Update

B+ -> K+ tau- mu+

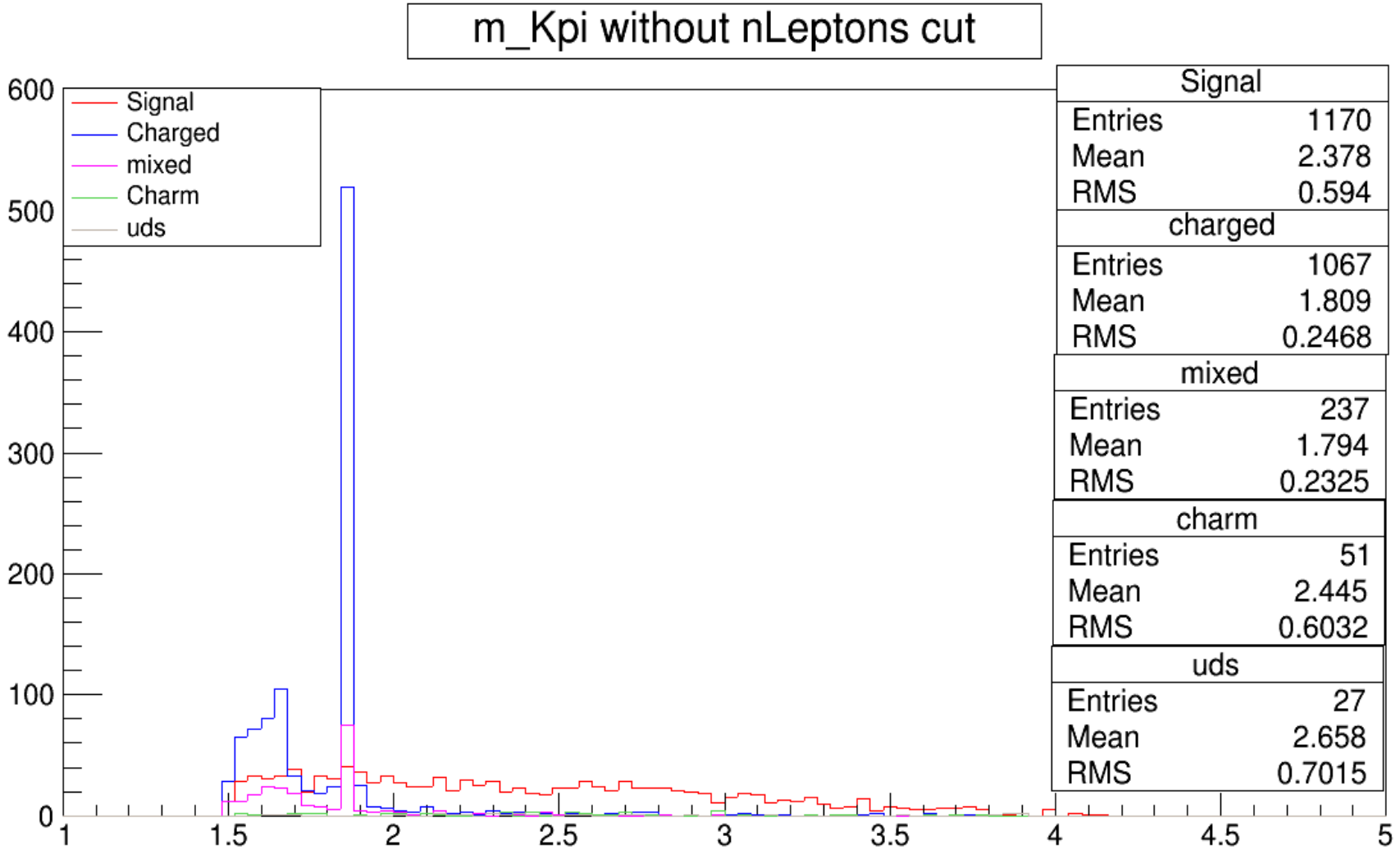
05 Sep. 2023

