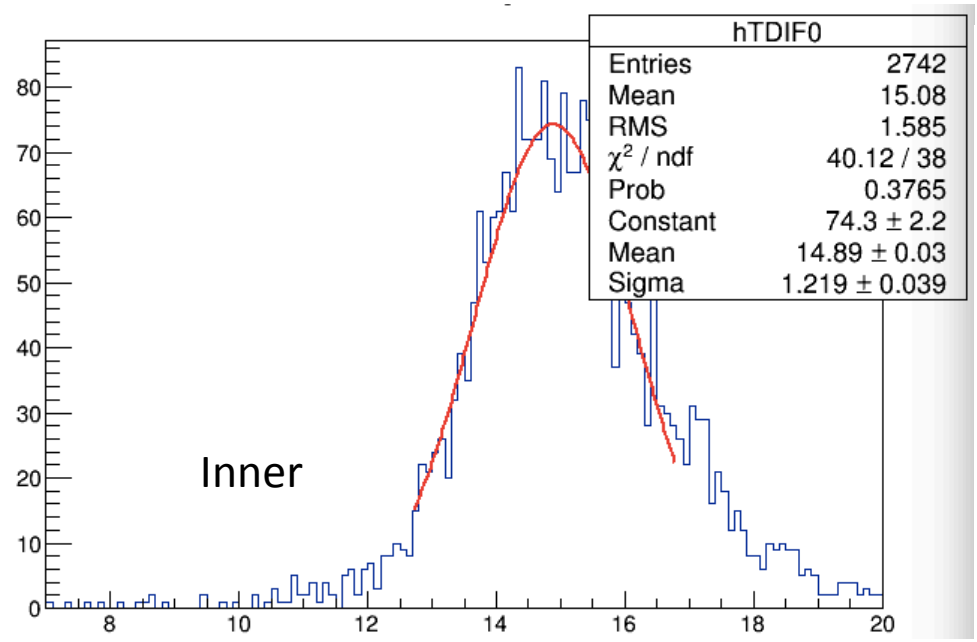
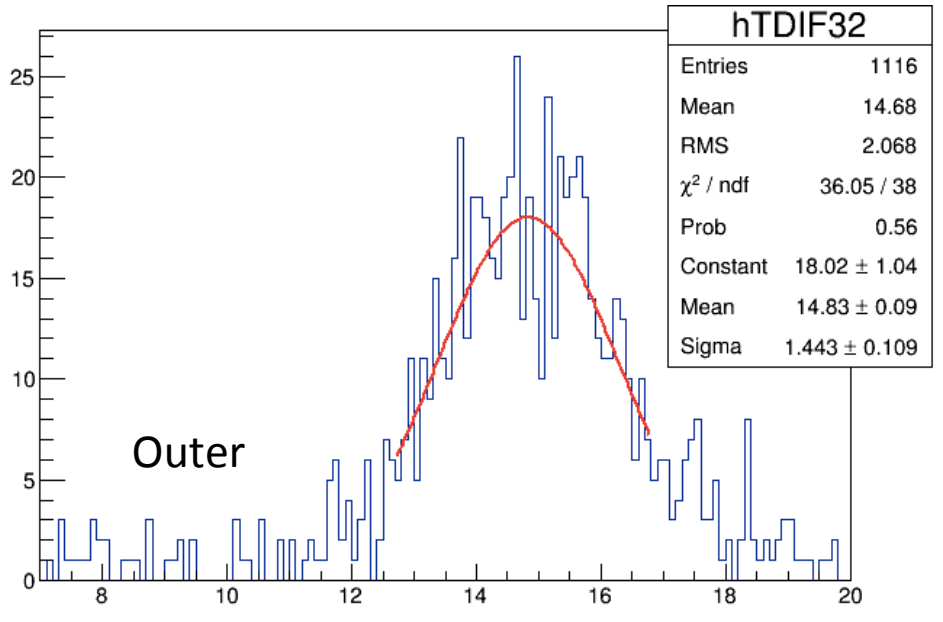
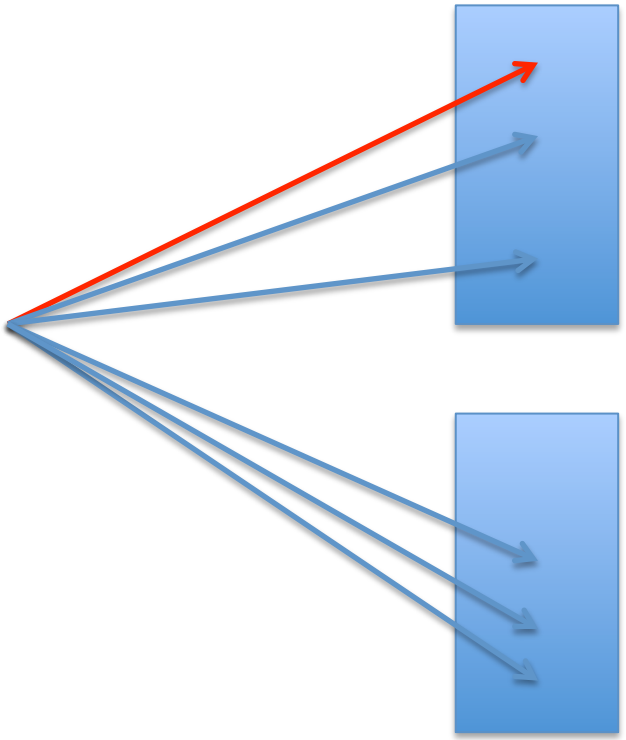
Report_161220

