DY sample

- Filtering out chambers with biggest differences
  - What I did:
  - Find the differences between 3DOF MC xml and 6DOF MC xml and make a file with the wheel/ station/sector and dx/dy/dz/dphix/dphiy/dphiz
- Select only the chambers with the biggest changes between the two geometries with this measure: dx^2+dy^2+dphiz^2
- 57 out of 250 chambers remain.

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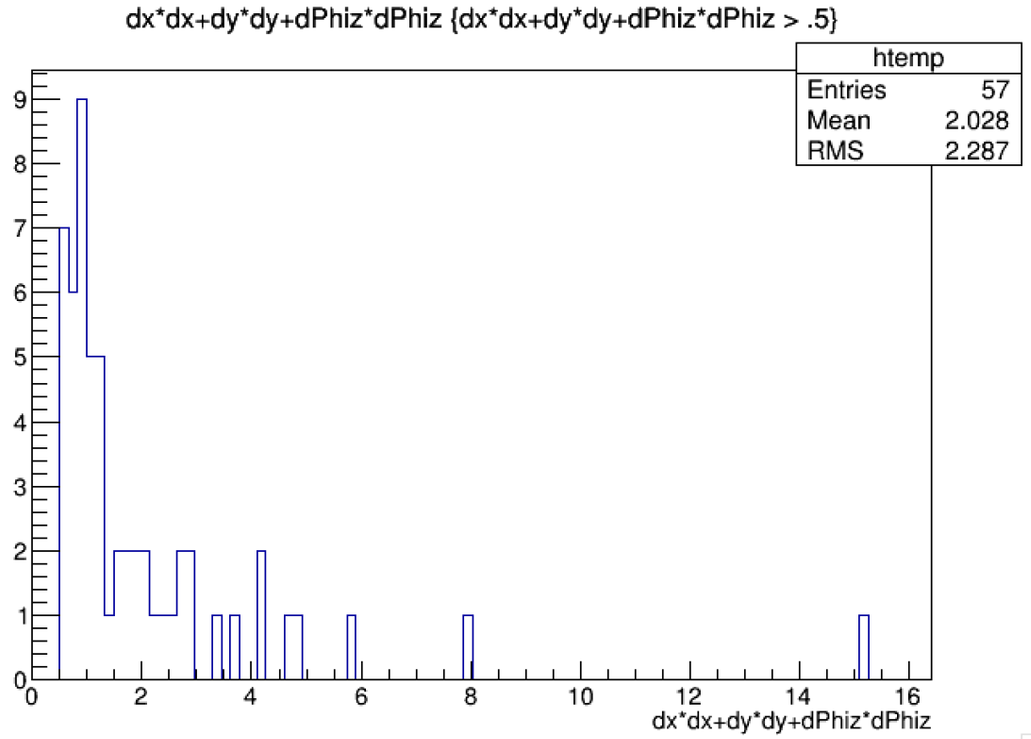
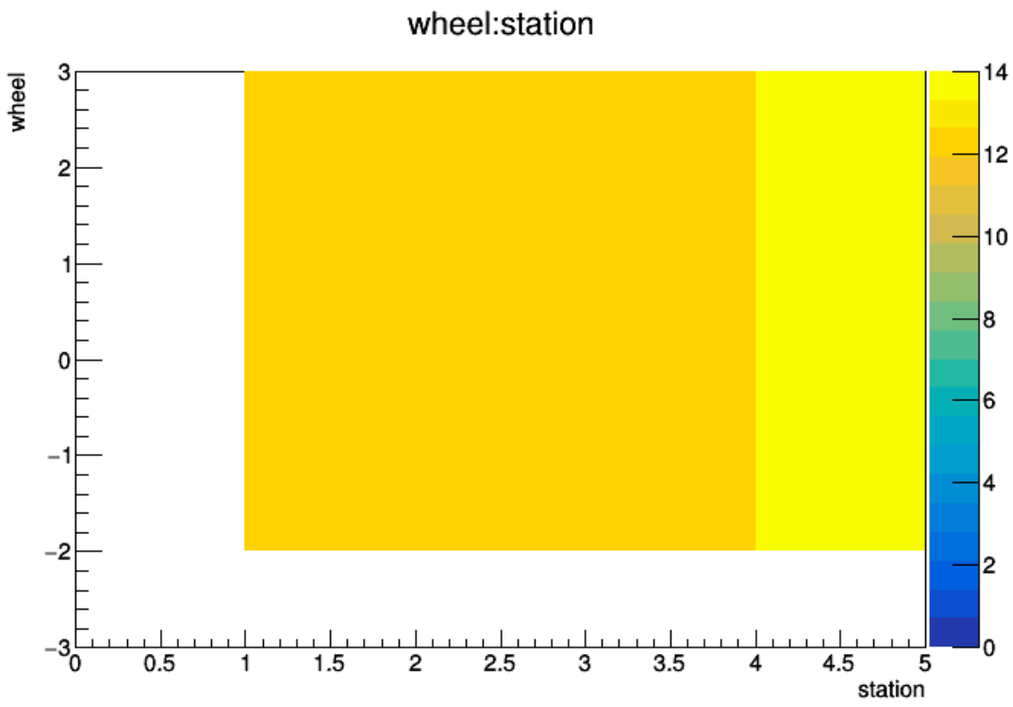
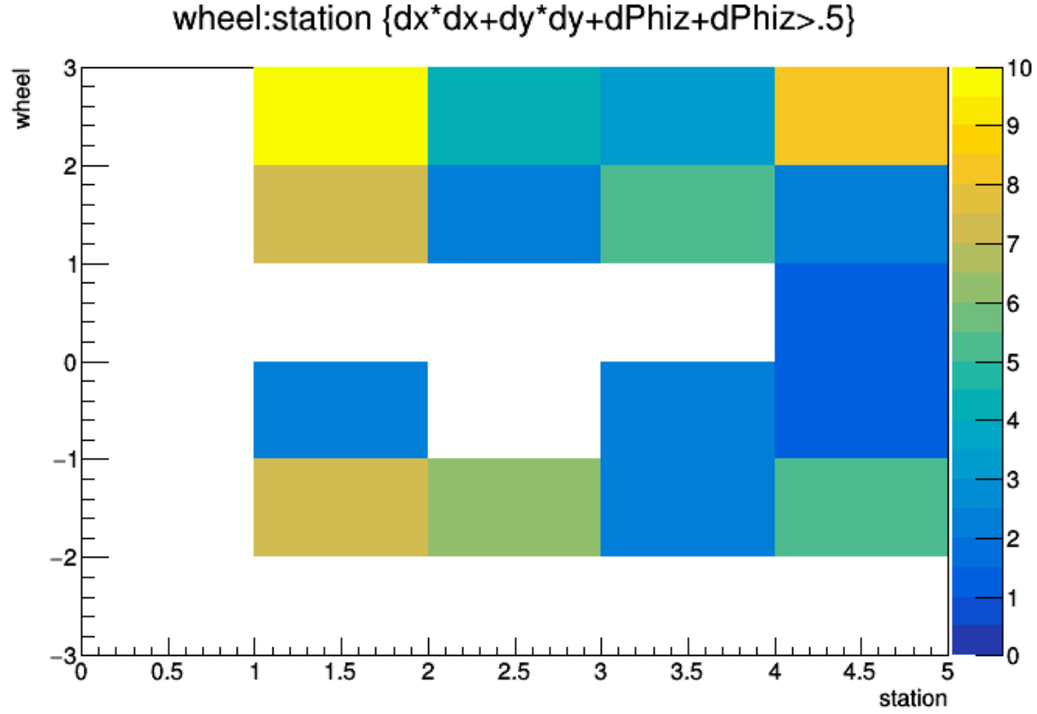
DY sample

