# Belle data update

All experiments of Belle

03 Jan. 2023

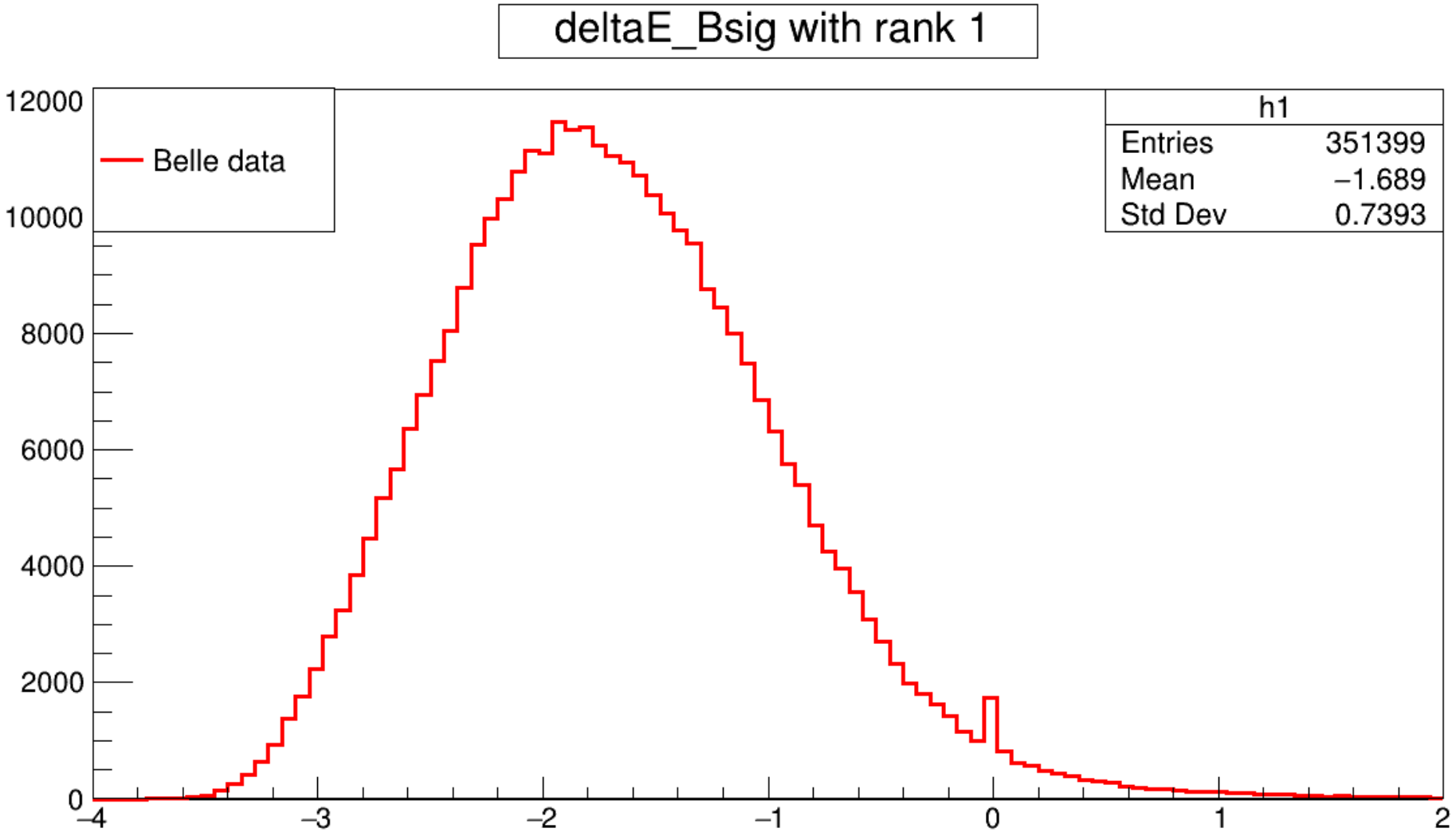
