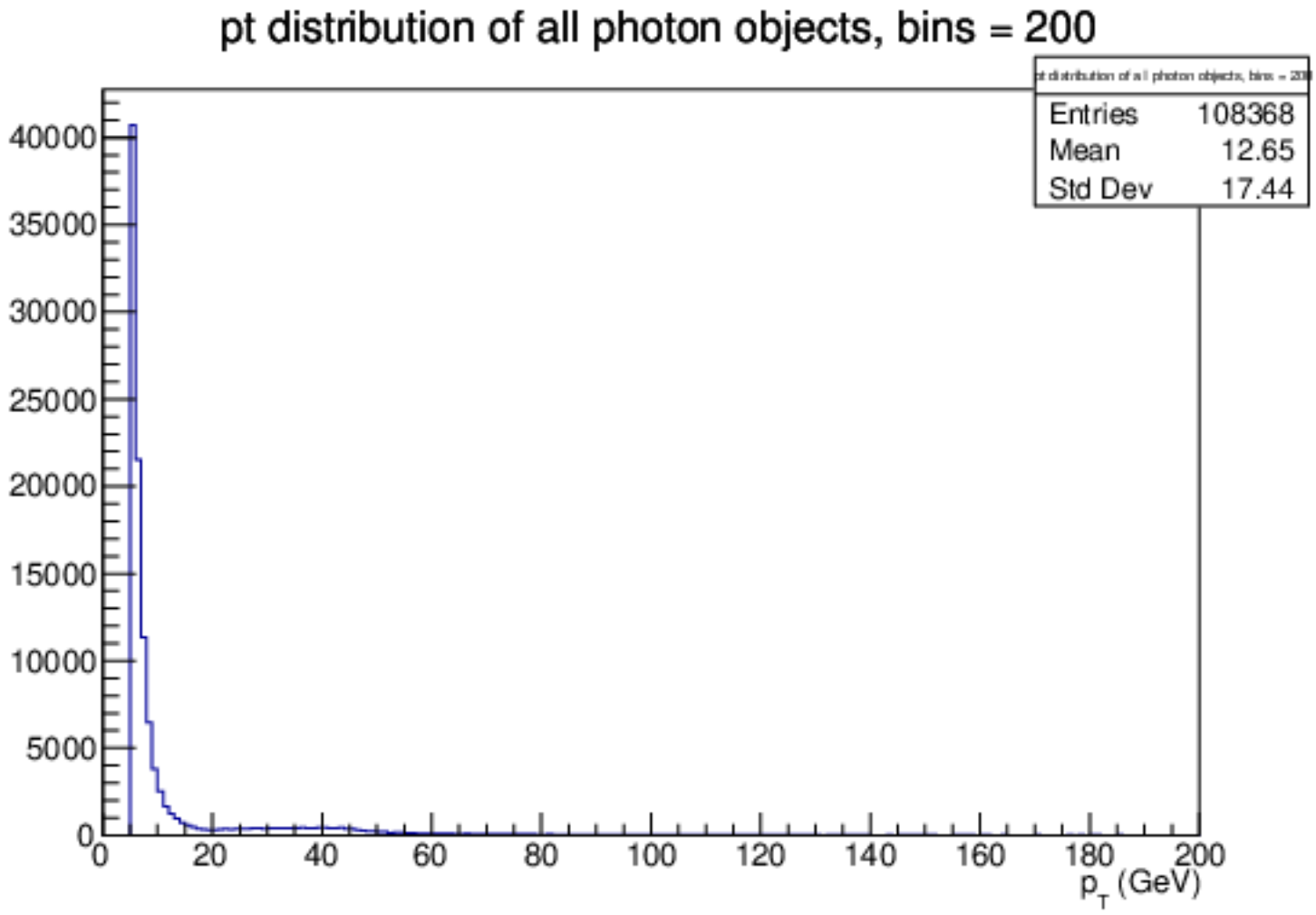

eta distribution of all electron objects after all dilep cuts, bins = 200
Entries 48494
Mean 0.007452
Std Dev 1.158
1200
1000
800
600
400
200
0
−6
−4
−2
0
2
4
6
η

