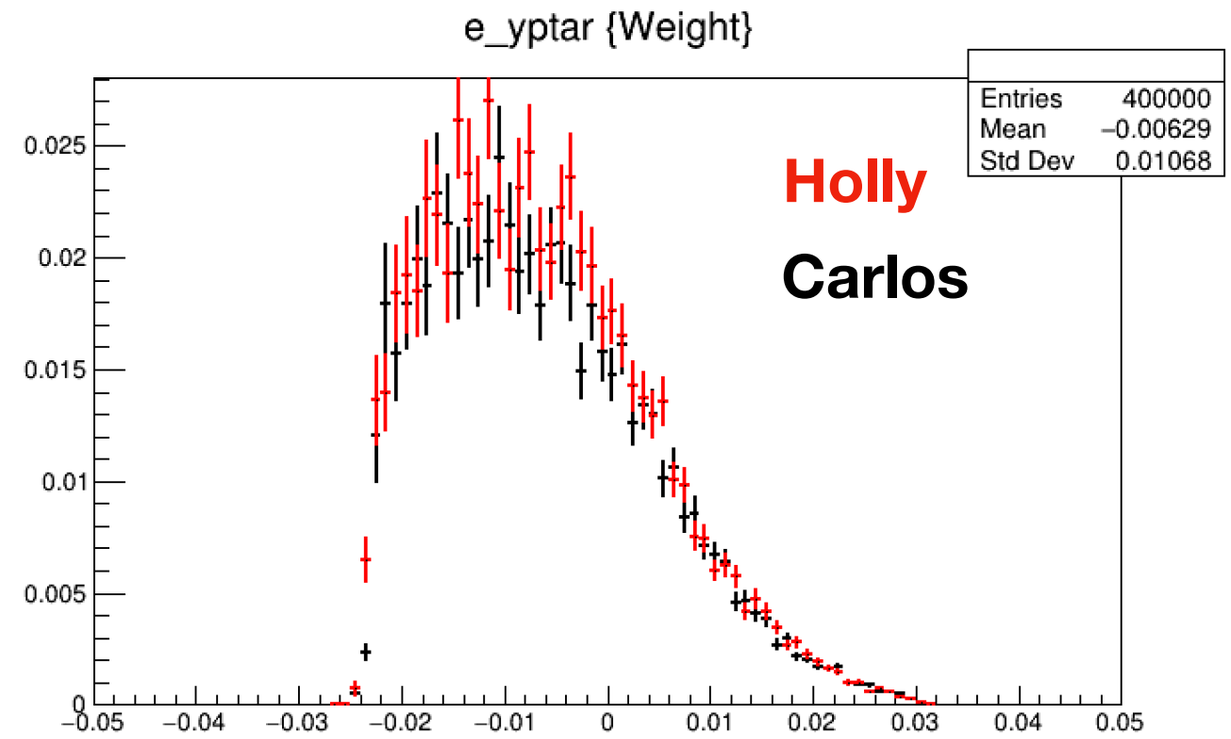
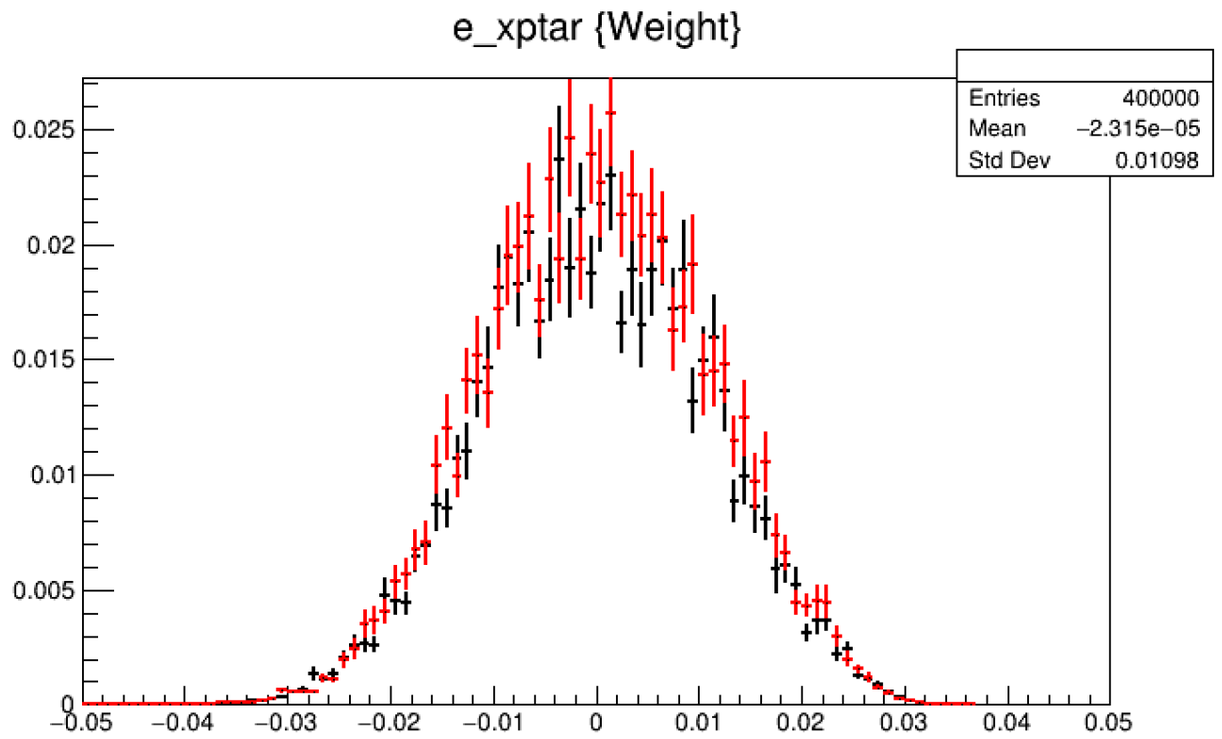