# Cuts in the reconstruction program

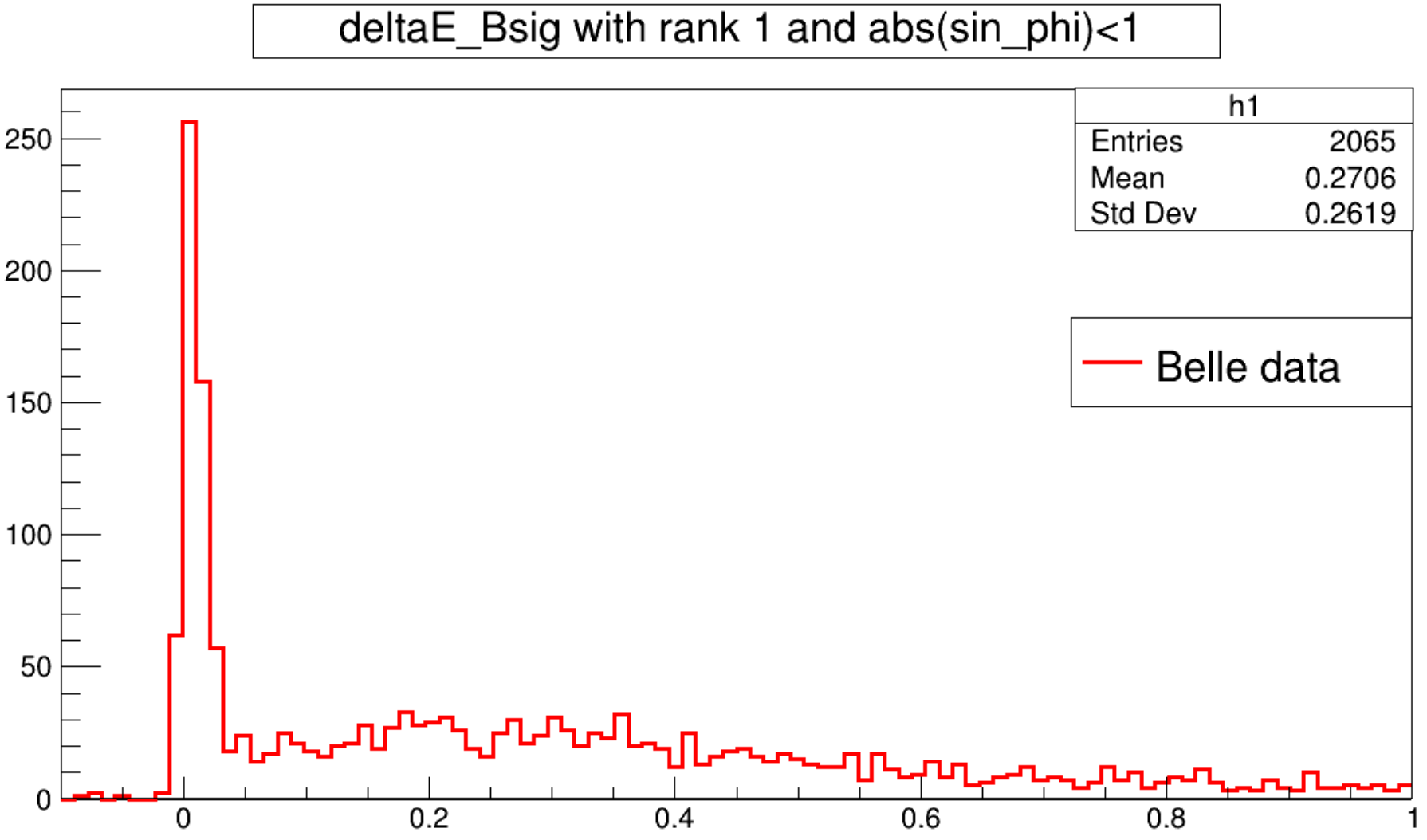
- MVA photon cuts

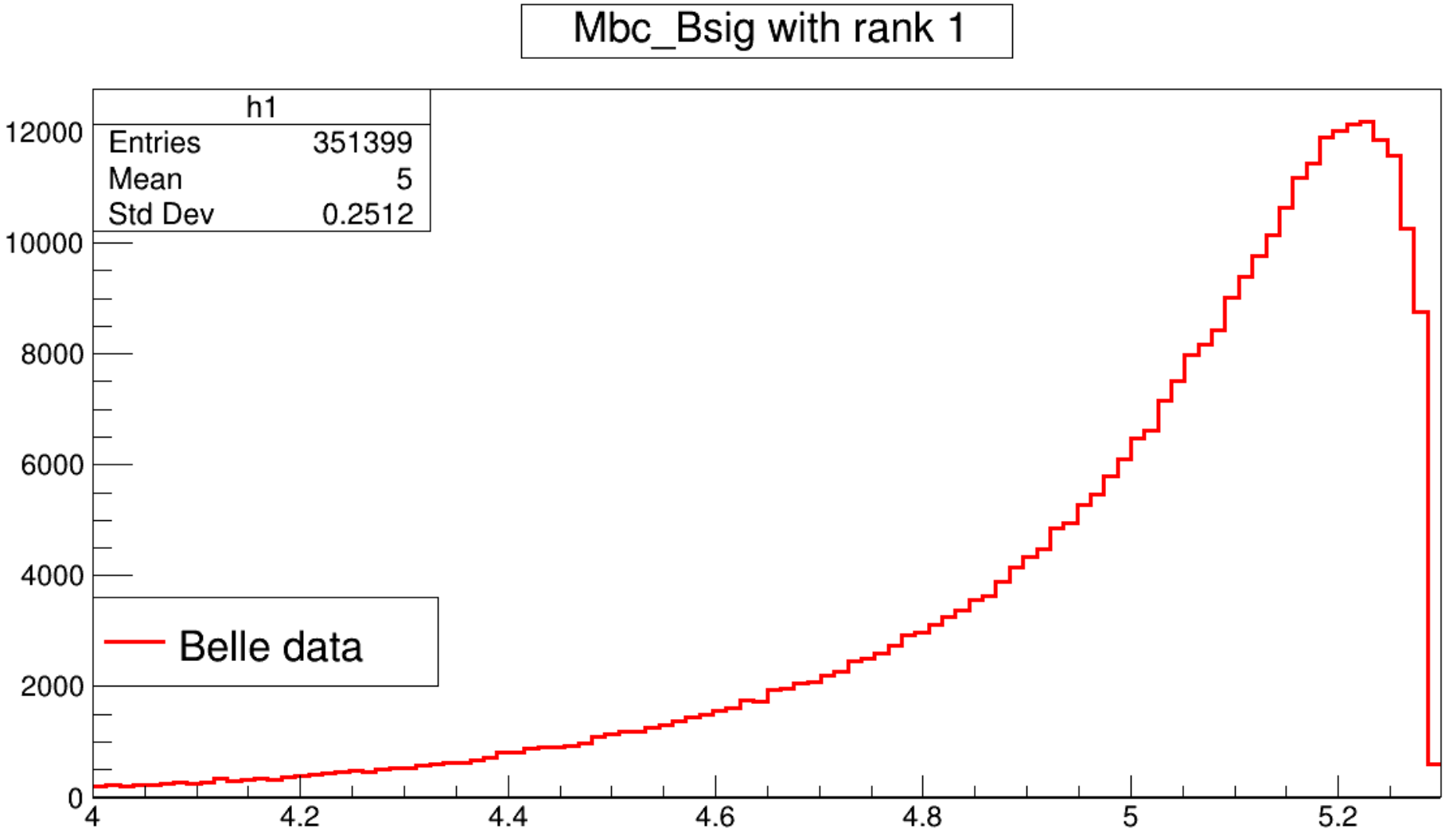