Fitting Examples



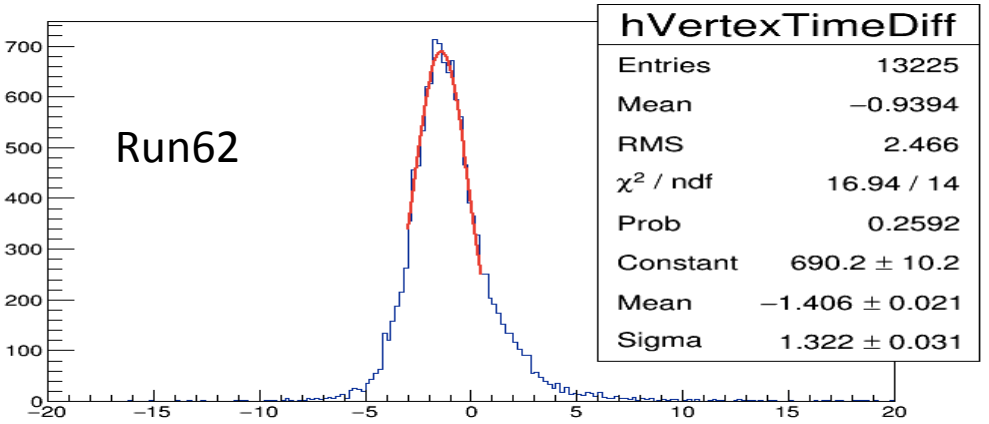


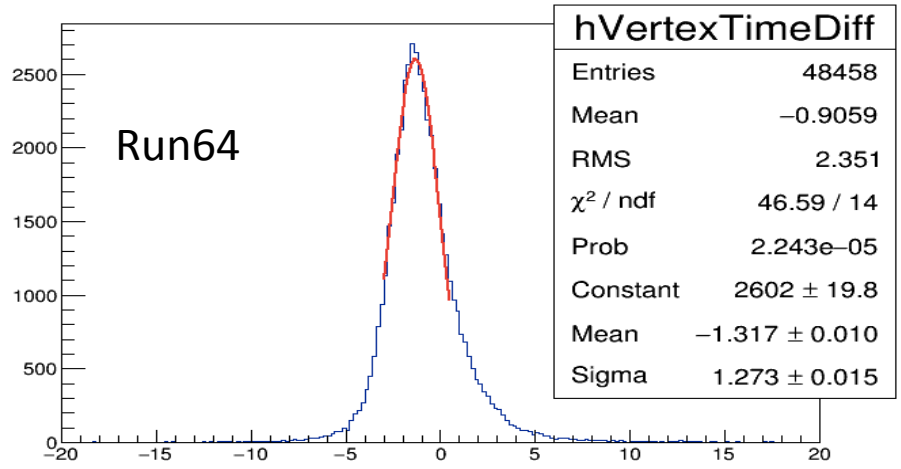
Vertex Time difference in 6g

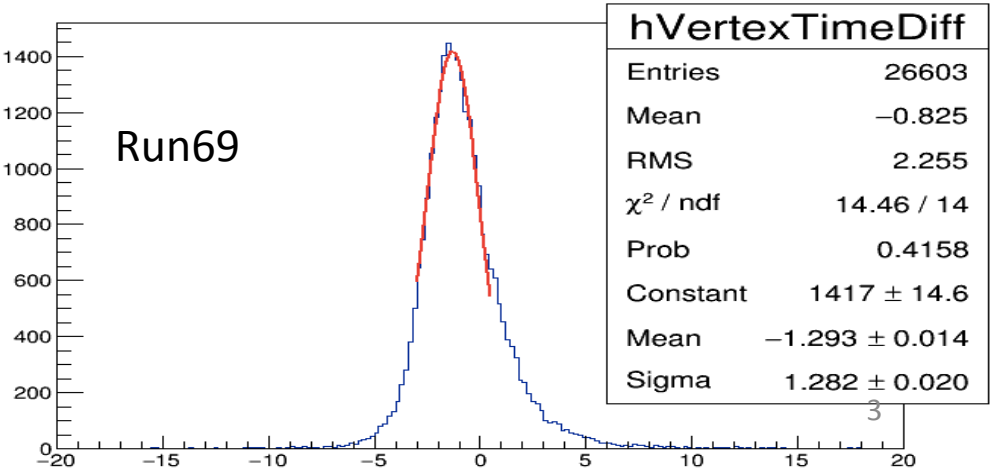


Red : gamma which has lowest energy among 6g

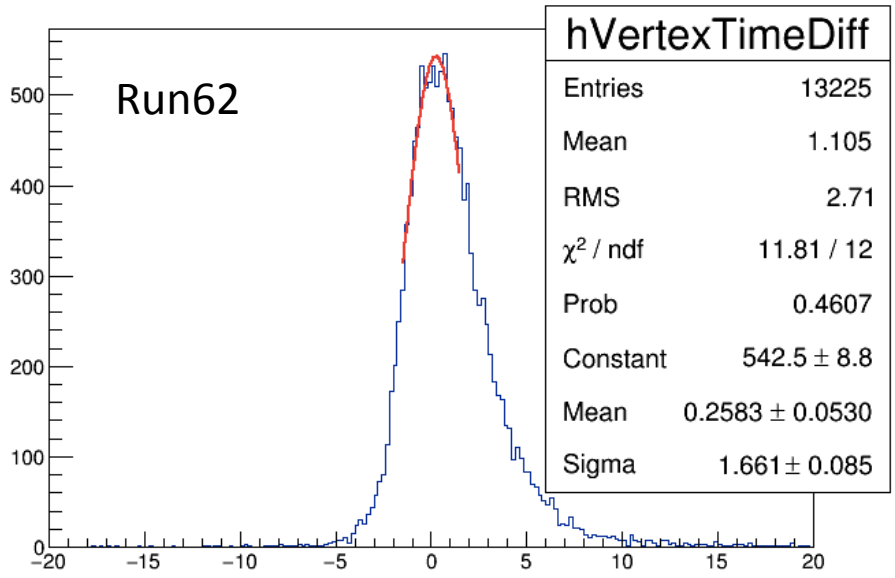
Vertex Time Difference =
VertexTime(Red) – MeanVertexTime(Blue)