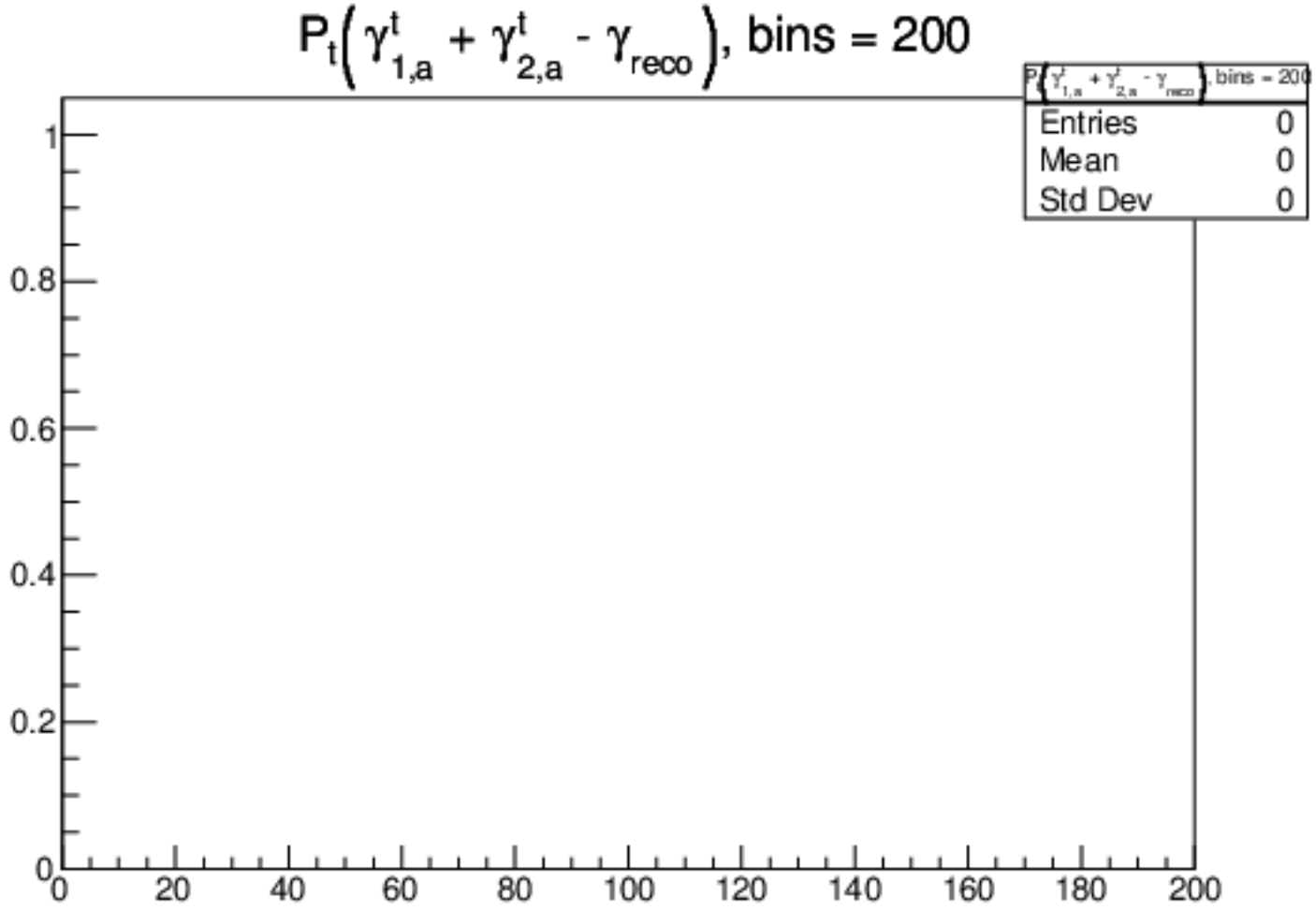

eta distribution of all electron objects, bins = 200
eta distribution of all electron objects, bins = 200
Entries 124226
Mean 0.006009
Std Dev 1.191
2500
2000
1500
1000
500
0
−6
−4
−2
0
2
4
6
η