- $1.6 < m_{hadROE} < 2.4$ GeV

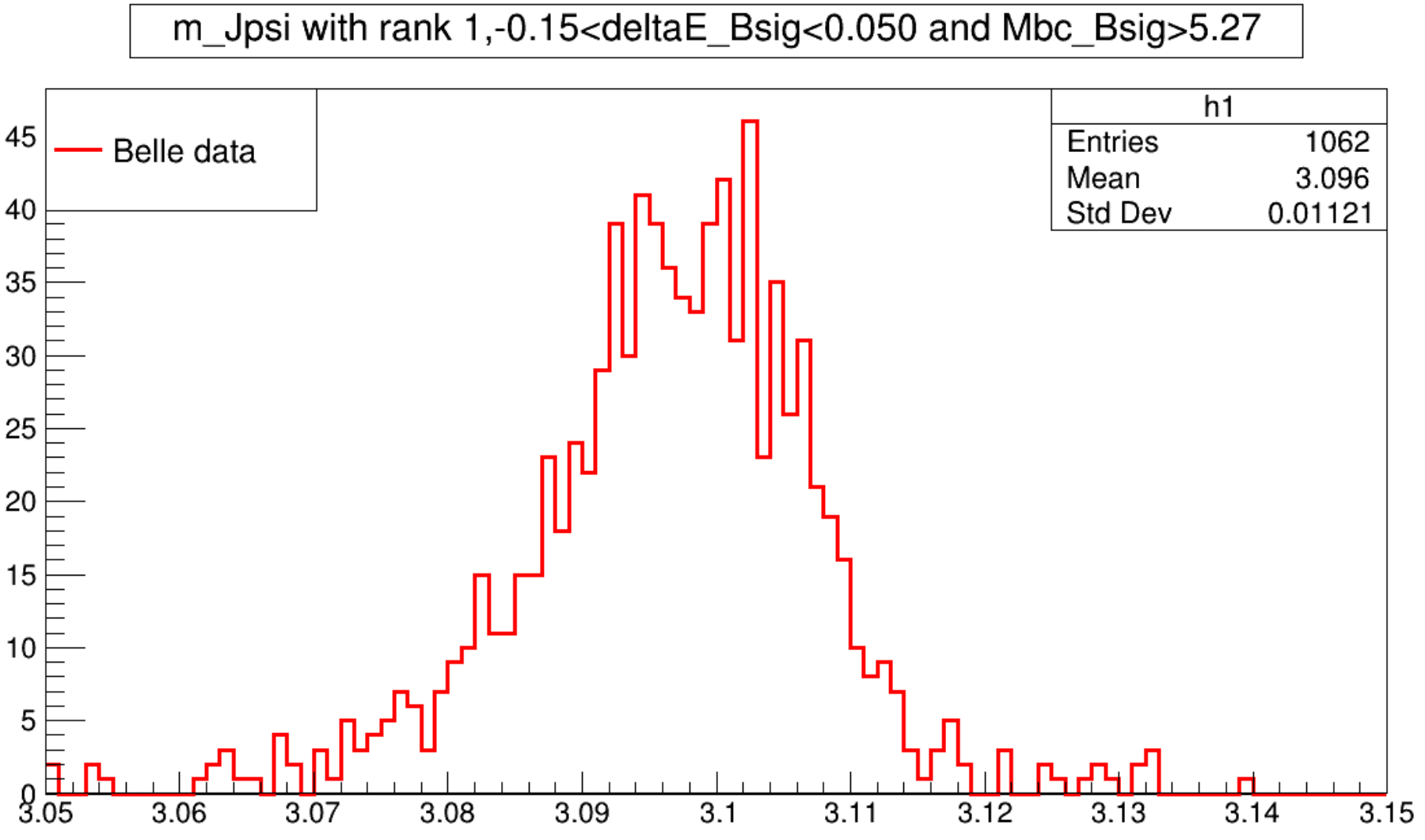
# Signal side cuts (root level)