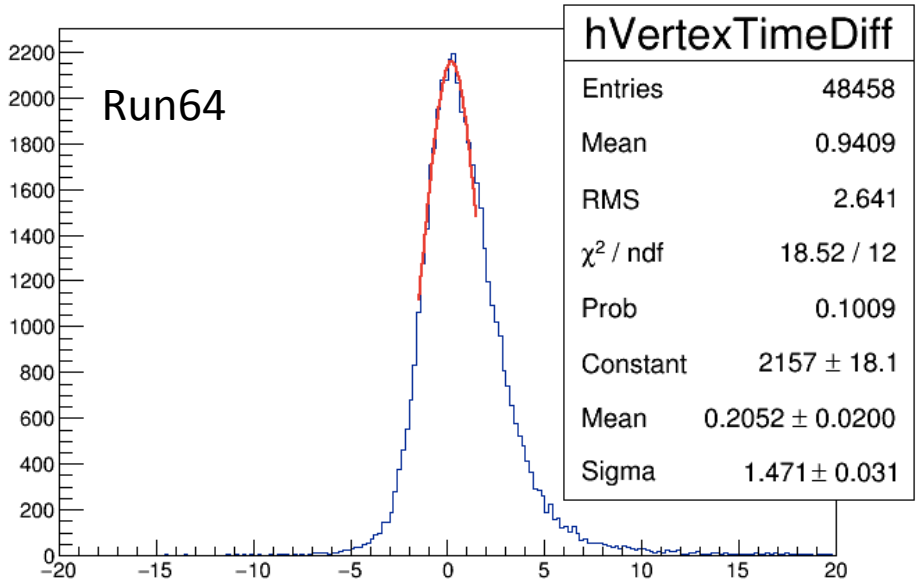


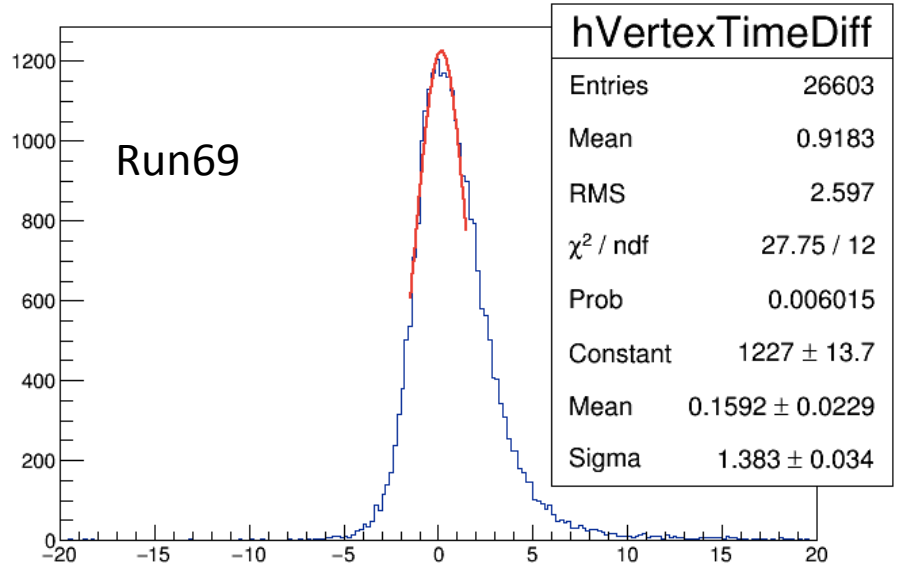


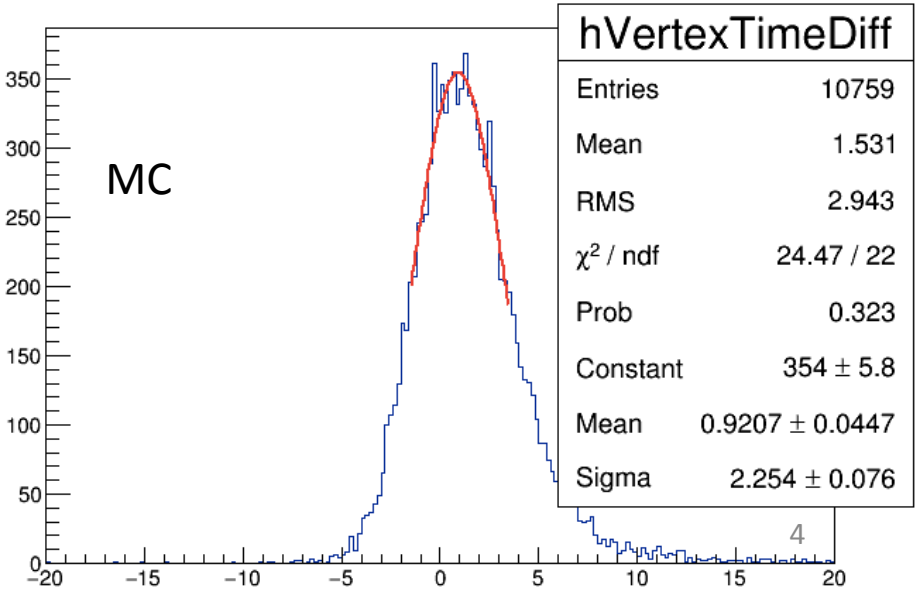


Vertex Time difference in 6g
Gamma of highest energy Selection

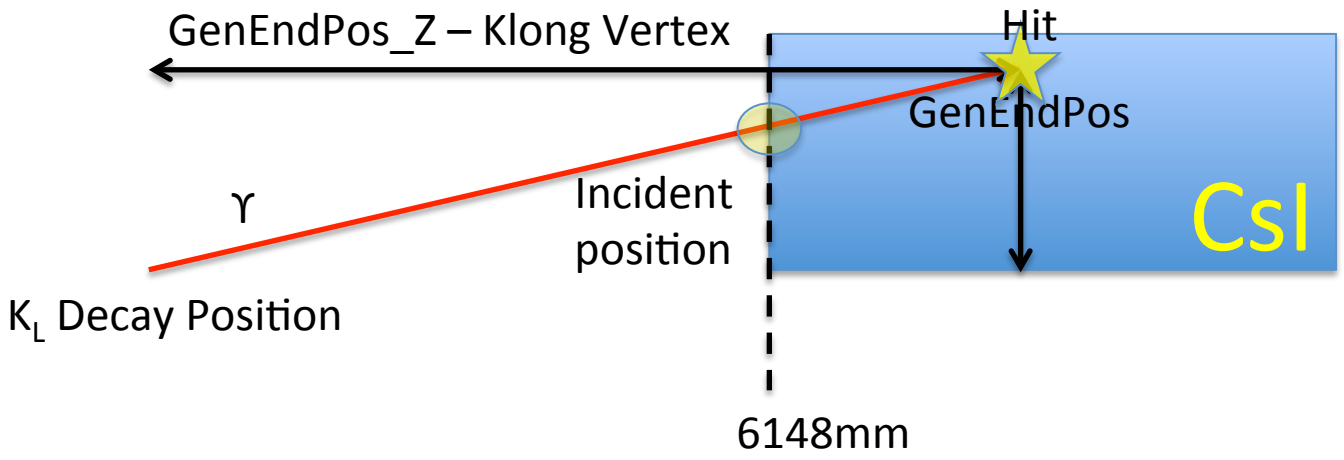