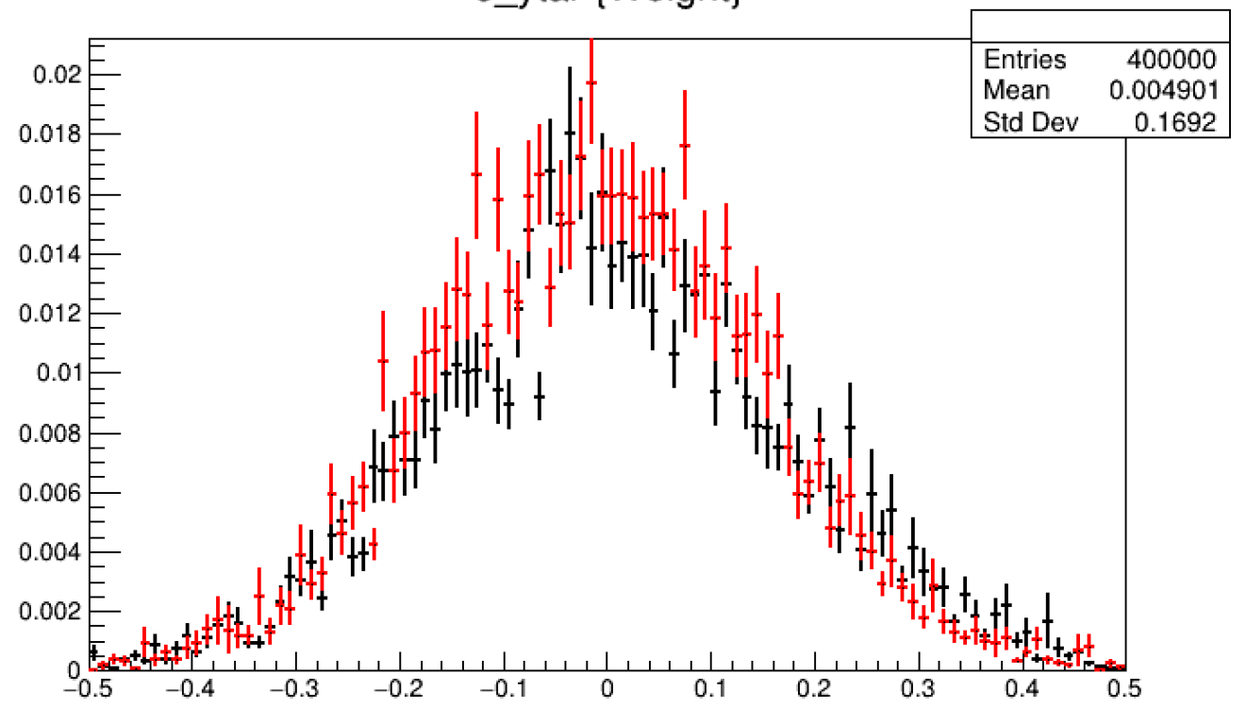
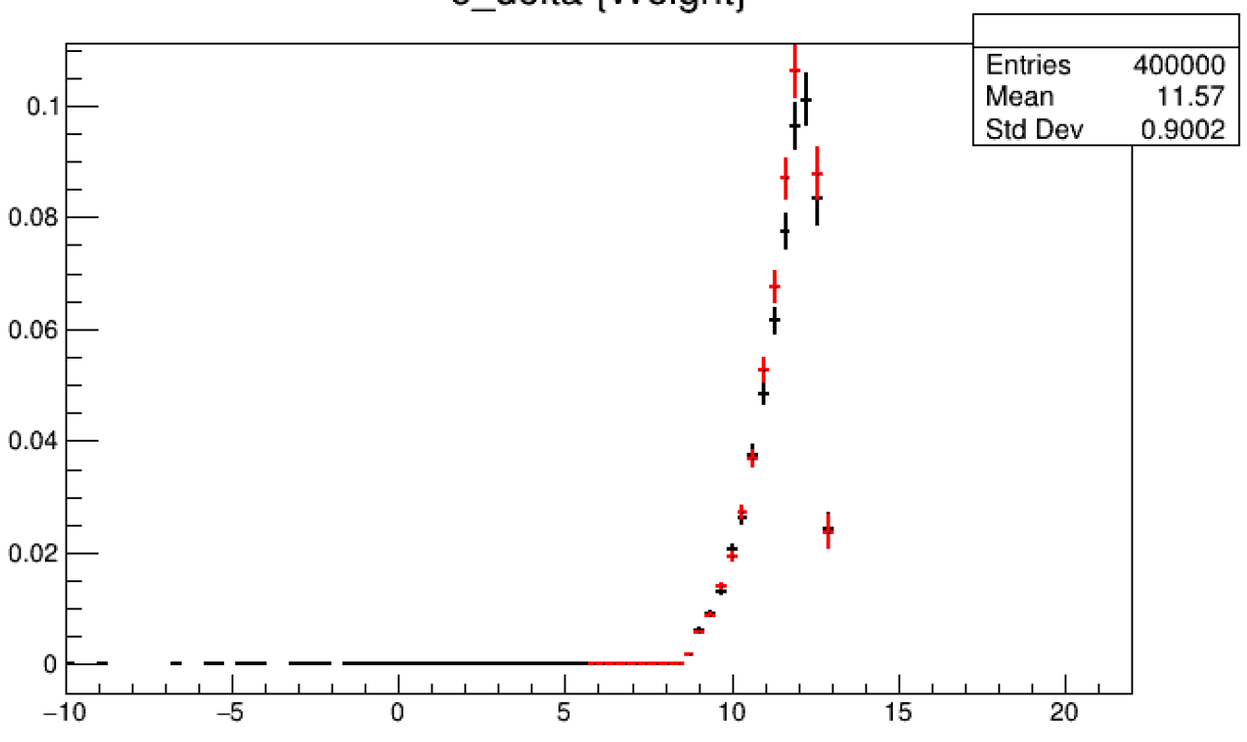
SIMC CaFe Simulations Sanity Check