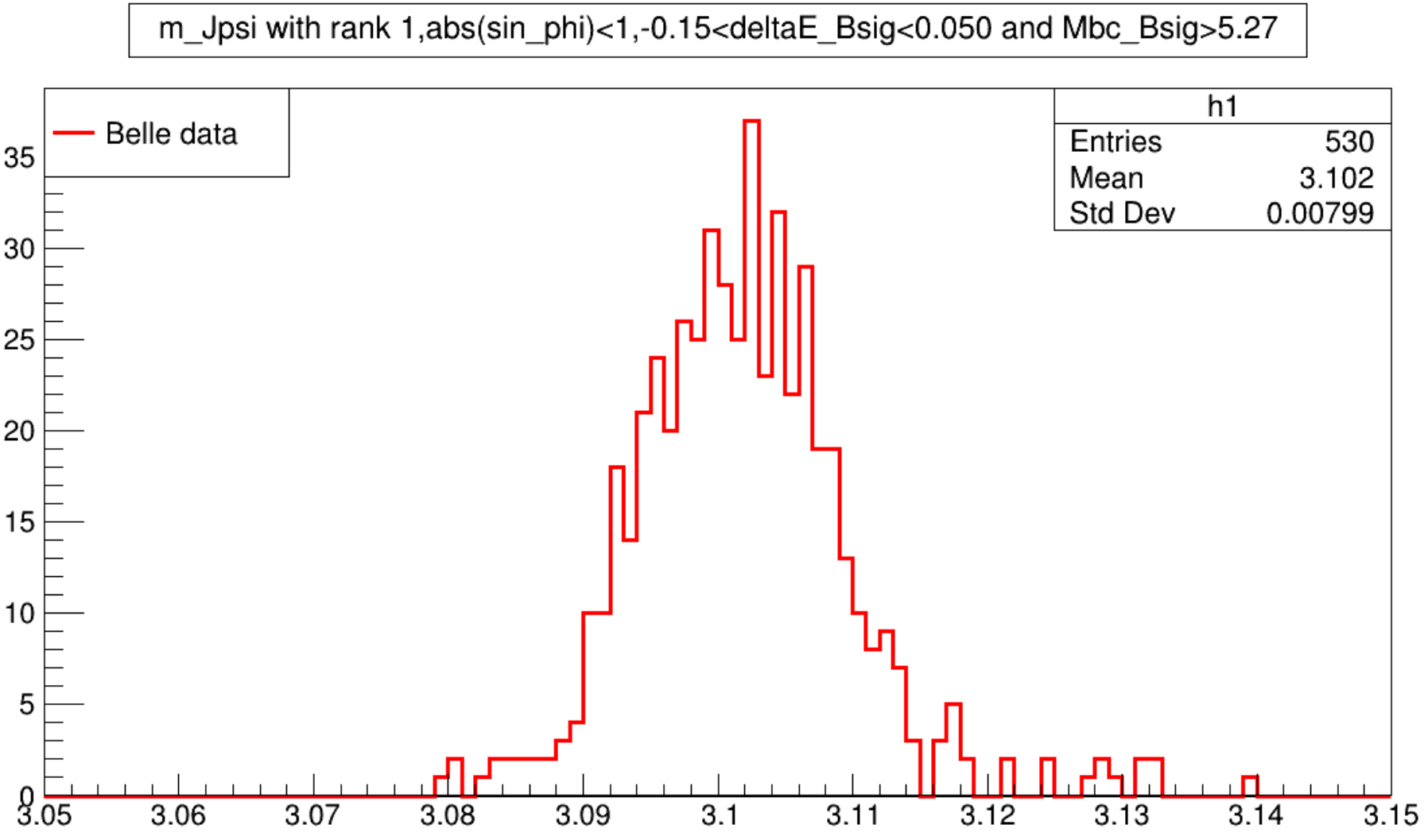
- All applied cuts are mentioned in the title of the plots.