- Plot on right shows the distribution of the cut variable after applying the cut



Rough vis of chambers





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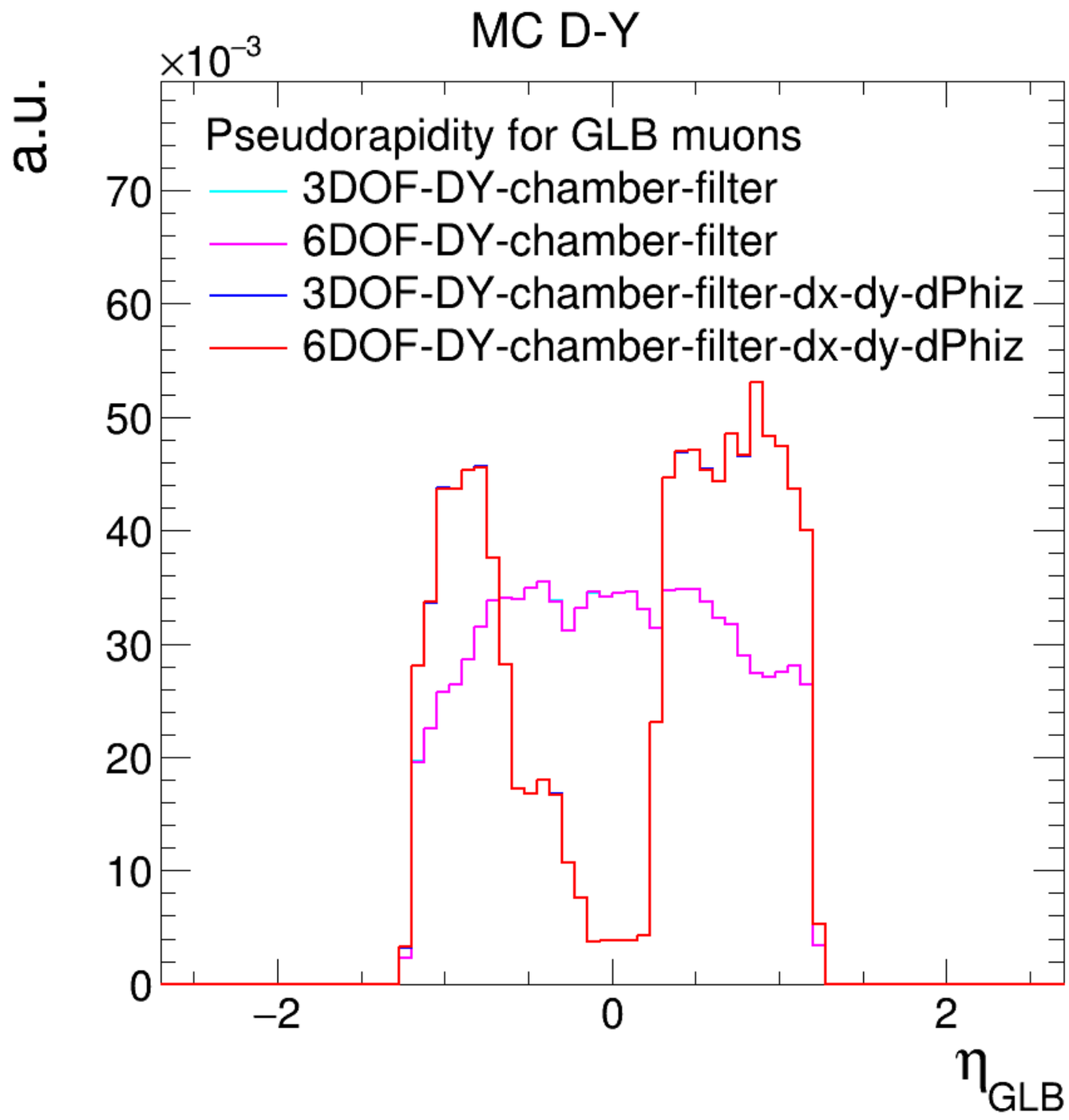