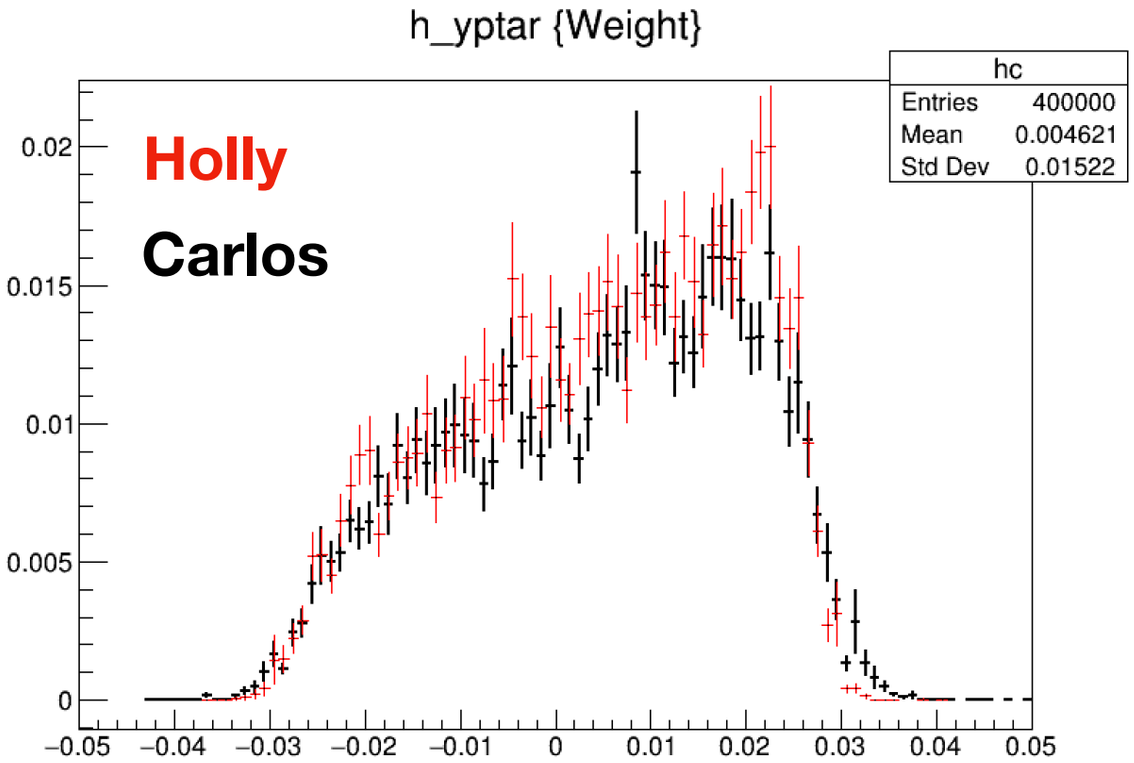
* Carbon 12, Low miss setting, SIMC comparisons between Holly and Carlos for sanity check