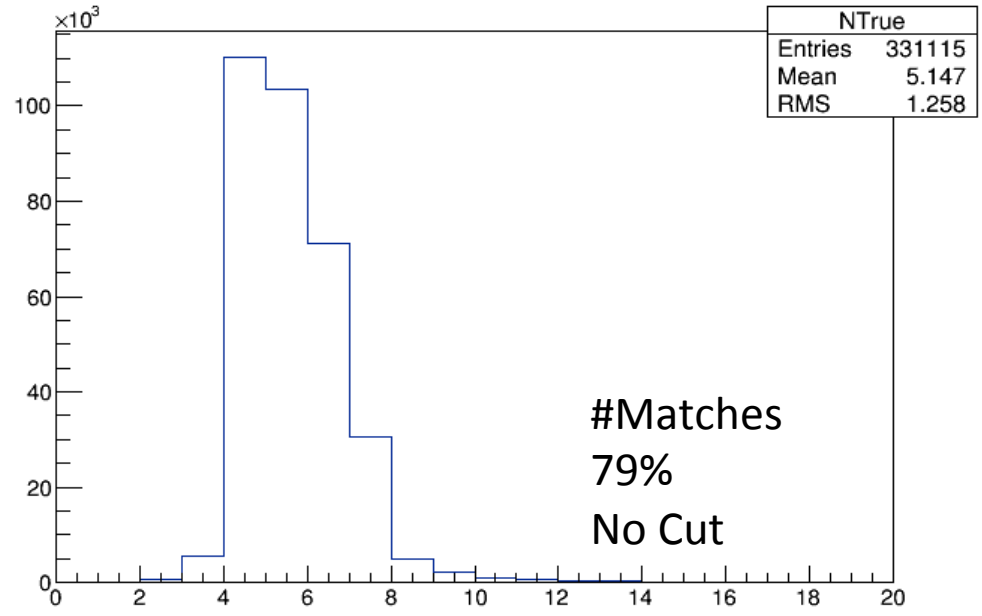
Match of ϒ

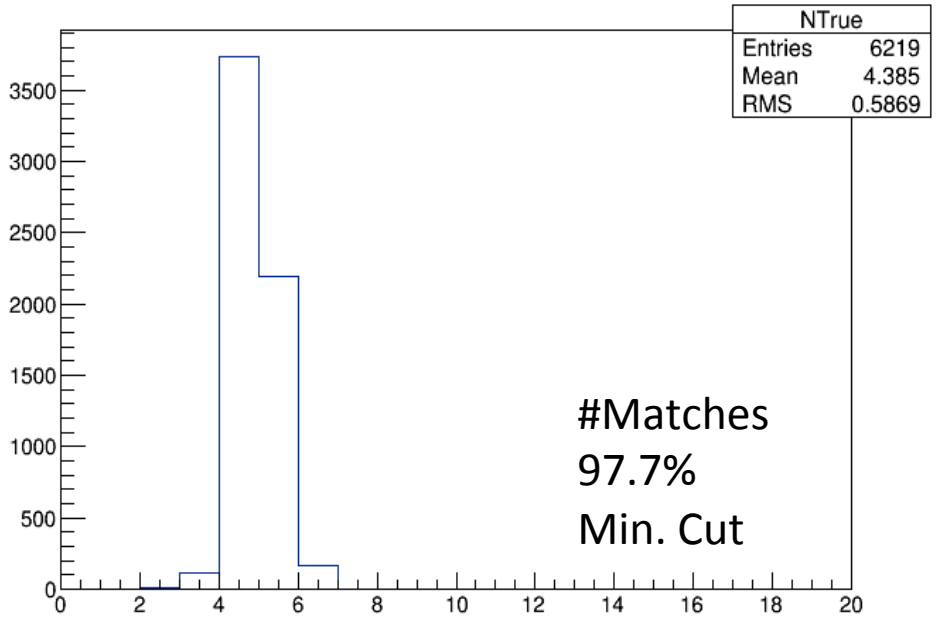


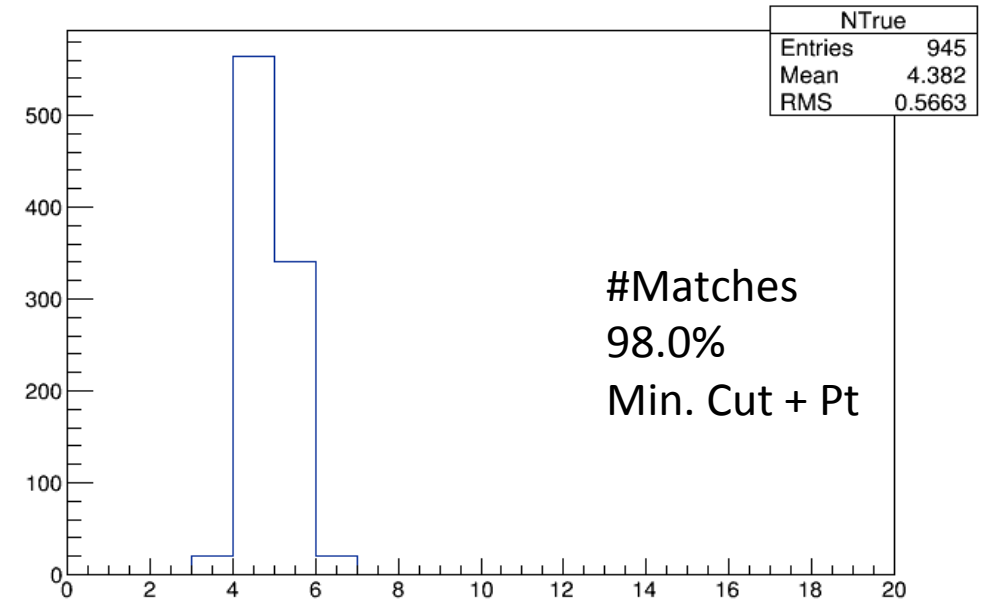
- Calculation of incident position of ϒs
  - To Compare True MC value with Reconstructed MC value
    - GenEndPos – GammaPos