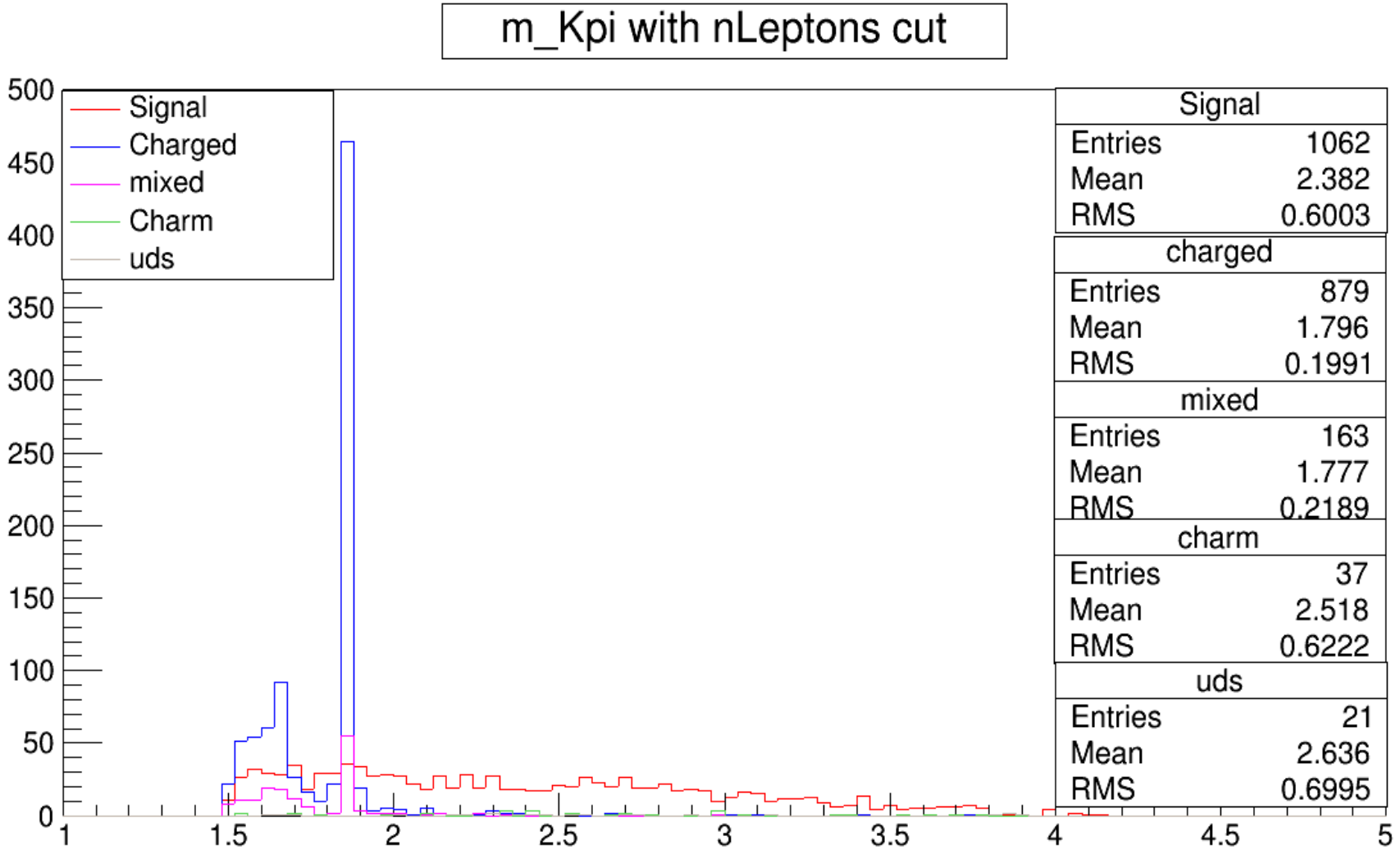
Cuts used in the reco. program

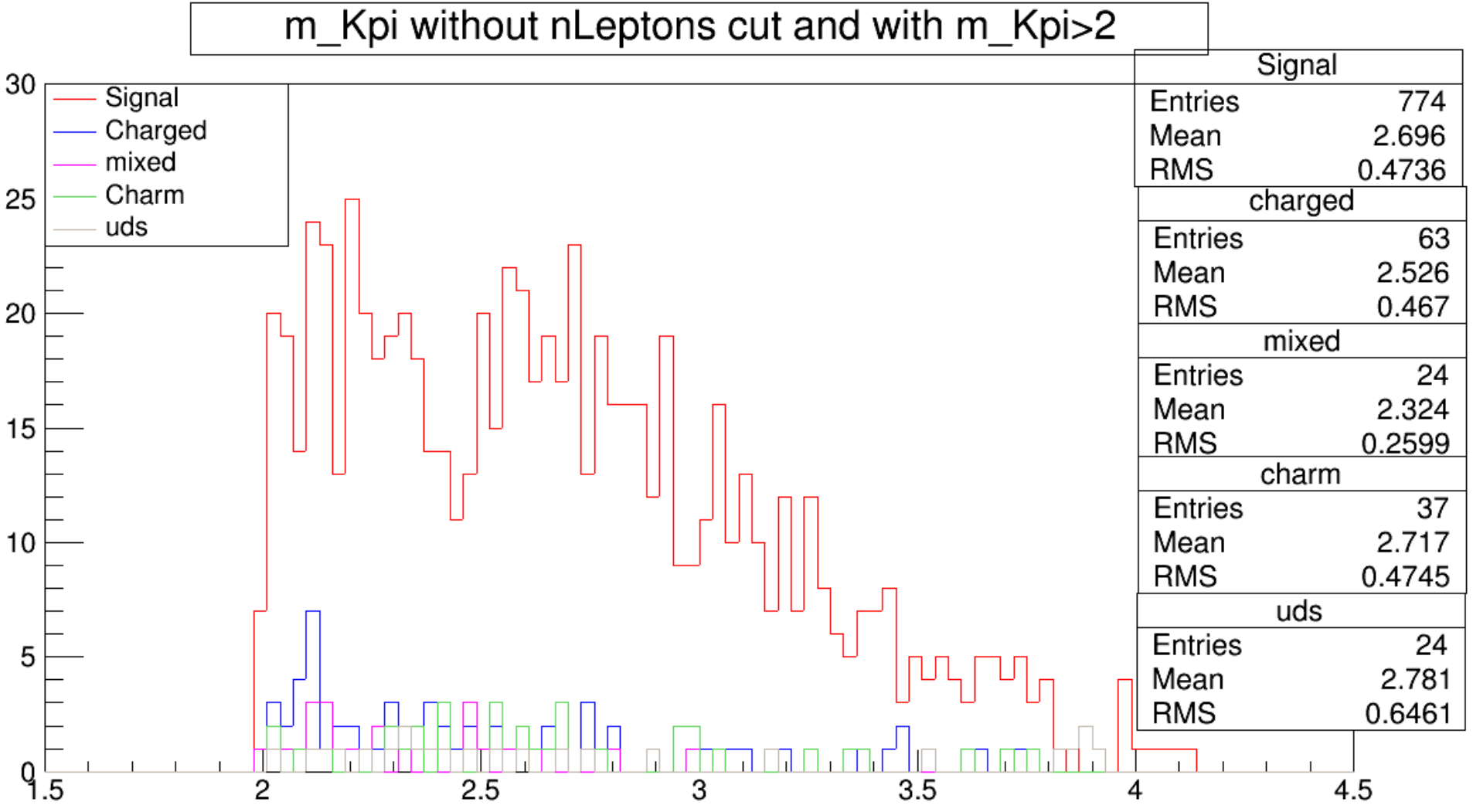
- abs(sin_phi)<1.2
- abs(m_lpi-3.1)>0.015
- m_Kpi>1.5
- abs(cos_pBtag_Dltag)<1.2
- 1.6 < m_D <2.4