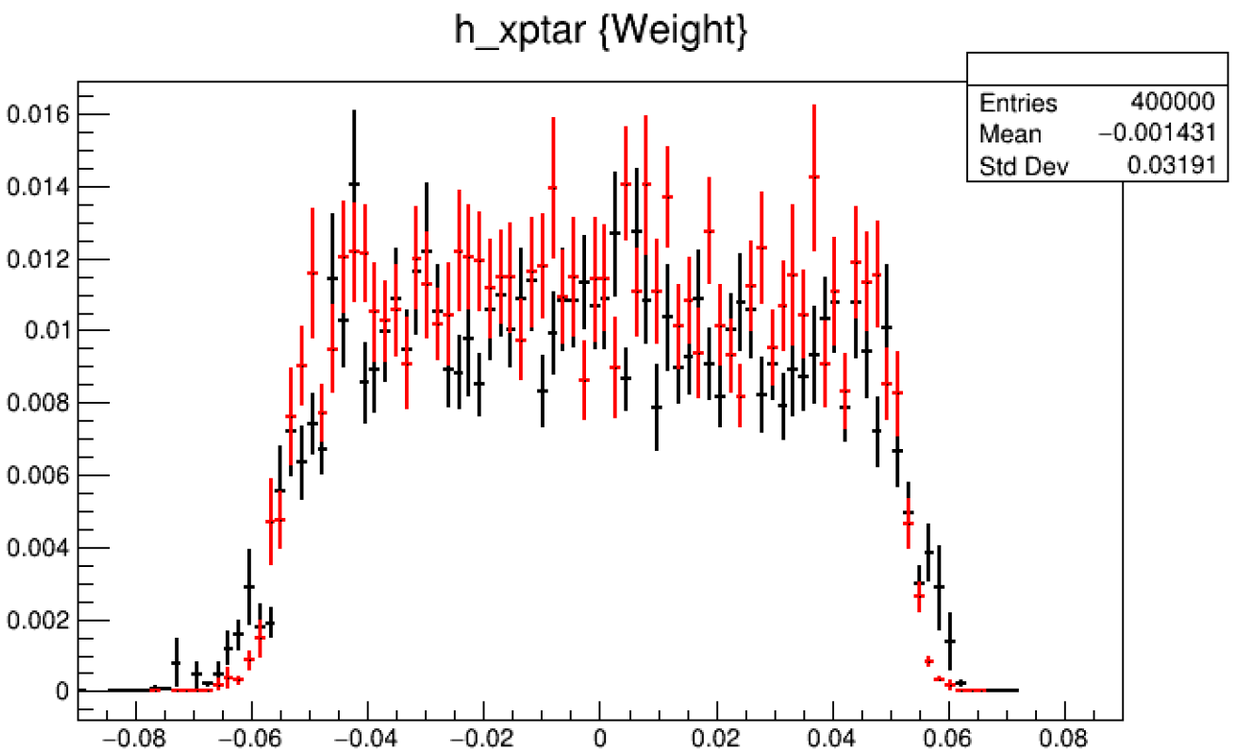

e_yptar {Weight}
Entries 400000
Mean −0.00629
Std Dev 0.01068
Holly
Carlos

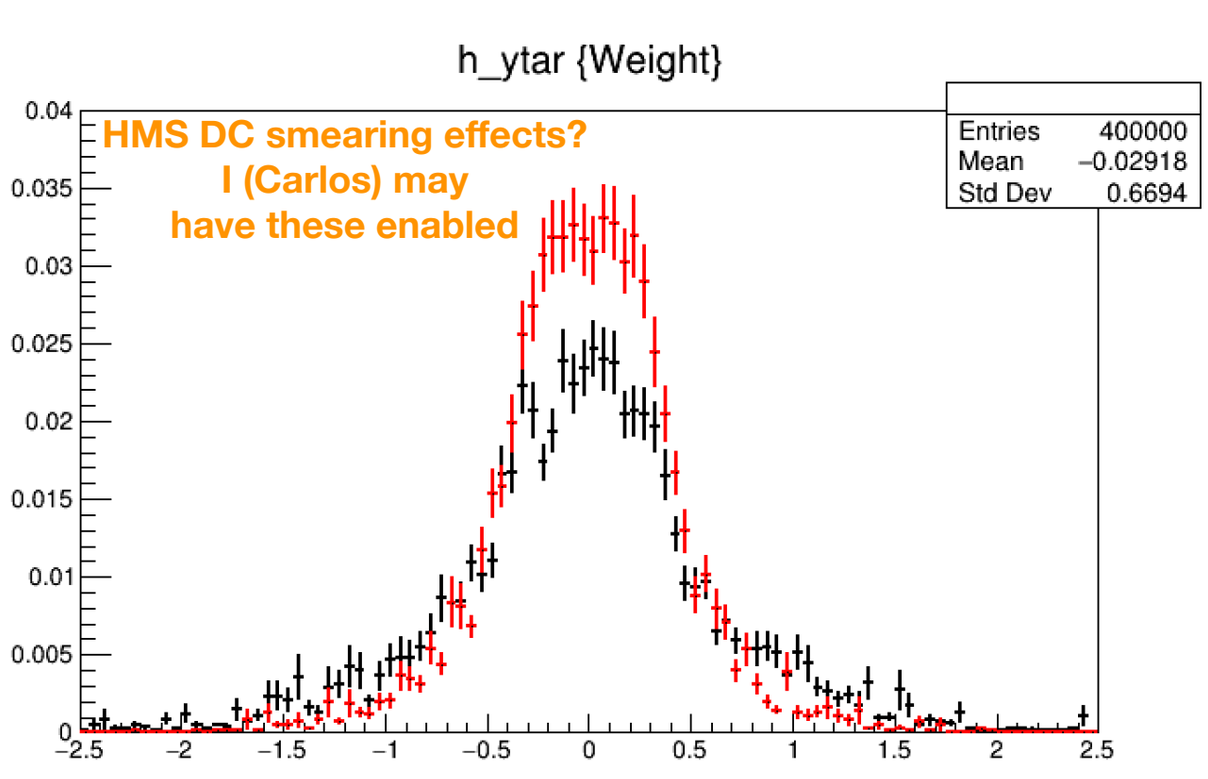

e_xptar {Weight}
Entries 400000
Mean −2.315e−05
Std Dev 0.01098

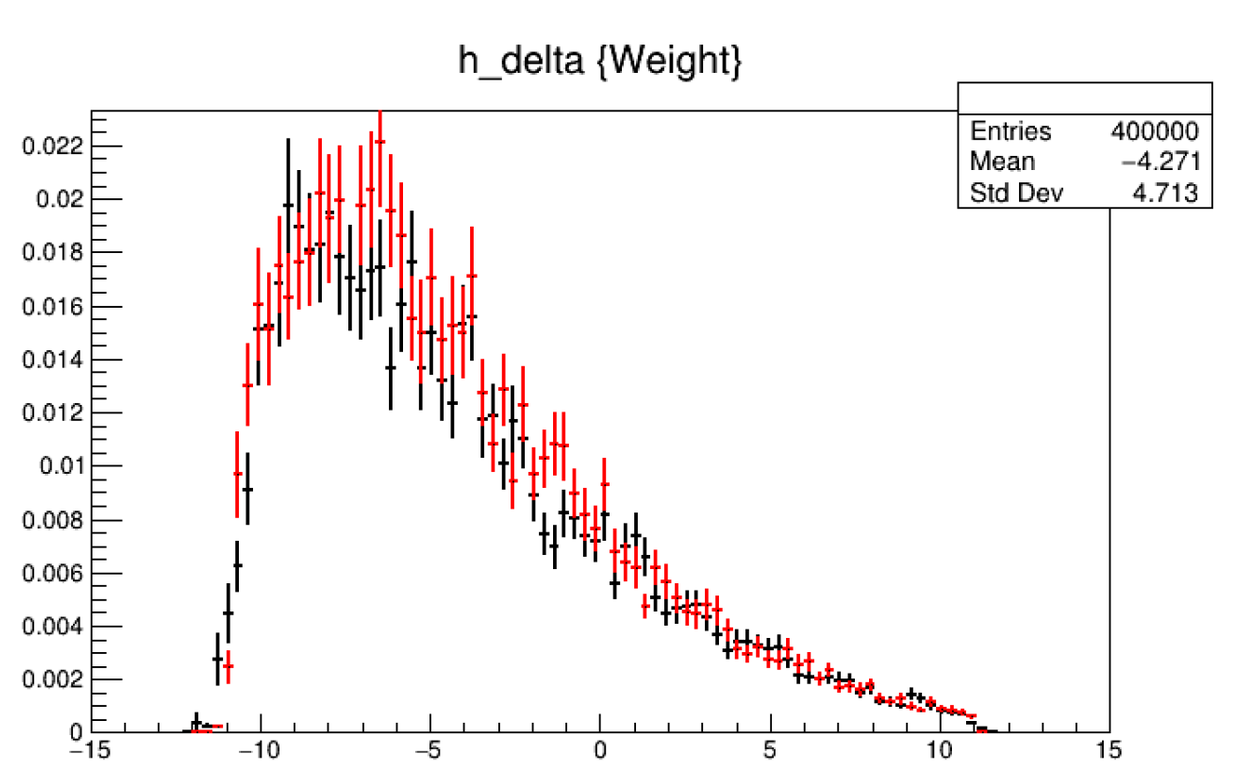