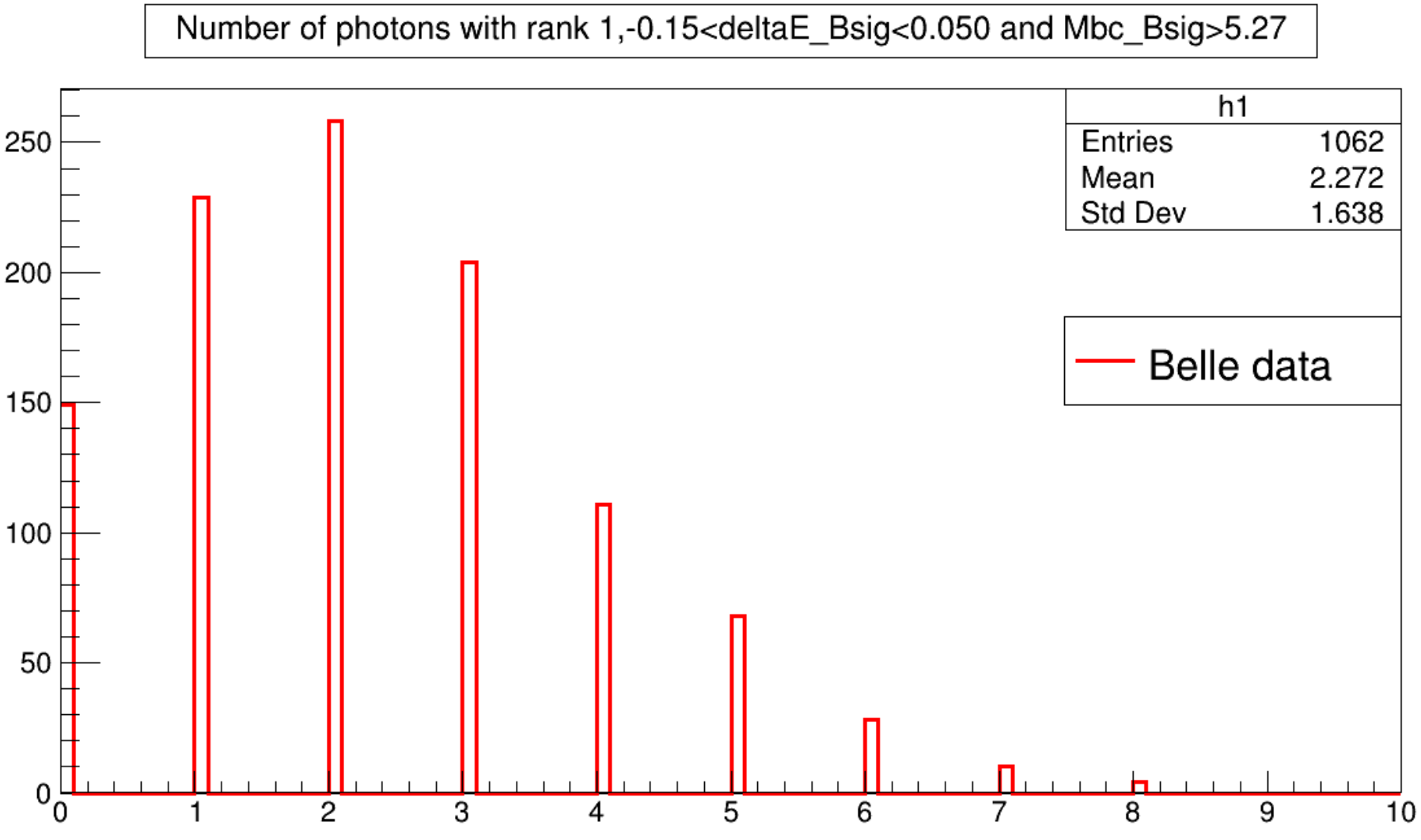

deltaE_Bsig with rank 1
Belle data
h1
Entries 351399
Mean −1.689
Std Dev 0.7393
12000
10000
8000
6000
4000
2000
0
−4
−3
−2
−1
0
1
2