- One to one match for 5g & one ϒ which has GenEndPos at r > 1000mm
  - Match Ratio
  - Match for checking status of pi0 pairing

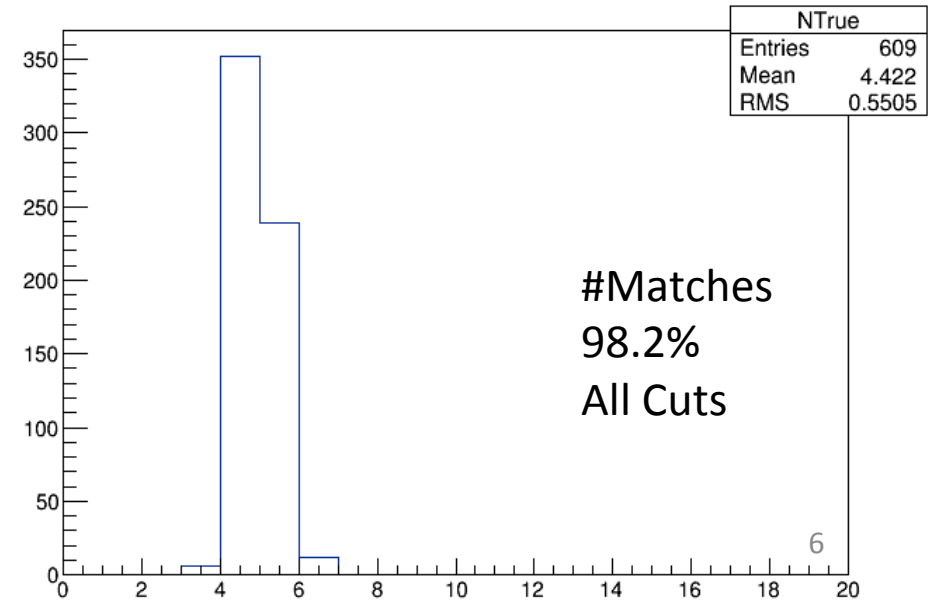
Conditions	Match Ratio
No cut	79%
Minimum Cut	97.7%
Min. Cut + Pt	98.0%
All Cuts	98.2%