e_ytar {Weight}
Entries 400000
Mean 0.004901
Std Dev 0.1692

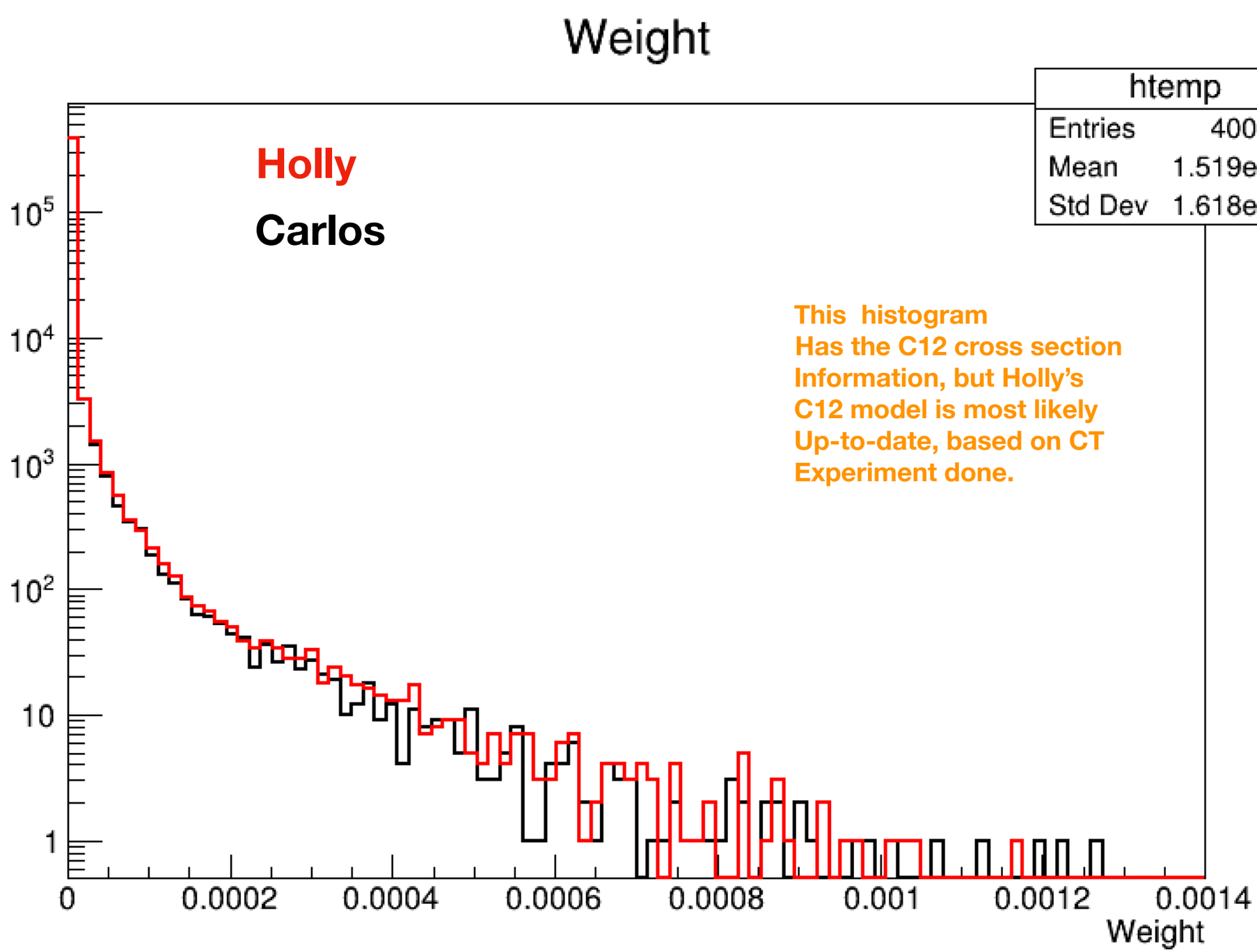

e_delta {Weight}
Entries 400000
Mean 11.57
Std Dev 0.9002

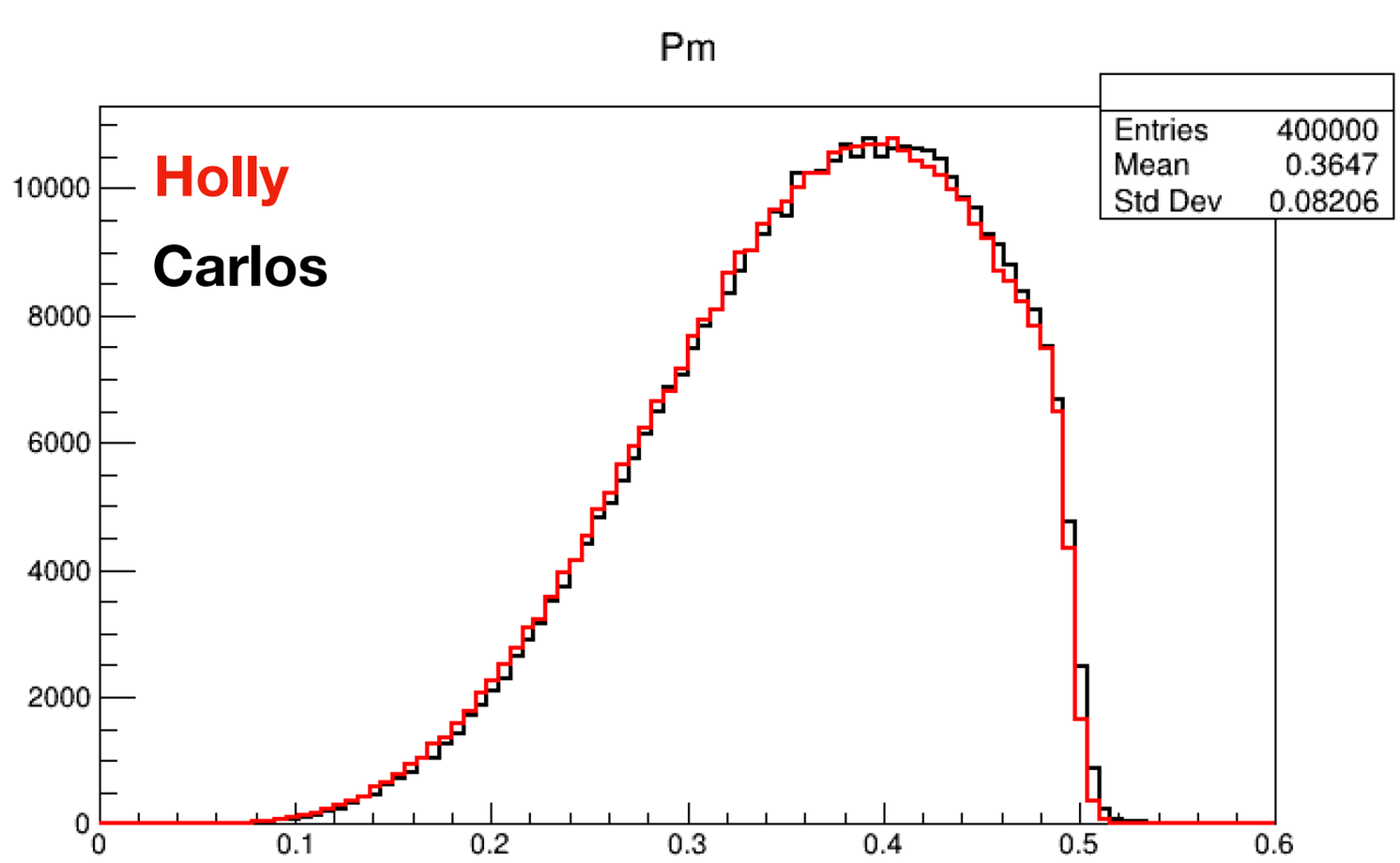

h_yptar {Weight}
hc
Entries 400000
Mean 0.004621
Std Dev 0.01522
Holly