DY sample



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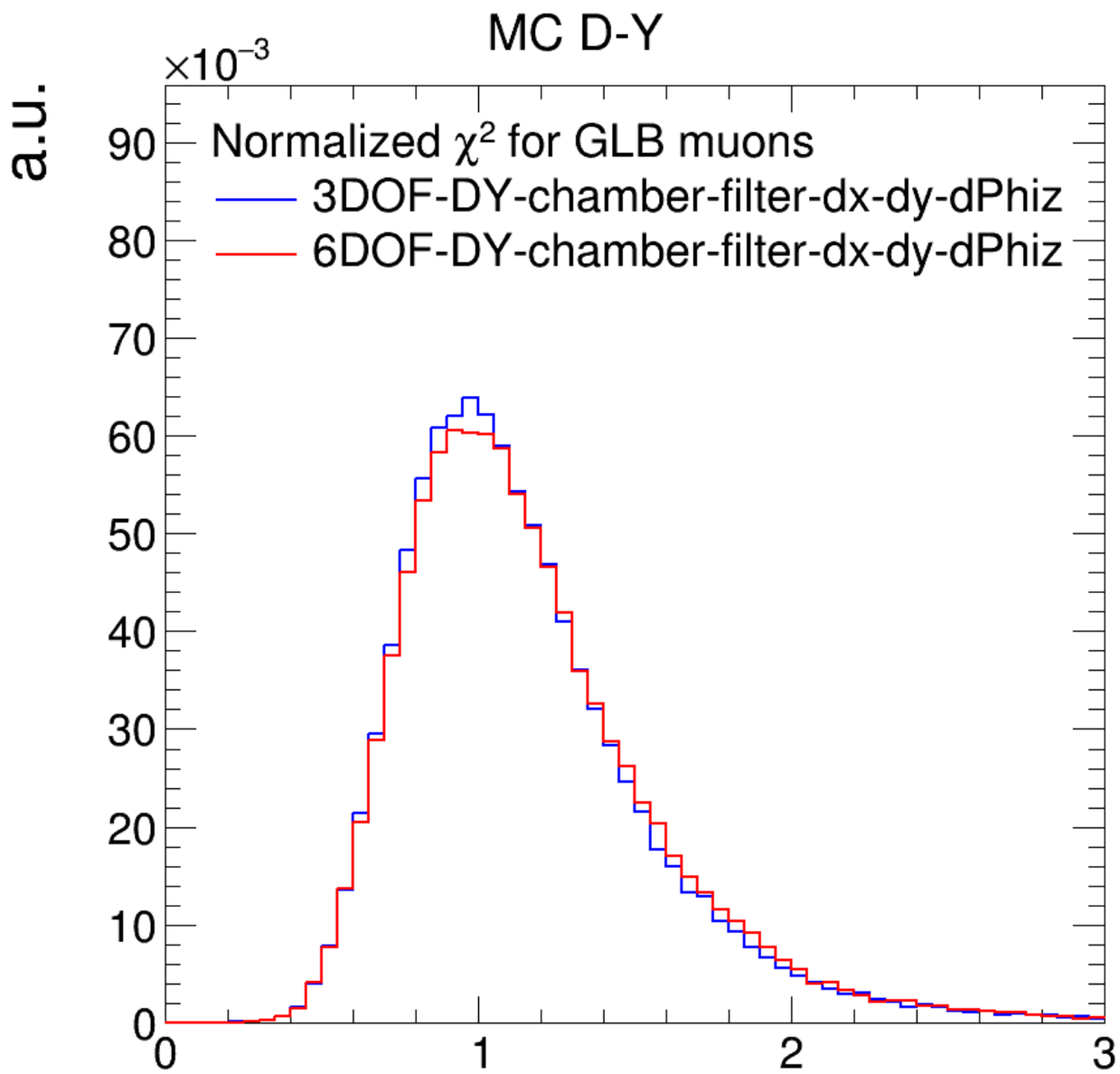
DY sample



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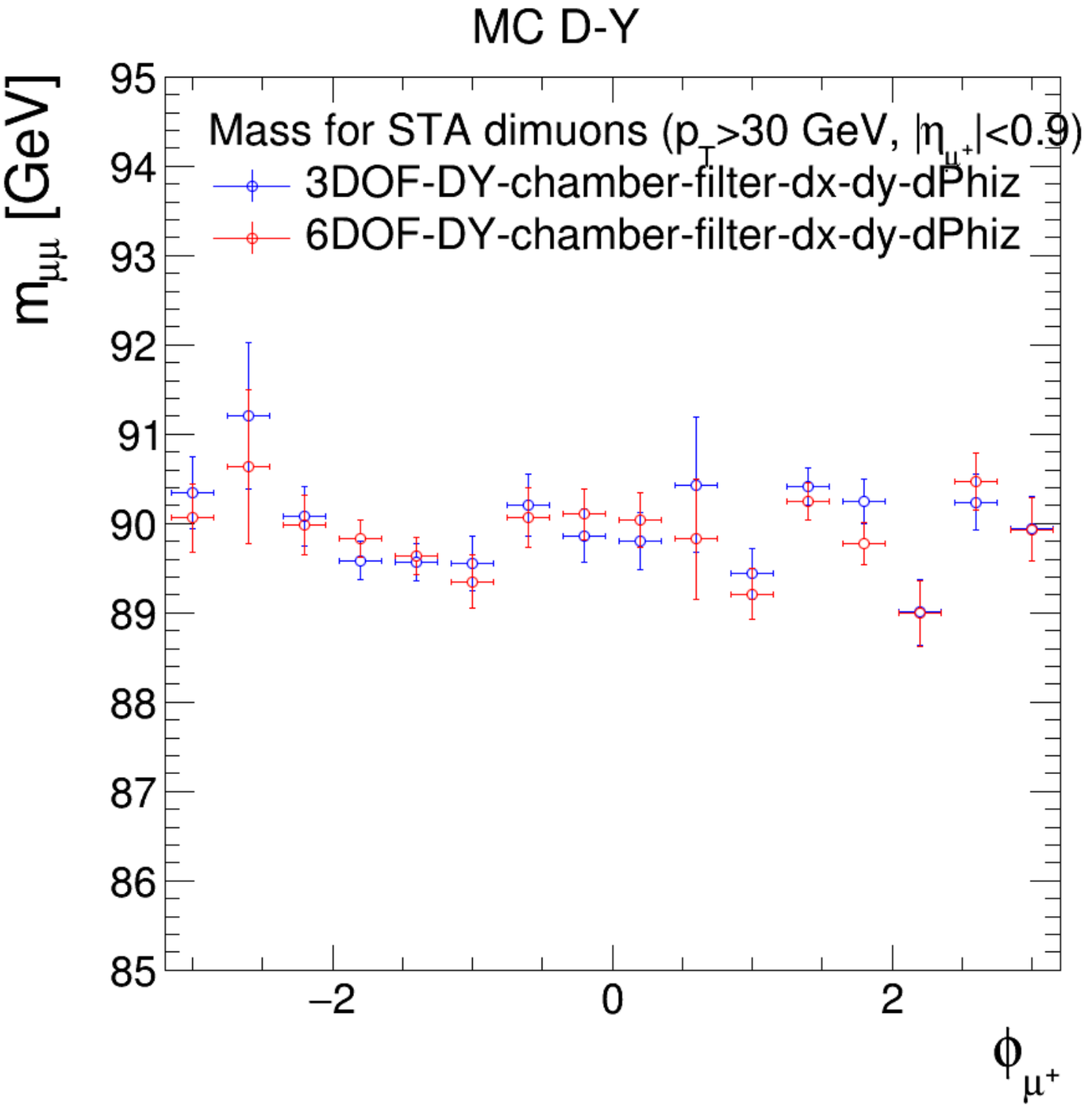