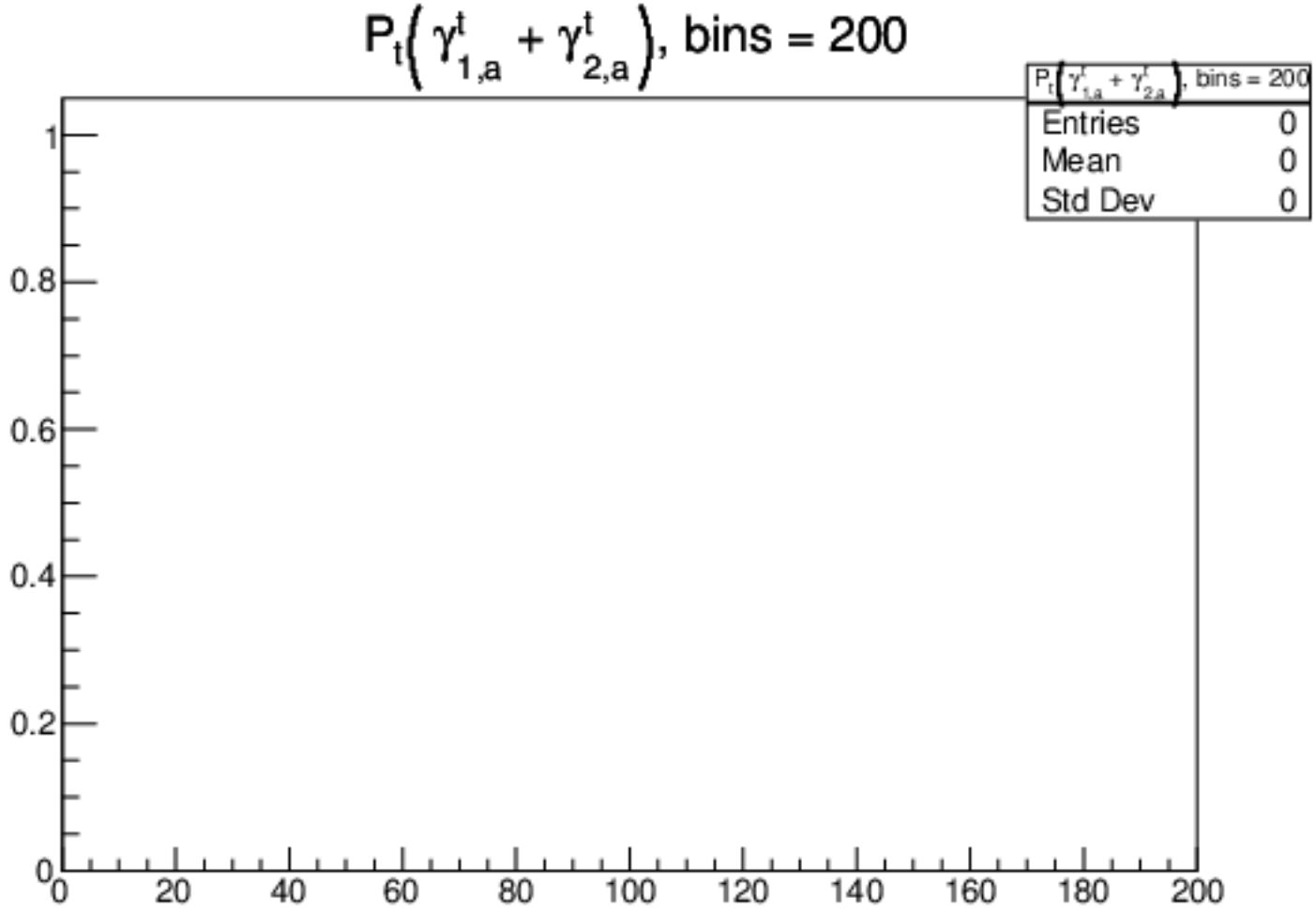

eta distribution of all photon objects, bins = 200
eta distribution of all photon objects, bins = 200
Entries 108368
Mean 0.006392
Std Dev 1.125
2500
2000
1500
1000
500
0
−6
−4
−2
0
2
4
6
η