Carlos

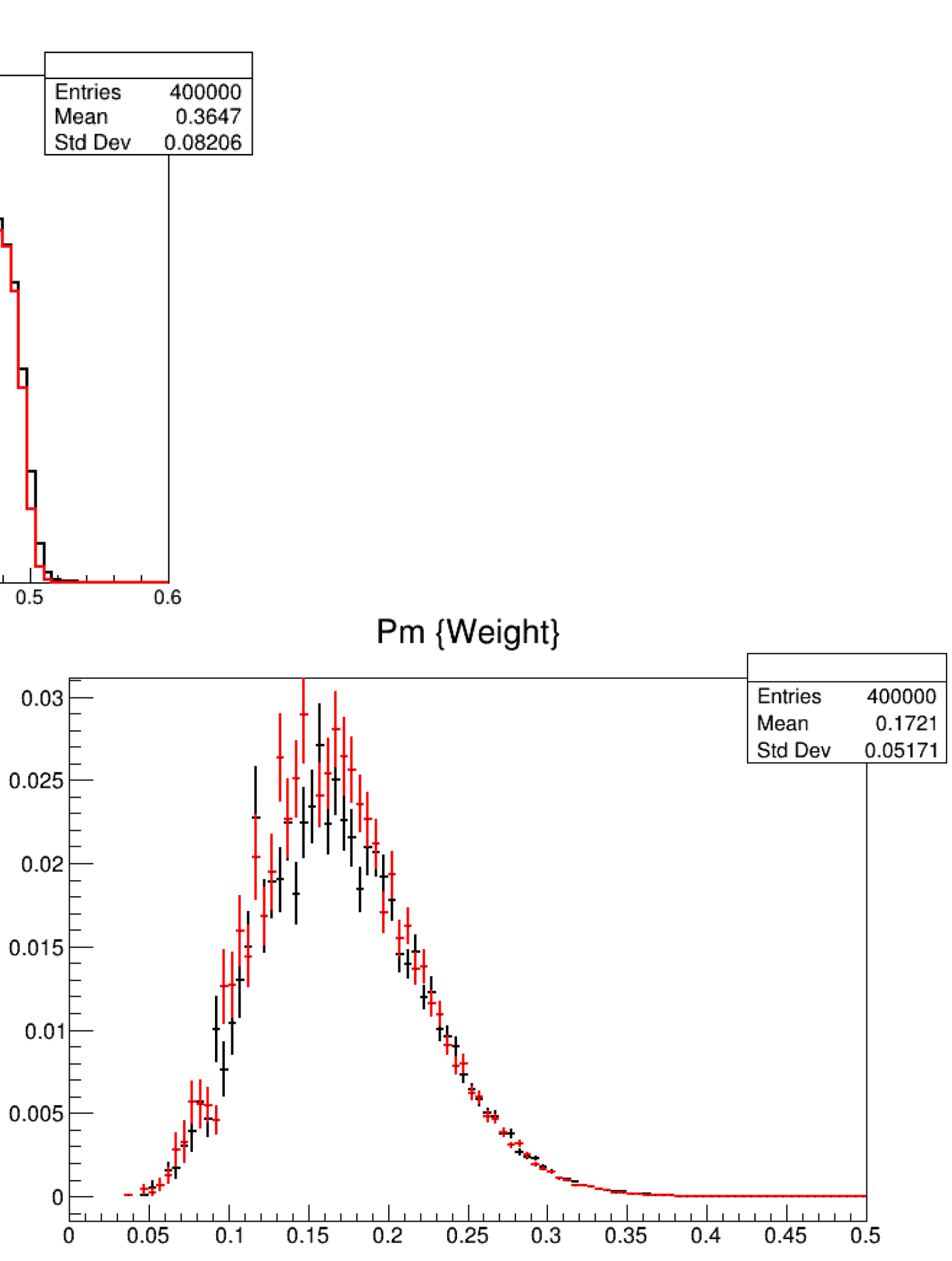

h_xptar {Weight}
Entries 400000
Mean −0.001431
Std Dev 0.03191

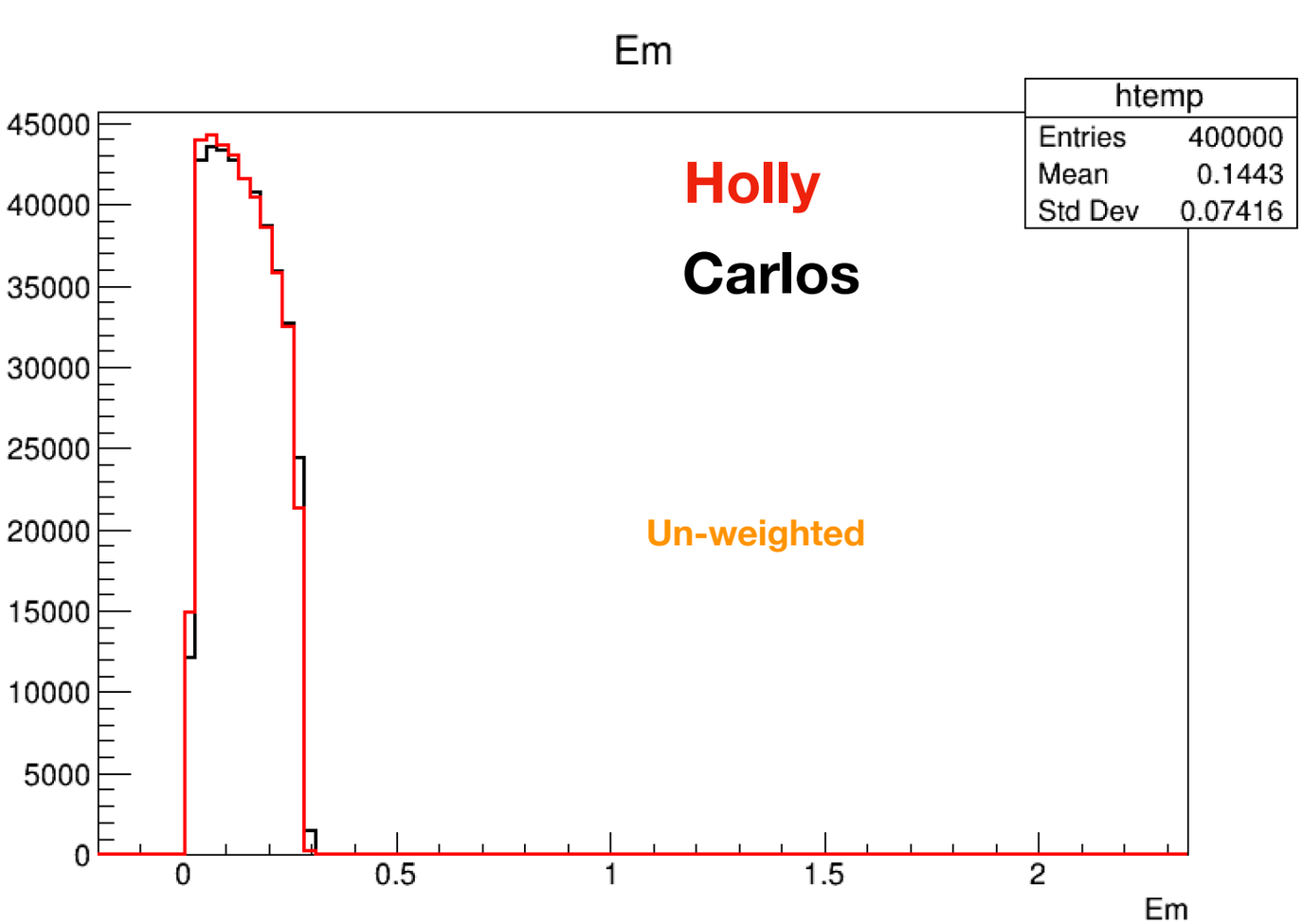

h_ytar {Weight}
Entries 400000
Mean −0.02918
Std Dev 0.6694
HMS DC smearing effects?
I (Carlos) may
have these enabled