Gamma Match Ratio

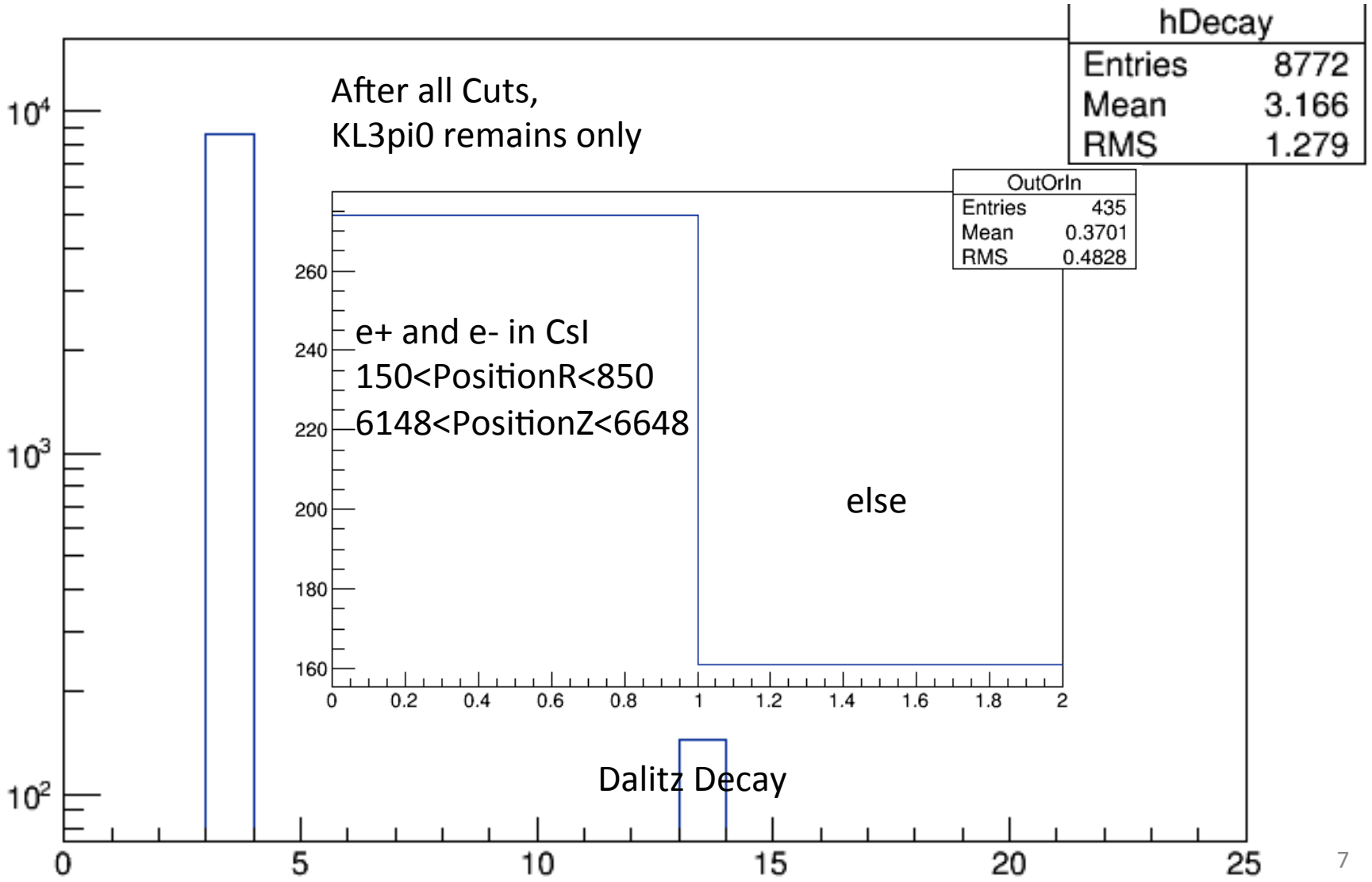




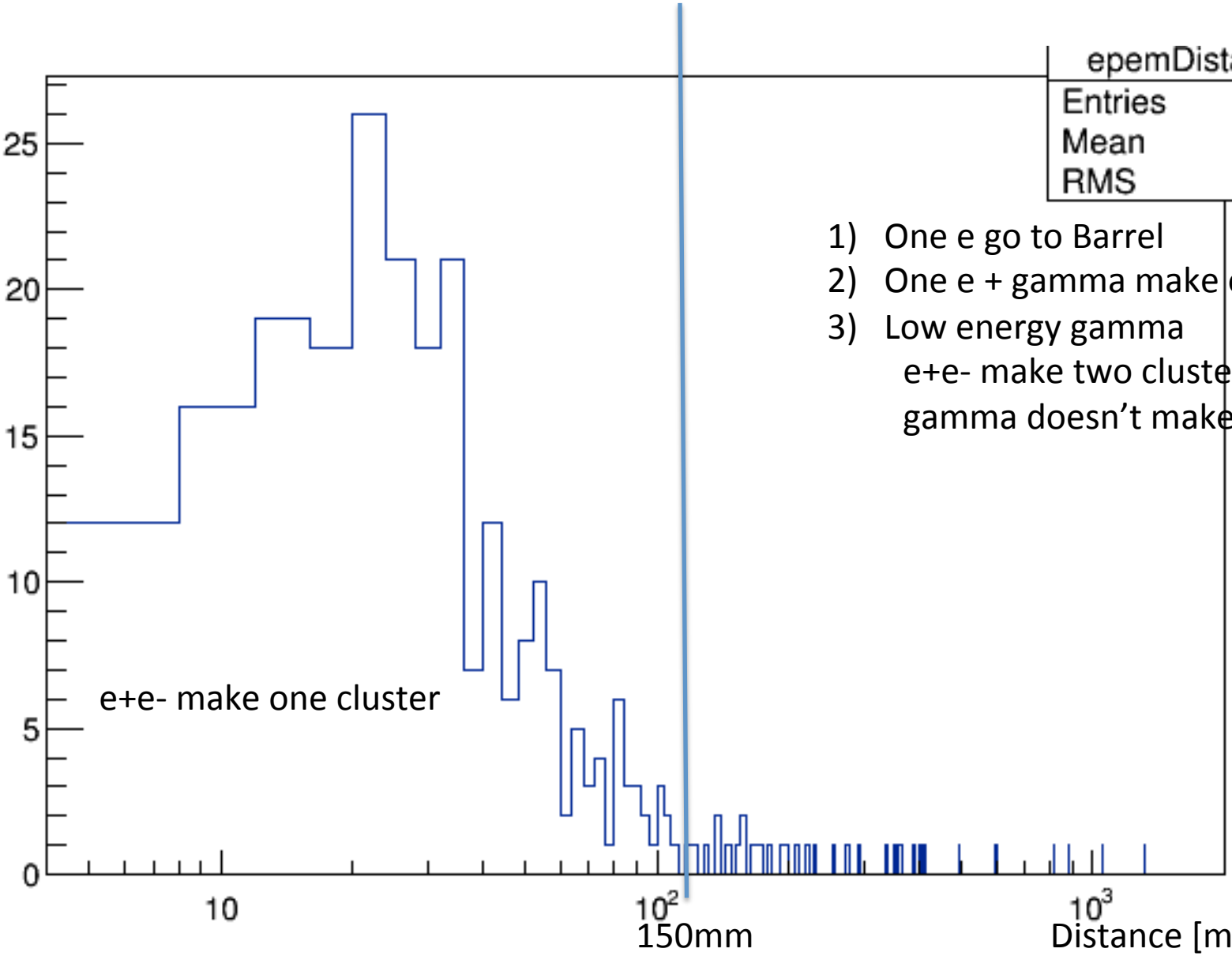




Decay Mode Study



Dalitz Decay (e+e- in CsI)



1) One e go to Barrel
2) One e + gamma make one cluster
3) Low energy gamma
   e+e- make two cluster
   gamma doesn't make cluster

example

```
Decay Position : 4885.77
 PID : 22,  GenEndPos : (875.62, 630.854, 4865.09) ,  GenMom : -1.10517
 PID : 11,  GenEndPos : (-458.021, 425.224, 6152.86) ,  GenMom : 17.0427
 PID : -11,  GenEndPos : (-416.403, 200.444, 6184.9) ,  GenMom : 109.071
Distance between e+e- : 228.6
e- energy : 19.05 Low energy
e+ energy : 117.15
********** Far distance between e+e- **********
GammaPosition_0 : (-398.34, 8.67, 6149.31), Gamma Energy : 271.139
GammaPosition_1 : (270.06, -40.43, 6160.06), Gamma Energy : 259.396
GammaPosition_2 : (708.67, -493.74, 6163.00), Gamma Energy : 189.429
GammaPosition_3 : (-573.57, -49.55, 6157.58), Gamma Energy : 112.821
GammaPosition_4 : (875.62, 630.85, 4865.09), Gamma Energy : 57.2147
```

```
Decay Position : 4991.2