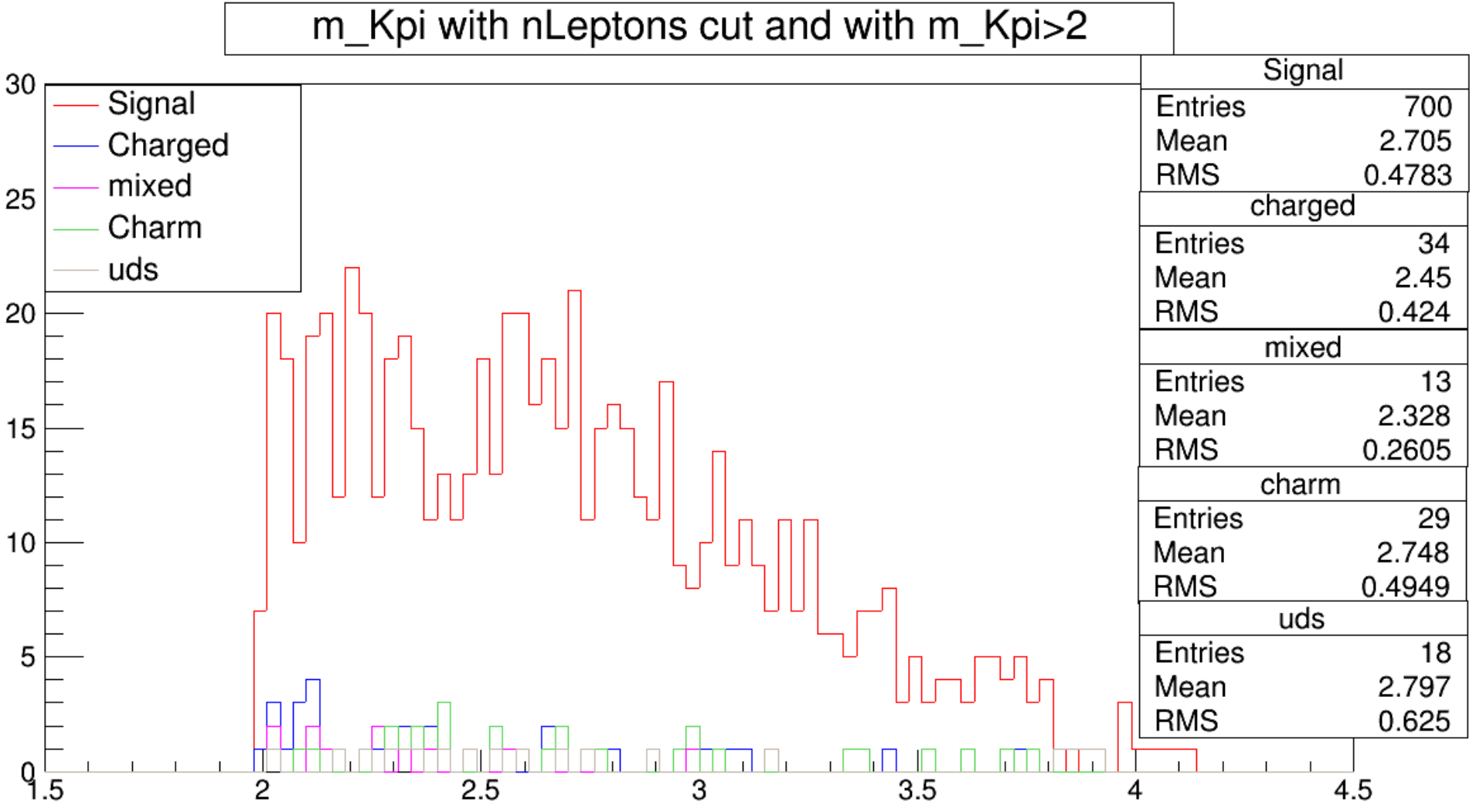
Cuts on the root level files

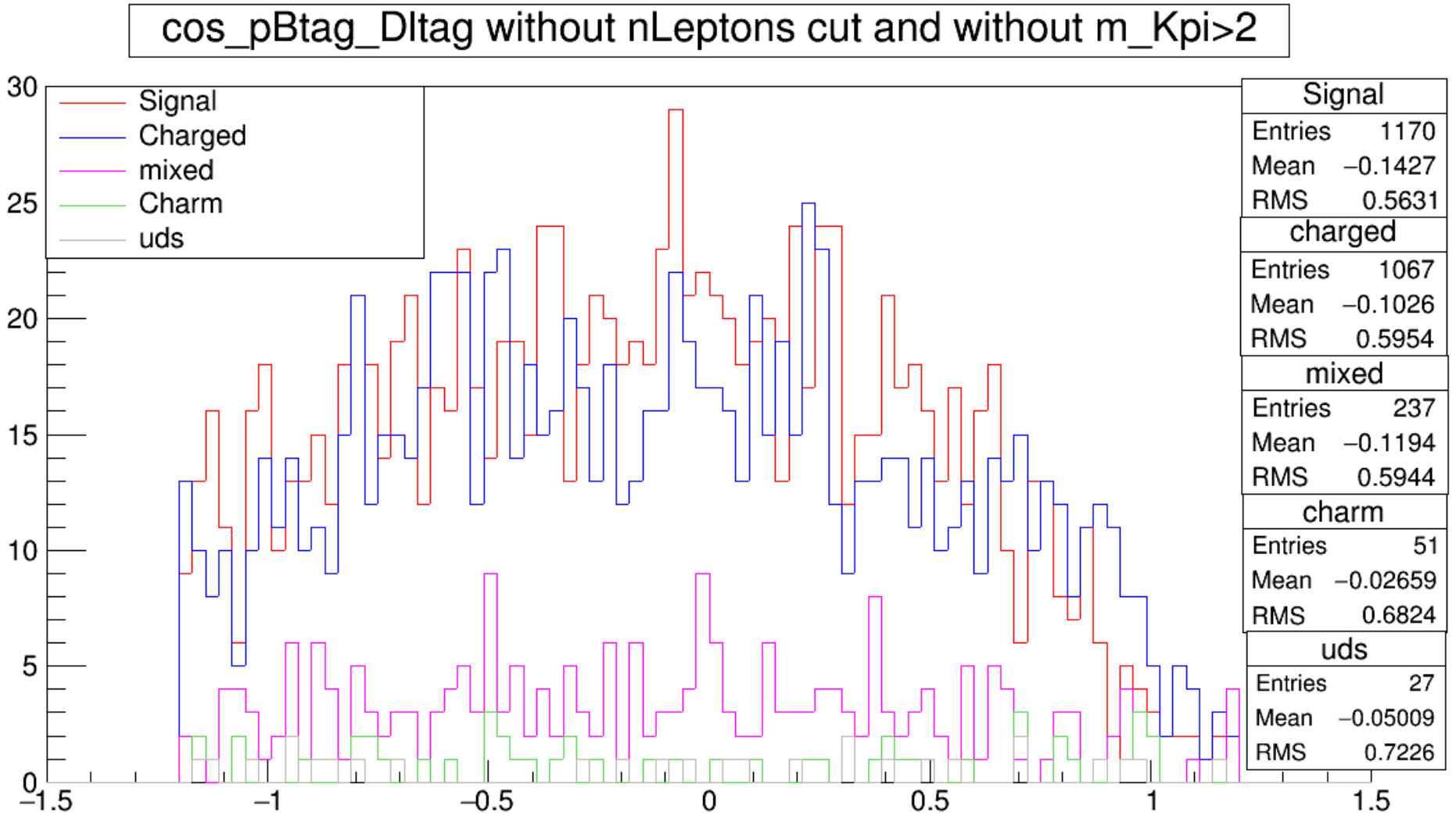
- abs(m_D-1.865)<0.015
- Yincl_rank_all==1
- abs(best_soln)<2
- nLepton==2
- m_Kpi>2