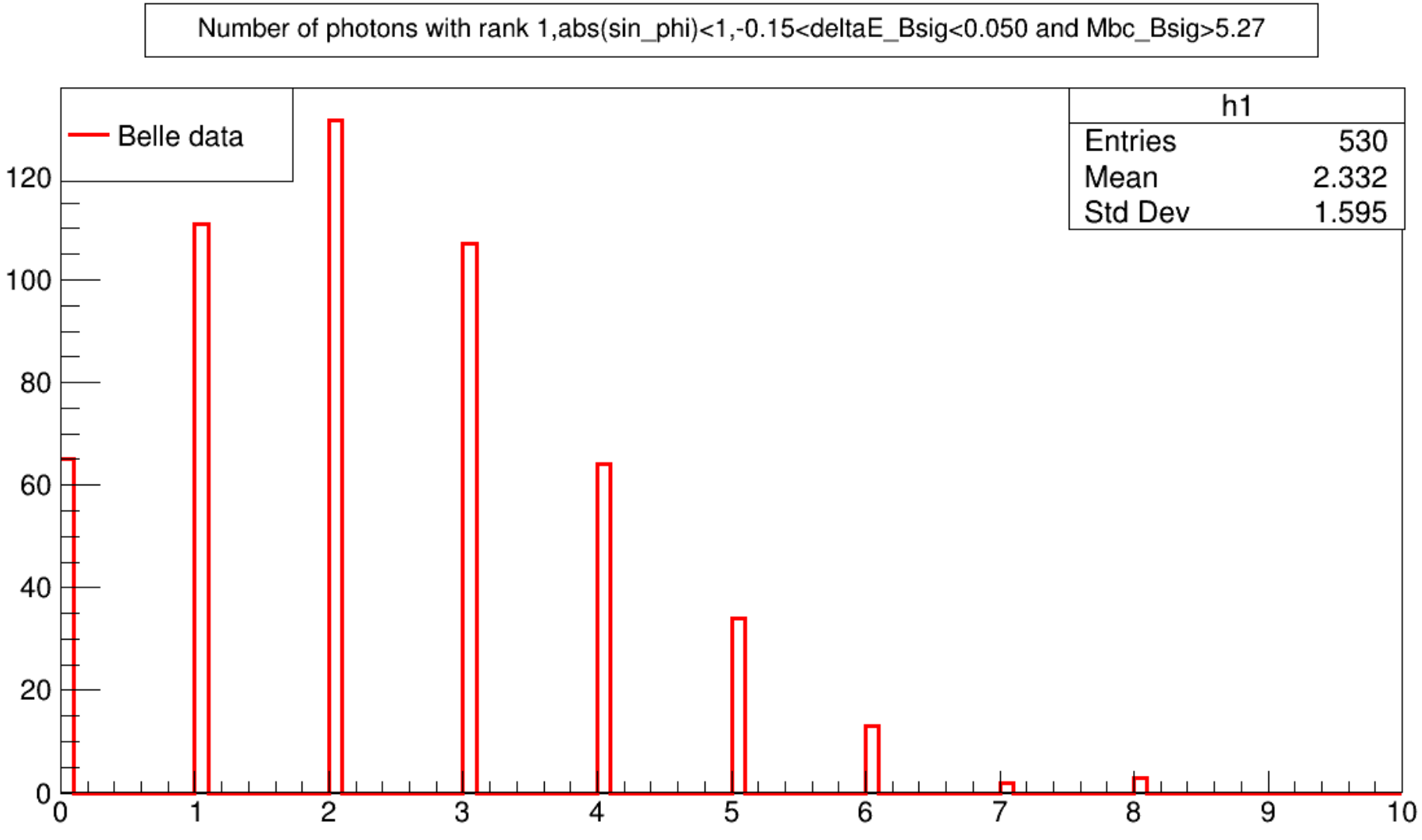

deltaE_Bsig with rank 1 and abs(sin_phi)<1
h1
Entries 2065
Mean 0.2706
Std Dev 0.2619
Belle data
250
200
150
100
50
0
0
0.2
0.4
0.6
0.8
1

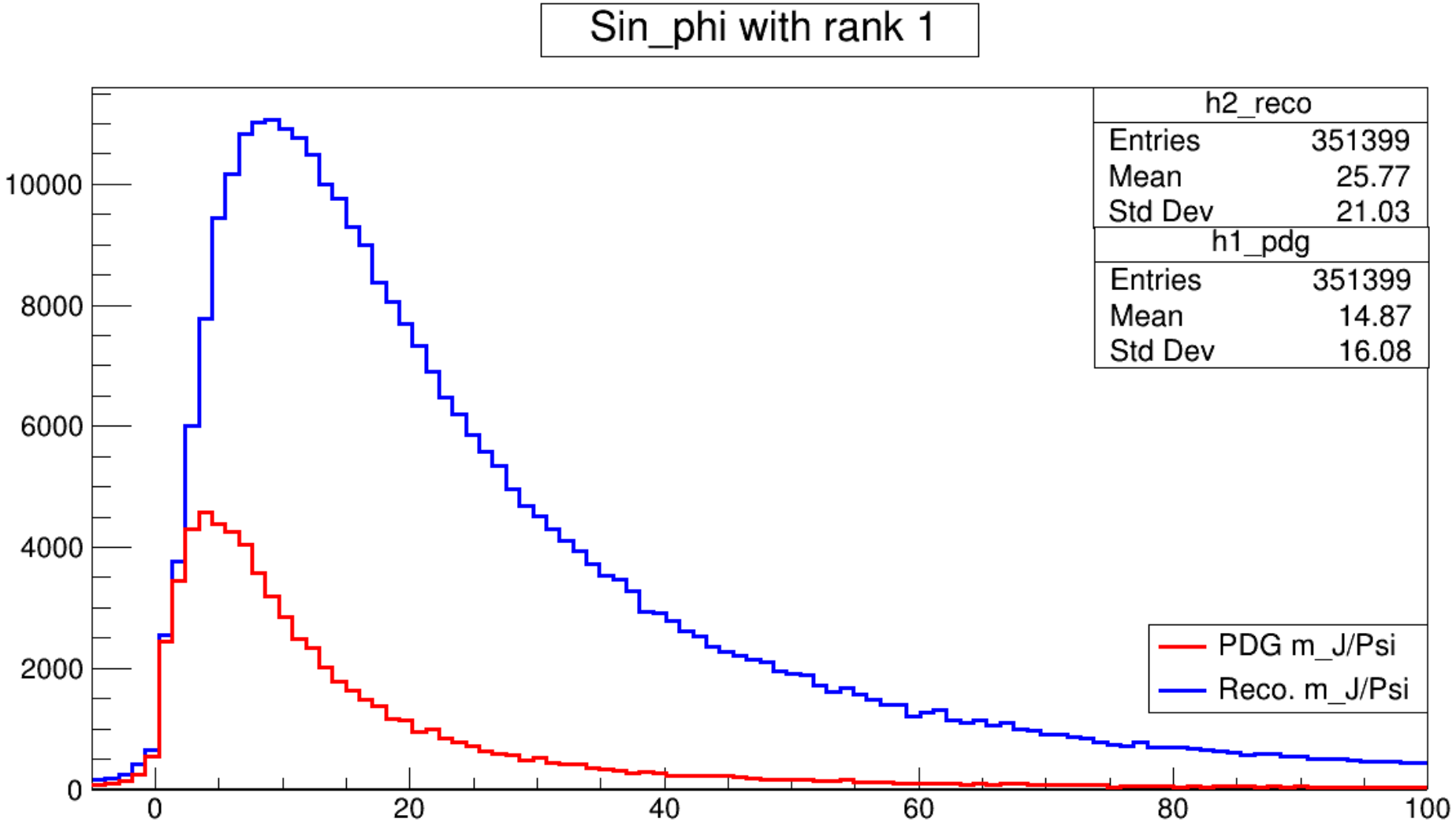

Mbc_Bsig with rank 1
h1
Entries 351399
Mean 5
Std Dev 0.2512
Belle data
12000
10000
8000
6000
4000
2000
0
4
4.2
4.4
4.6
4.8
5
5.2