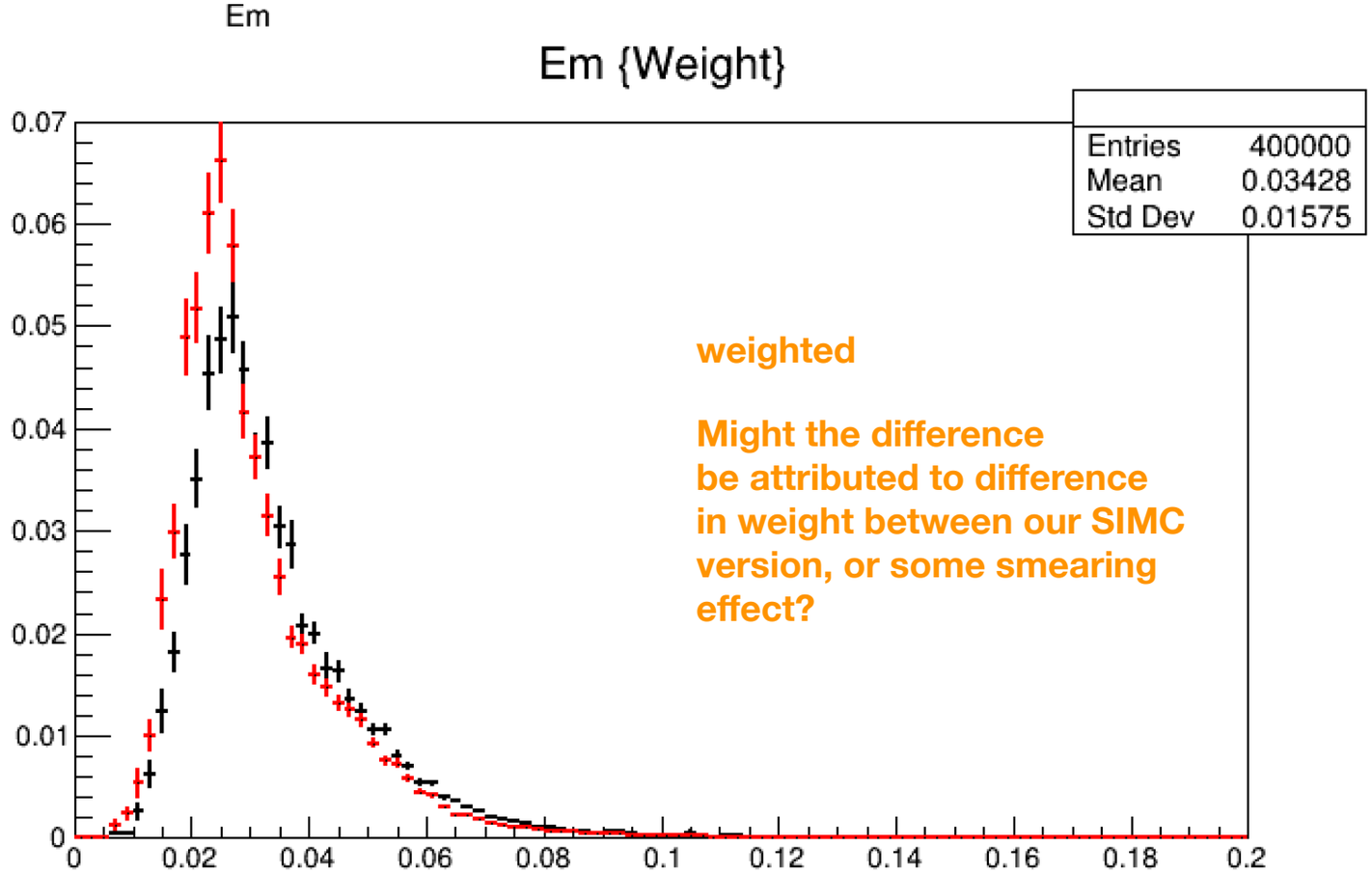

h_delta {Weight}
Entries 400000
Mean −4.271
Std Dev 4.713

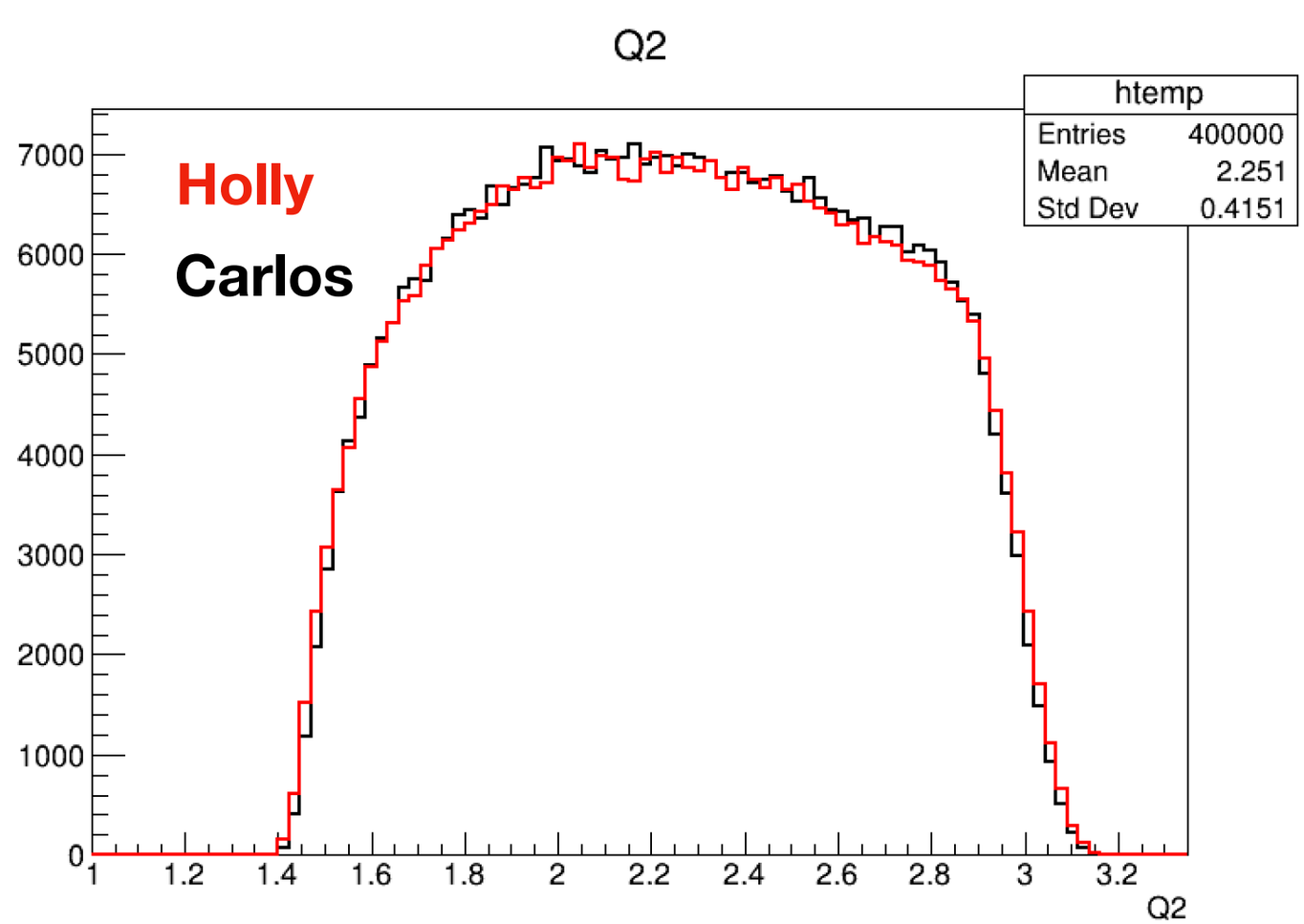

Weight
htemp
Entries 400000
Mean 1.519e–06
Std Dev 1.618e–05
Holly
Carlos
This histogram
Has the C12 cross section
Information, but Holly's
C12 model is most likely
Up-to-date, based on CT
Experiment done.
10^5
10^4
10^3
10^2
10
1
0
0.0002
0.0004
0.0006
0.0008
0.001
0.0012
0.0014
Weight