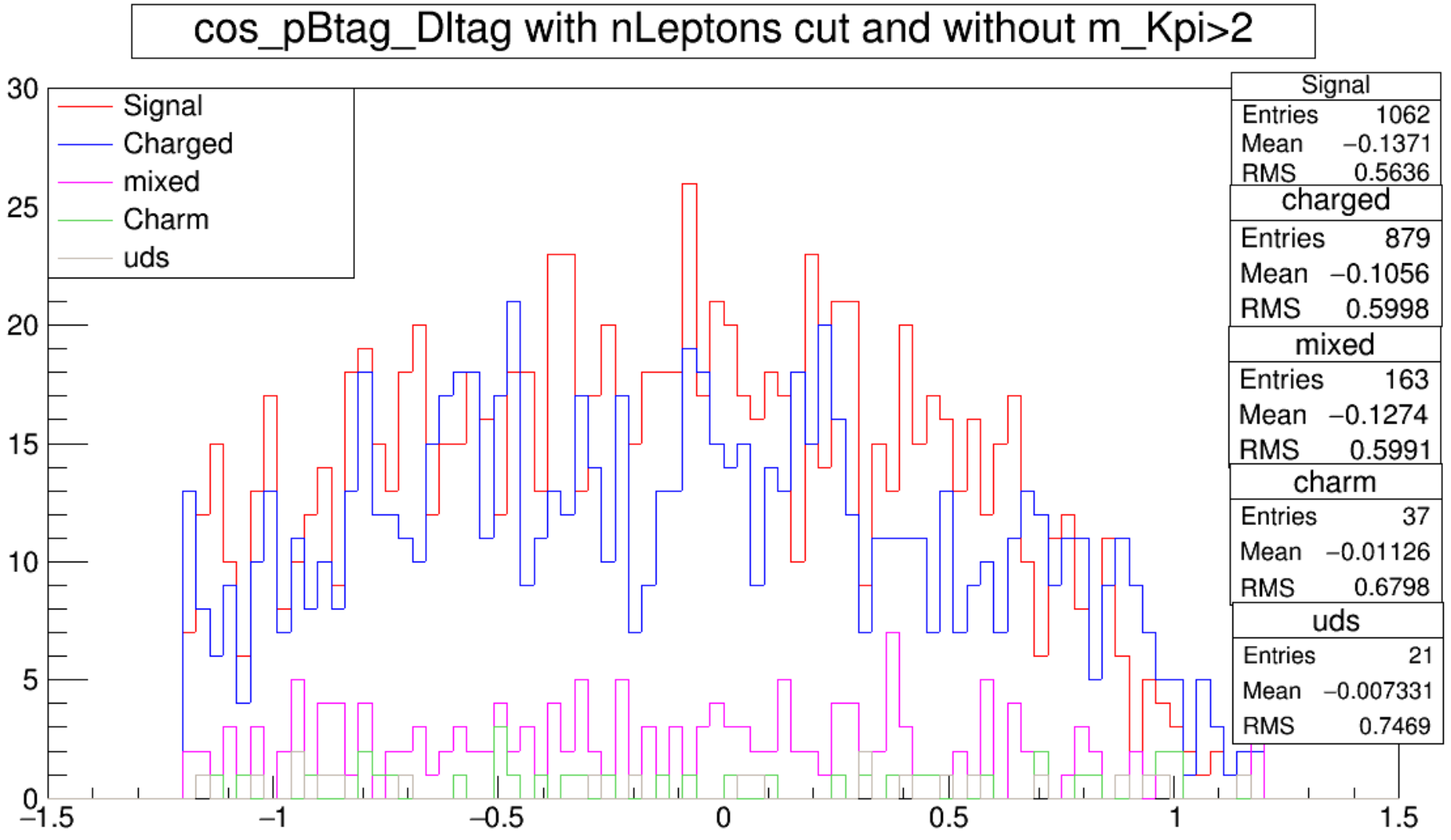

m_Kpi without nLeptons cut
Signal
Charged
mixed
Charm
uds
600
500
400
300
200
100
0
1
1.5
2
2.5
3
3.5
4
4.5
5
Signal
Entries 1170
Mean 2.378
RMS 0.594
charged
Entries 1067
Mean 1.809
RMS 0.2468
mixed
Entries 237
Mean 1.794
RMS 0.2325
charm
Entries 51
Mean 2.445
RMS 0.6032
uds
Entries 27
Mean 2.658
RMS 0.7015