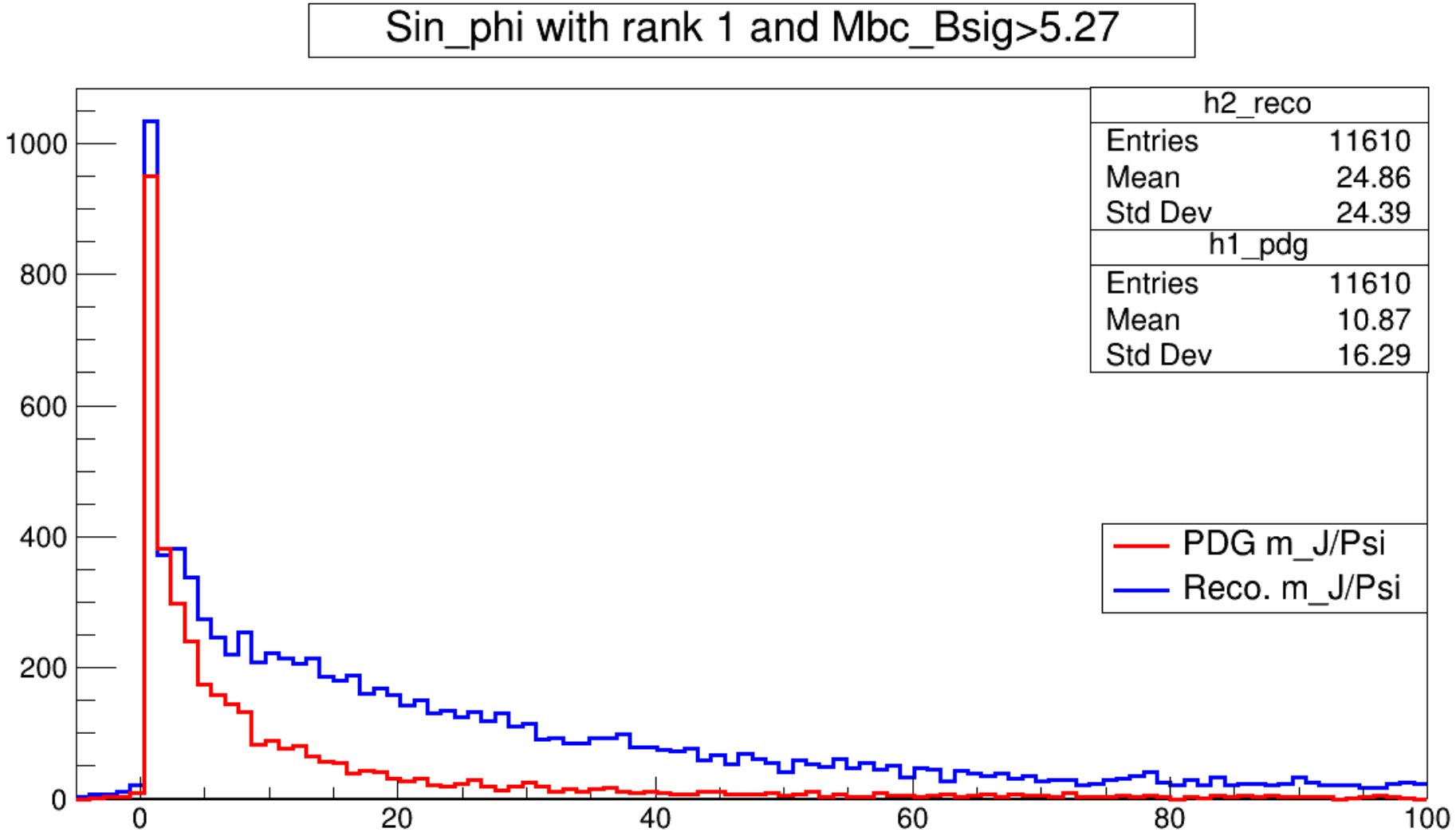

m_Jpsi with rank 1,-0.15<deltaE_Bsig<0.050 and Mbc_Bsig>5.27
Belle data
h1
Entries 1062
Mean 3.096
Std Dev 0.01121
45
40
35
30
25
20
15
10
5
0
3.05
3.06
3.07
3.08
3.09
3.1
3.11
3.12
3.13
3.14
3.15