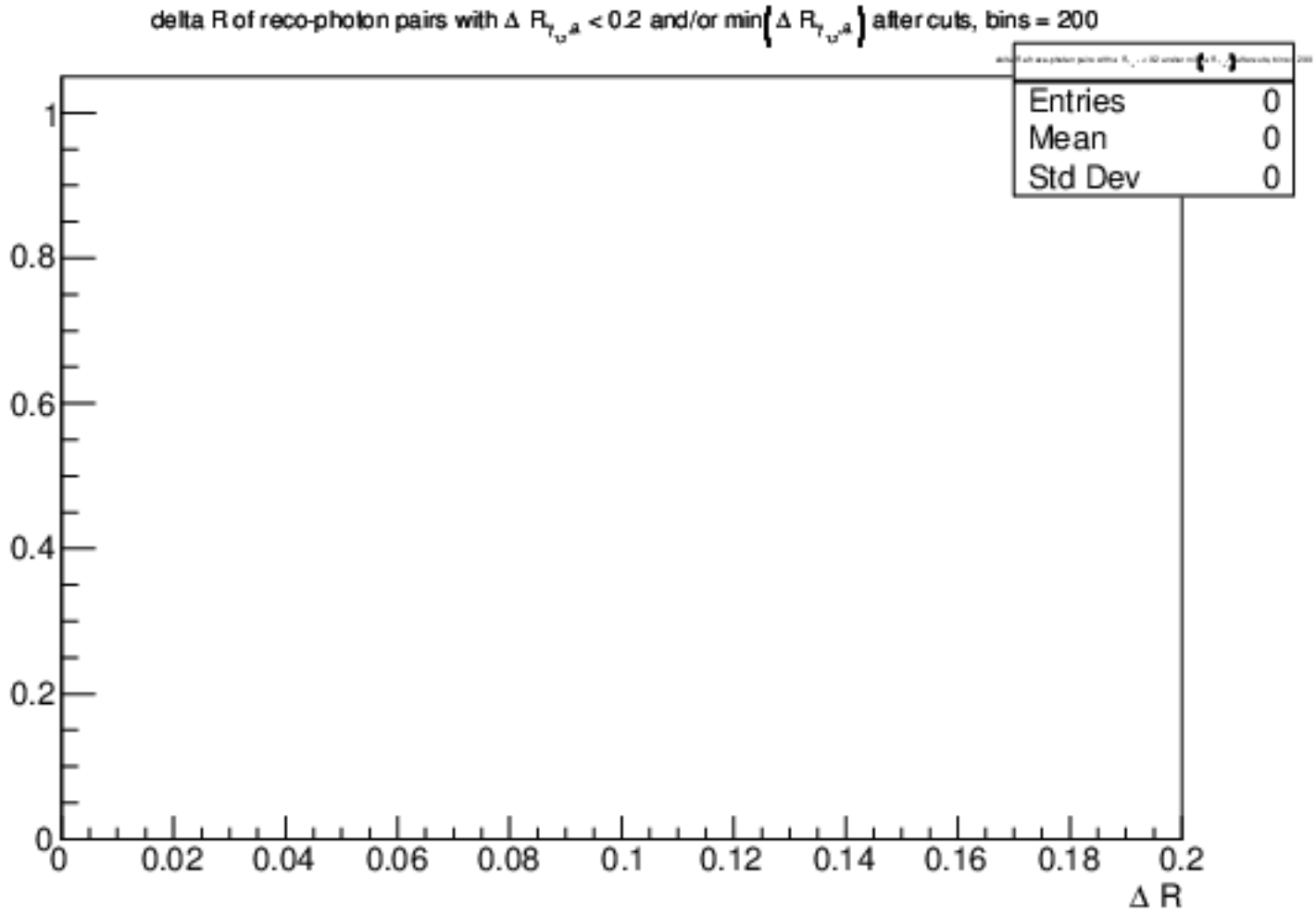

pt distribution of all electron objects after all dilep cuts, bins = 200
Entries 48494
Mean 44.77
Std Dev 15.84
1800
1600
1400
1200
1000
800
600
400
200
0
0
20
40
60
80
100
120
140
160
180
200
p_T (GeV)