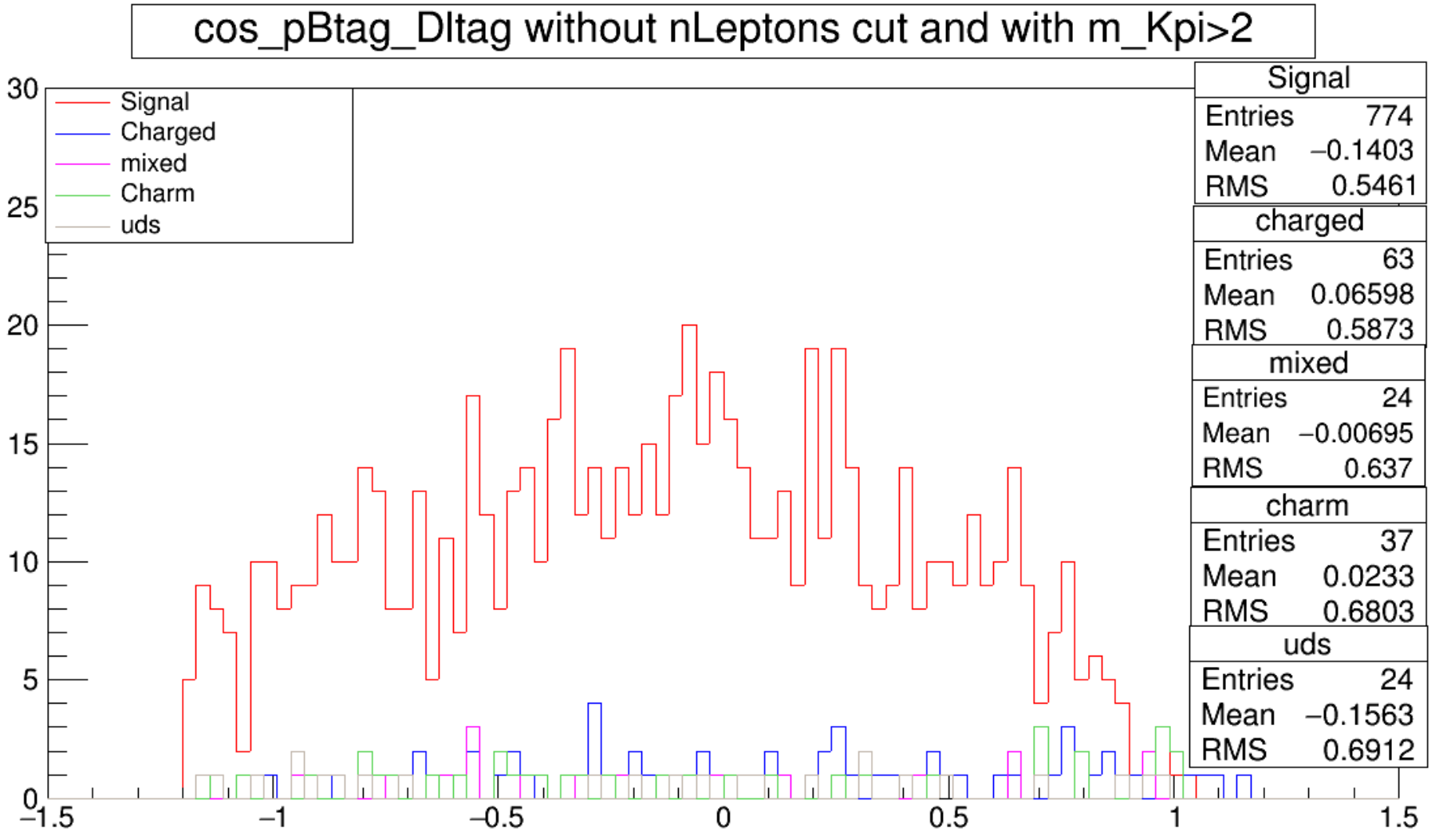

m_Kpi with nLeptons cut
Signal
Charged
mixed
Charm
uds
Signal
Entries 1062
Mean 2.382
RMS 0.6003
charged
Entries 879
Mean 1.796
RMS 0.1991
mixed
Entries 163
Mean 1.777
RMS 0.2189
charm
Entries 37
Mean 2.518
RMS 0.6222
uds
Entries 21
Mean 2.636
RMS 0.6995
500
450
400
350
300
250
200
150
100
50
0
1
1.5
2
2.5
3
3.5
4
4.5
5