 PID : 22,  GenEndPos : (-1085.51, 57.8399, 5773.51) ,  GenMom : 26.8848
 PID : 11,  GenEndPos : (-28.5757, -230.937, 6185.3) ,  GenMom : 125.243
 PID : -11,  GenEndPos : (221.118, -281.597, 6194.24) ,  GenMom : 220.904
Distance between e+e- : 254.782
e- energy : 127.07
e+ energy : 228.35
********** Far distance between e+e- **********
GammaPosition_0 : (-1085.51, 57.84, 5773.51), Gamma Energy : 46.2923
GammaPosition_1 : (-51.60, -219.06, 6153.85), Gamma Energy : 560.135
GammaPosition_2 : (10.32, 194.15, 6166.63), Gamma Energy : 263.166
GammaPosition_3 : (625.78, 91.70, 6222.30), Gamma Energy : 162.184
GammaPosition_4 : (-181.33, 371.78, 6204.20), Gamma Energy : 278.069
```

One Cluster

Veto

Data(Run62)

Detector	Time window	threshold
CV	220,250	0.25
NCC	170,210	2
CC03	205,245	3
BCV	200,250	0.5
OEV	200,270	2
BPCV	190,220	2

MC

Detector	Time window	threshold
CV	20,50	0.25
NCC	0,40	2
CC03	20,60	3
BCV	0,50	0.5
OEV	15,85	2
BPCV	25,55	2

I checked there are no other decay mode after applying all Kin. Cuts in page 7

: I used KL3pi0 mode only for studying Veto eff.