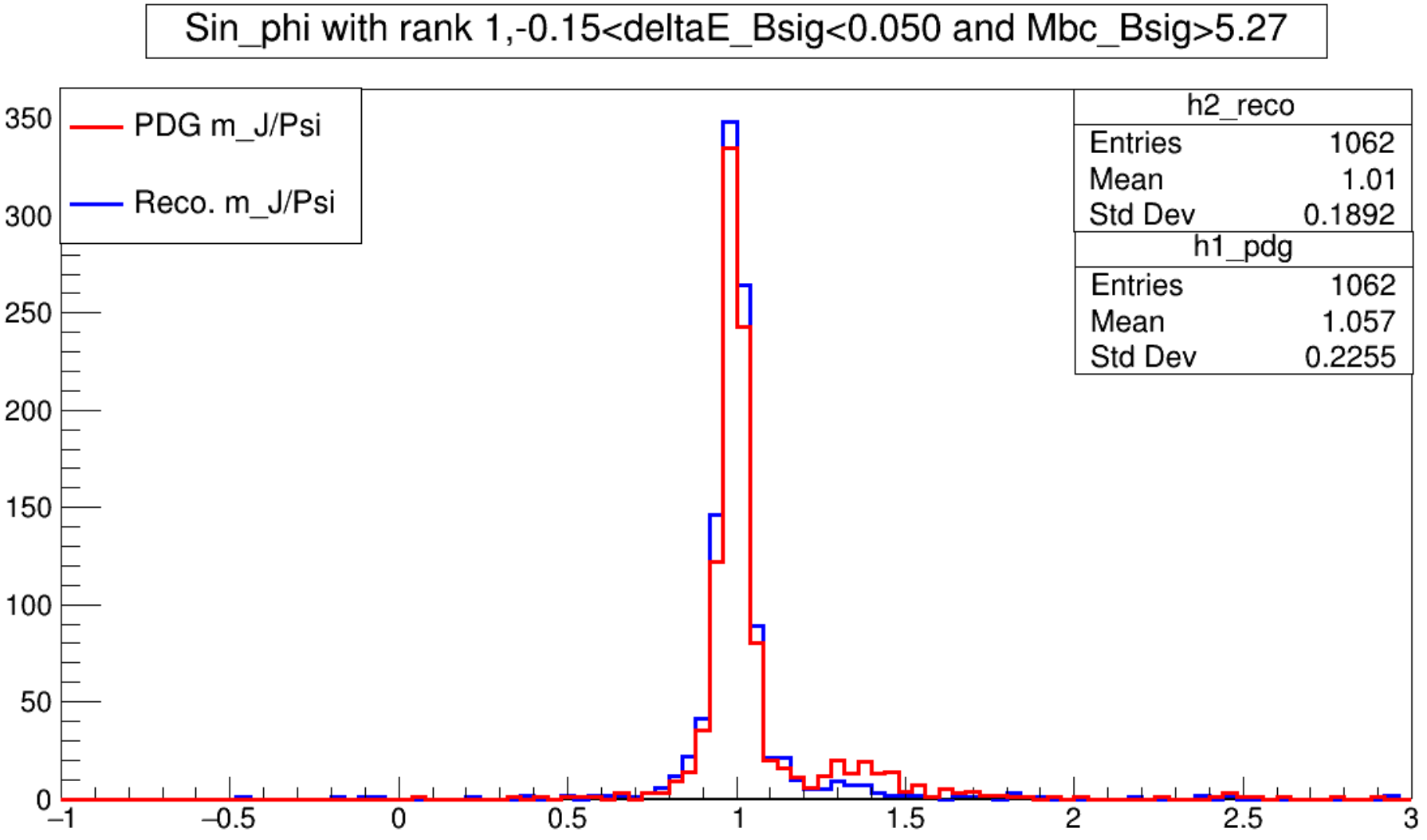

m_Jpsi with rank 1,abs(sin_phi)<1,-0.15<deltaE_Bsig<0.050 and Mbc_Bsig>5.27
Belle data
h1
Entries 530
Mean 3.102
Std Dev 0.00799
35
30
25
20
15
10
5
0
3.05
3.06
3.07
3.08
3.09
3.1
3.11
3.12
3.13
3.14
3.15


Number of photons with rank 1,-0.15<deltaE_Bsig<0.050 and Mbc_Bsig>5.27
h1
Entries 1062
Mean 2.272
Std Dev 1.638
Belle data
250
200
150
100
50
0
0
1
2
3
4
5
6
7
8
9
10


Number of photons with rank 1,abs(sin_phi)<1,-0.15<deltaE_Bsig<0.050 and Mbc_Bsig>5.27
Belle data
h1
Entries 530
Mean 2.332
Std Dev 1.595
120
100
80
60
40
20
0
0
1
2
3
4
5
6
7
8
9
10


Sin_phi with rank 1
h2_reco
Entries 351399
Mean 25.77
Std Dev 21.03
h1_pdg
Entries 351399
Mean 14.87
Std Dev 16.08
PDG m_J/Psi
Reco. m_J/Psi
10000
8000
6000
4000
2000
0
0
20
40
60
80
100


Sin_phi with rank 1 and Mbc_Bsig>5.27
h2_reco
Entries 11610
Mean 24.86
Std Dev 24.39
h1_pdg
Entries 11610
Mean 10.87
Std Dev 16.29
PDG m_J/Psi
Reco. m_J/Psi
1000
800
600
400
200
0
0
20
40
60
80
100


Sin_phi with rank 1,-0.15<deltaE_Bsig<0.050 and Mbc_Bsig>5.27
PDG m_J/Psi
Reco. m_J/Psi
h2_reco
Entries 1062
Mean 1.01
Std Dev 0.1892
h1_pdg
Entries 1062
Mean 1.057
Std Dev 0.2255
350
300
250
200
150
100
50
0
−1
−0.5
0
0.5
1
1.5
2
2.5
3