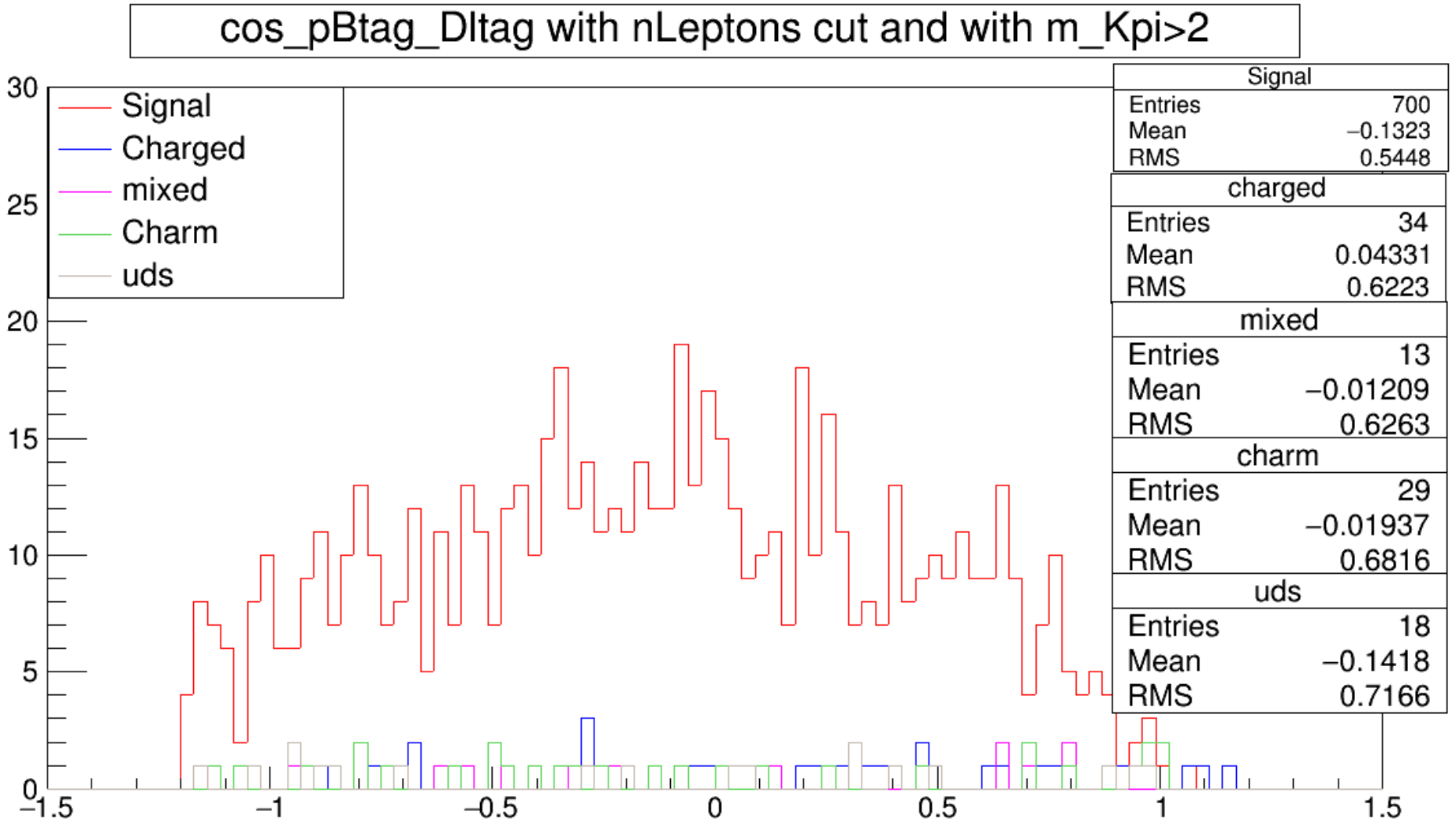

m_Kpi without nLeptons cut and with m_Kpi>2
Signal
Charged
mixed
Charm
uds
Signal
Entries 774
Mean 2.696
RMS 0.4736
charged
Entries 63
Mean 2.526
RMS 0.467
mixed
Entries 24
Mean 2.324
RMS 0.2599
charm
Entries 37
Mean 2.717
RMS 0.4745
uds
Entries 24
Mean 2.781
RMS 0.6461
30
25
20
15
10
5
0
1.5
2
2.5
3
3.5
4
4.5


m_Kpi with nLeptons cut and with m_Kpi>2
Signal
Charged
mixed
Charm
uds
Signal
Entries 700
Mean 2.705
RMS 0.4783
charged
Entries 34
Mean 2.45
RMS 0.424
mixed
Entries 13
Mean 2.328
RMS 0.2605
charm
Entries 29
Mean 2.748
RMS 0.4949
uds
Entries 18
Mean 2.797
RMS 0.625
30
25
20
15
10
5
0
1.5
2
2.5
3
3.5
4
4.5


cos_pBtag_Dltag without nLeptons cut and without m_Kpi>2
Signal
Charged
mixed
Charm
uds
Signal
Entries 1170
Mean −0.1427
RMS 0.5631
charged
Entries 1067
Mean −0.1026
RMS 0.5954
mixed
Entries 237
Mean −0.1194
RMS 0.5944
charm
Entries 51
Mean −0.02659
RMS 0.6824
uds
Entries 27
Mean −0.05009
RMS 0.7226
30
25
20
15
10
5
0
−1.5
−1
−0.5
0
0.5
1
1.5


cos_pBtag_Dltag with nLeptons cut and without m_Kpi>2
Signal
Charged
mixed
Charm
uds
Signal
Entries 1062
Mean −0.1371
RMS 0.5636
charged
Entries 879
Mean −0.1056
RMS 0.5998
mixed
Entries 163
Mean −0.1274
RMS 0.5991
charm
Entries 37
Mean −0.01126
RMS 0.6798
uds
Entries 21
Mean −0.007331
RMS 0.7469
30
25
20
15
10
5
0
−1.5
−1
−0.5
0
0.5
1
1.5


cos_pBtag_Dltag without nLeptons cut and with m_Kpi>2
Signal
Charged
mixed
Charm
uds
Signal
Entries 774
Mean −0.1403
RMS 0.5461
charged
Entries 63
Mean 0.06598
RMS 0.5873
mixed
Entries 24
Mean −0.00695
RMS 0.637
charm
Entries 37
Mean 0.0233
RMS 0.6803
uds
Entries 24
Mean −0.1563
RMS 0.6912
30
25
20
15
10
5
0
−1.5
−1
−0.5
0
0.5
1
1.5


cos_pBtag_Dltag with nLeptons cut and with m_Kpi>2
Signal
Charged
mixed
Charm
uds
Signal
Entries 700
Mean −0.1323
RMS 0.5448
charged
Entries 34
Mean 0.04331
RMS 0.6223
mixed
Entries 13
Mean −0.01209
RMS 0.6263
charm
Entries 29
Mean −0.01937
RMS 0.6816
uds
Entries 18
Mean −0.1418
RMS 0.7166
30
25
20
15
10
5
0
−1.5
−1
−0.5
0
0.5
1
1.5

Thanks