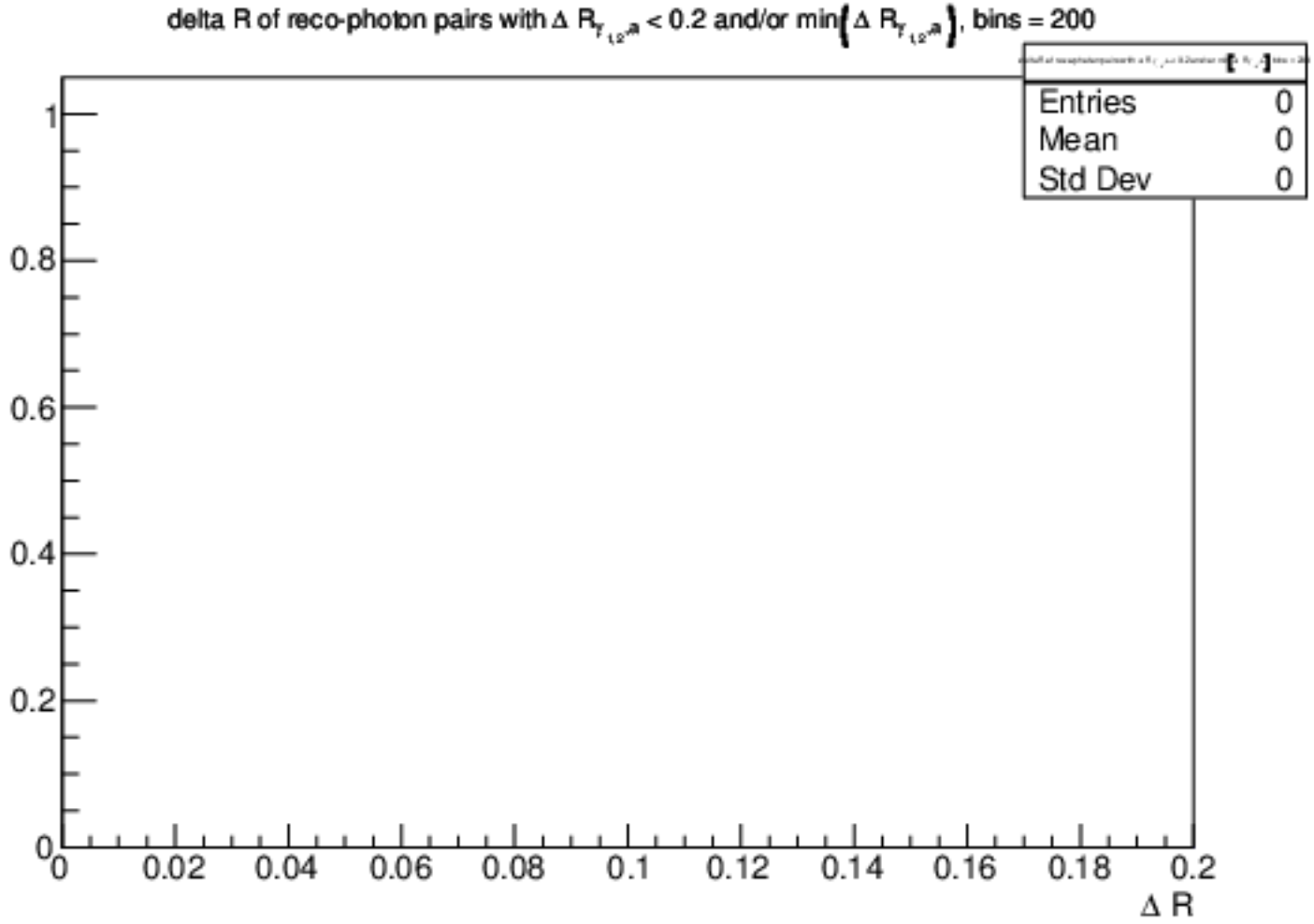

pt distribution of all electron objects, bins = 200
pt distribution of all electron objects, bins = 200
Entries 124226
Mean 43.3
Std Dev 16.94
5000
4000
3000
2000
1000
0
0
20
40
60
80
100
120
140
160
180
200
p_T (GeV)


pt distribution of all photon objects, bins = 200
Entries 108368
Mean 12.65
Std Dev 17.44
40000
35000
30000
25000
20000
15000
10000
5000
0
0
20
40
60
80
100
120
140
160
180
200
p_T (GeV)


$P_t\left(\gamma^t_{1,a} + \gamma^t_{2,a} - \gamma_{reco}\right)$, bins = 200
Entries 0
Mean 0
Std Dev 0
0
0.2
0.4
0.6
0.8
1
0
20
40
60
80
100
120
140
160
180
200


$P_t\left(\gamma^t_{1,a} + \gamma^t_{2,a}\right)$, bins = 200
$P_t\left(\gamma^t_{1,a} + \gamma^t_{2,a}\right)$, bins = 200
Entries 0
Mean 0
Std Dev 0
1
0.8
0.6
0.4
0.2
0
0
20
40
60
80
100
120
140
160
180
200


delta R of reco-photon pairs with Δ R_{γ_i,γ_k} < 0.2 and/or min{Δ R_{γ_i,γ_k}} after cuts, bins = 200
Entries 0
Mean 0
Std Dev 0
1
0.8
0.6
0.4
0.2
0
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
Δ R


delta R of reco-photon pairs with Δ R_{γ_{1,2}γ_{3}} < 0.2 and/or min{ Δ R_{γ_{1,2}γ_{3}} }, bins = 200
Entries 0
Mean 0
Std Dev 0
1
0.8
0.6
0.4
0.2
0
0 0.02 0.04 0.06 0.08 0.1 0.12 0.14 0.16 0.18 0.2
Δ R