Common Only
(NCC)

Min Bias.
Before Veto
9148
After Veto
4388

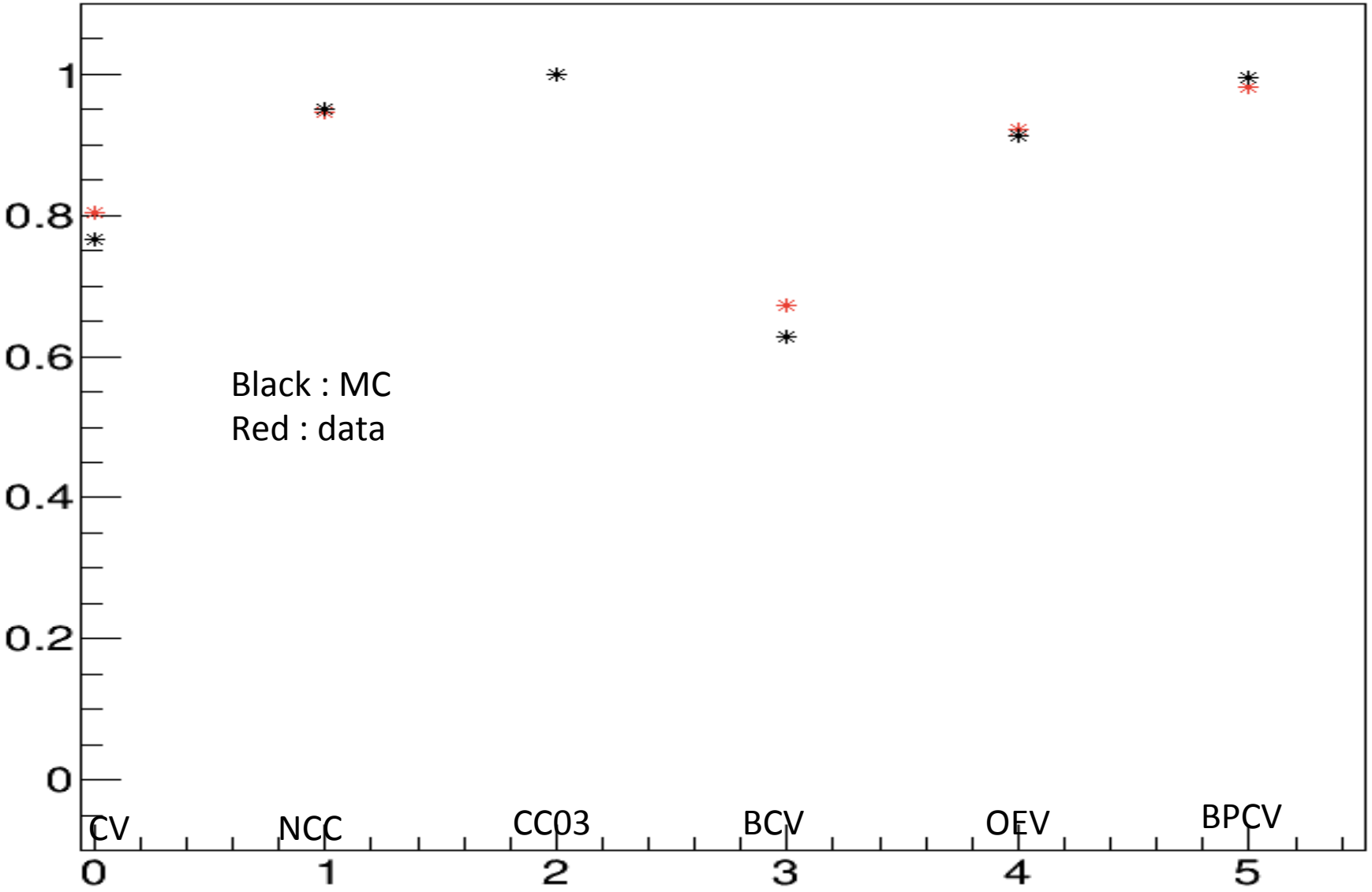
Dalitz Decay

Before Veto (Total,bg)
66015(1080)
After Veto
28792(0)

No change of Bad pair ratio

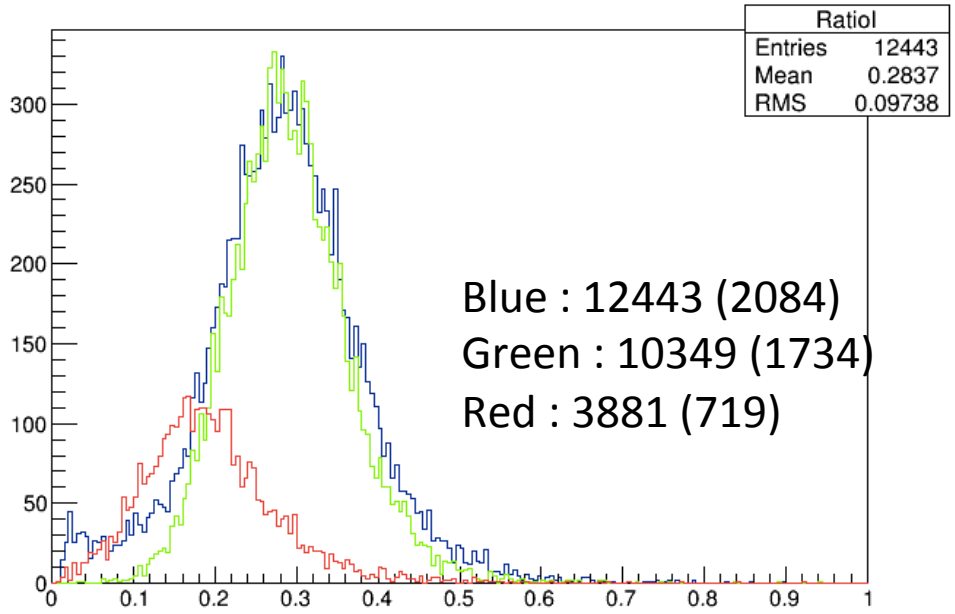
Discrepancy

With only one Veto / Without any veto



Sampling Fraction after detector veto

MC



Data (run62, min bias)