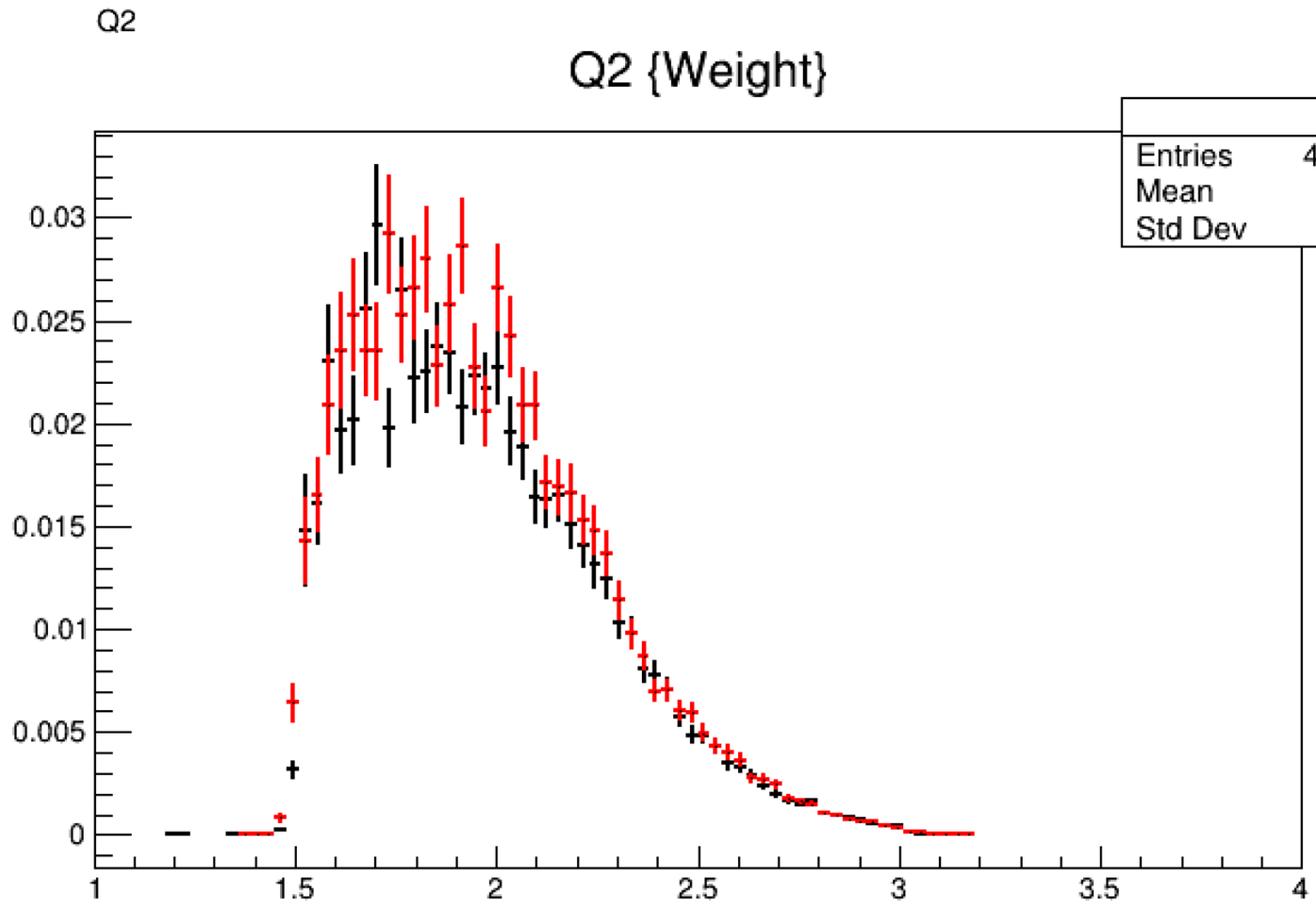

Pm
Holly
Carlos
Entries 400000
Mean 0.3647
Std Dev 0.08206
10000
8000
6000
4000
2000
0
0
0.1
0.2
0.3
0.4
0.5
0.6


Pm {Weight}
Entries 400000
Mean 0.1721
Std Dev 0.05171
0.03
0.025
0.02
0.015
0.01
0.005
0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5


Em
htemp
Entries 400000
Mean 0.1443
Std Dev 0.07416
Holly
Carlos
Un-weighted
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
0
0.5
1
1.5
2
Em


Em {Weight}
Entries 400000
Mean 0.03428
Std Dev 0.01575
weighted
Might the difference be attributed to difference in weight between our SIMC version, or some smearing effect?
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2


Q2
htemp
Entries 400000
Mean 2.251
Std Dev 0.4151
Holly
Carlos
7000
6000
5000
4000
3000
2000
1000
0
1
1.2
1.4
1.6
1.8
2
2.2
2.4
2.6
2.8
3
3.2
Q2


Q2 {Weight}
Entries 40000
Mean 1.96
Std Dev 0.297
0.03
0.025
0.02
0.015
0.01
0.005
0
1
1.5
2
2.5
3
3.5
4

h_ytar

MC Smearing OFF

MC Smearing ON (HMS DC Res 360 um)

MC Smearing ON (HMS DC Res 300 um)

Entries	50000
Mean	−0.00263
Std Dev	0.2361

1200
1000
800
600
400
200
0

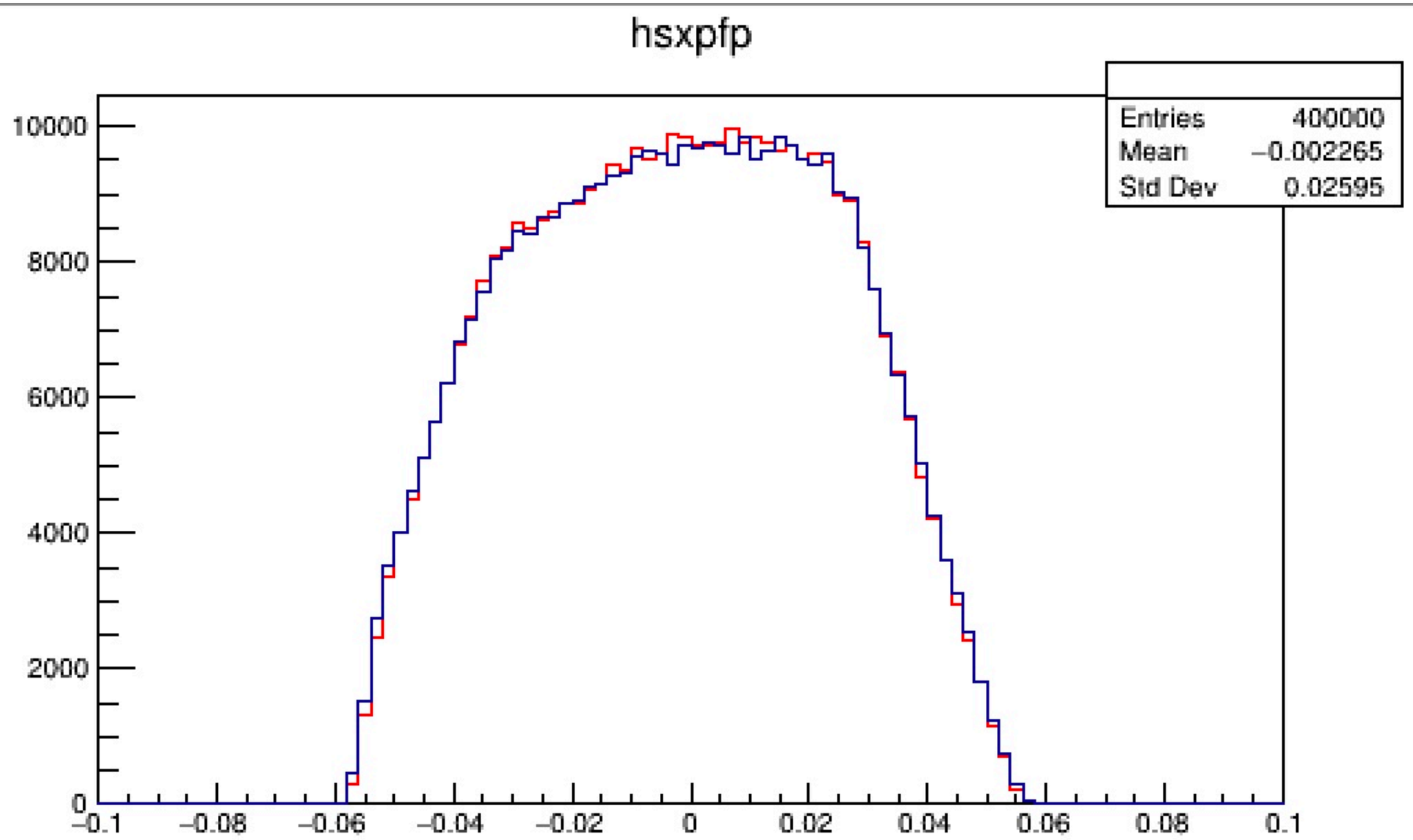
−1 −0.8 −0.6 −0.4 −0.2 0 0.2 0.4 0.6 0.8 1

h_xfp

Entries	400000
Mean	−1.776
Std Dev	22.38

6000
5000
4000
3000
2000
1000
0

−50 −40 −30 −20 −10 0 10 20 30 40 50


hsxpfp
Entries 400000
Mean −0.002265
Std Dev 0.02595
10000
8000
6000
4000
2000
0
−0.1
−0.08
−0.06
−0.04
−0.02
0
0.02
0.04
0.06
0.08
0.1

hsyfp

Entries	400000
Mean	0.2522
Std Dev	7.305

35000
30000
25000
20000
15000
10000
5000
0

−50 −40 −30 −20 −10 0 10 20 30 40 50

hsypfp

Entries	400000
Mean	−0.0002352
Std Dev	0.008644

60000
50000
40000
30000
20000
10000
0

−0.1 −0.08 −0.06 −0.04 −0.02 0 0.02 0.04 0.06 0.08 0.1