DY sample



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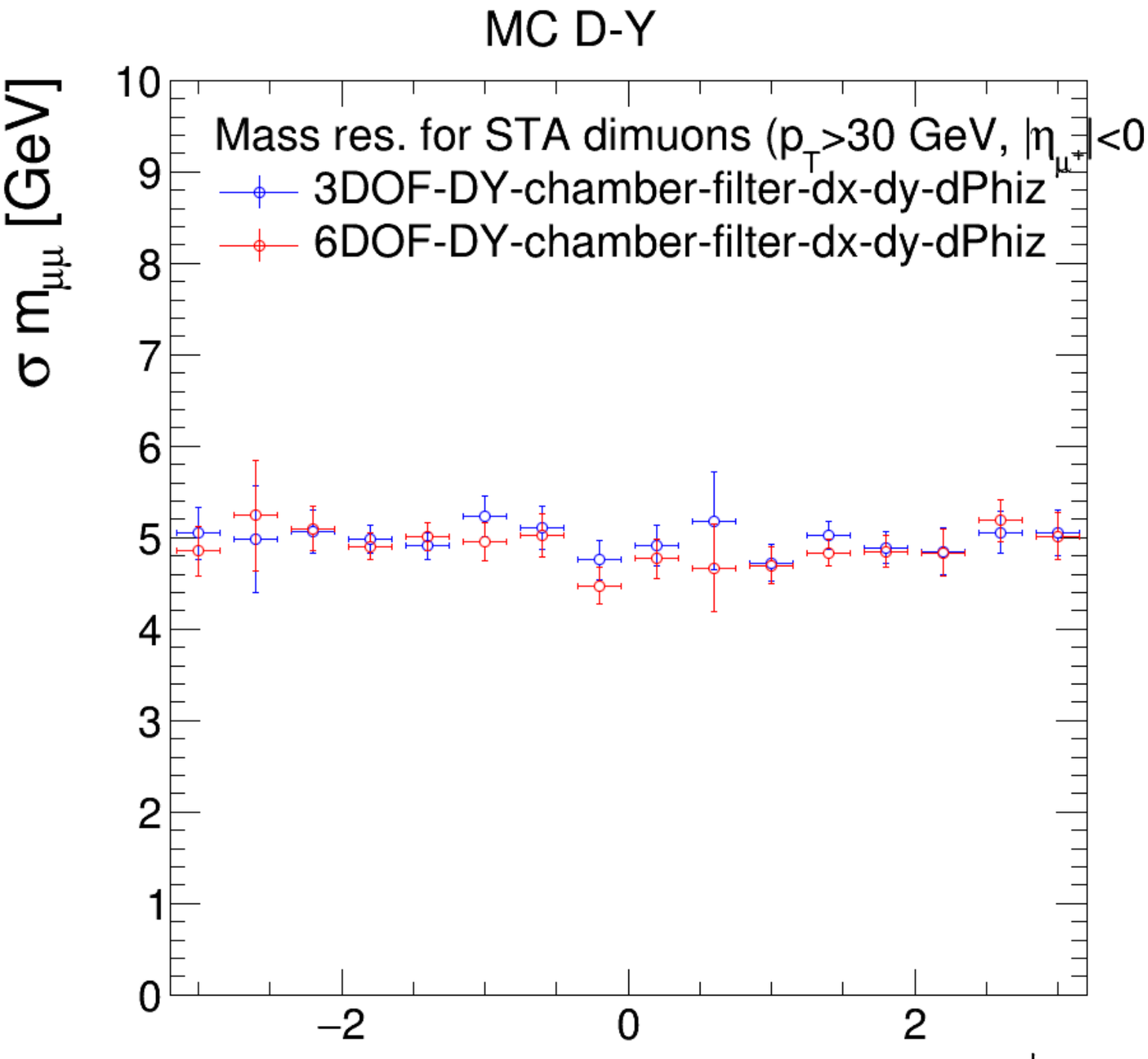
DY sample



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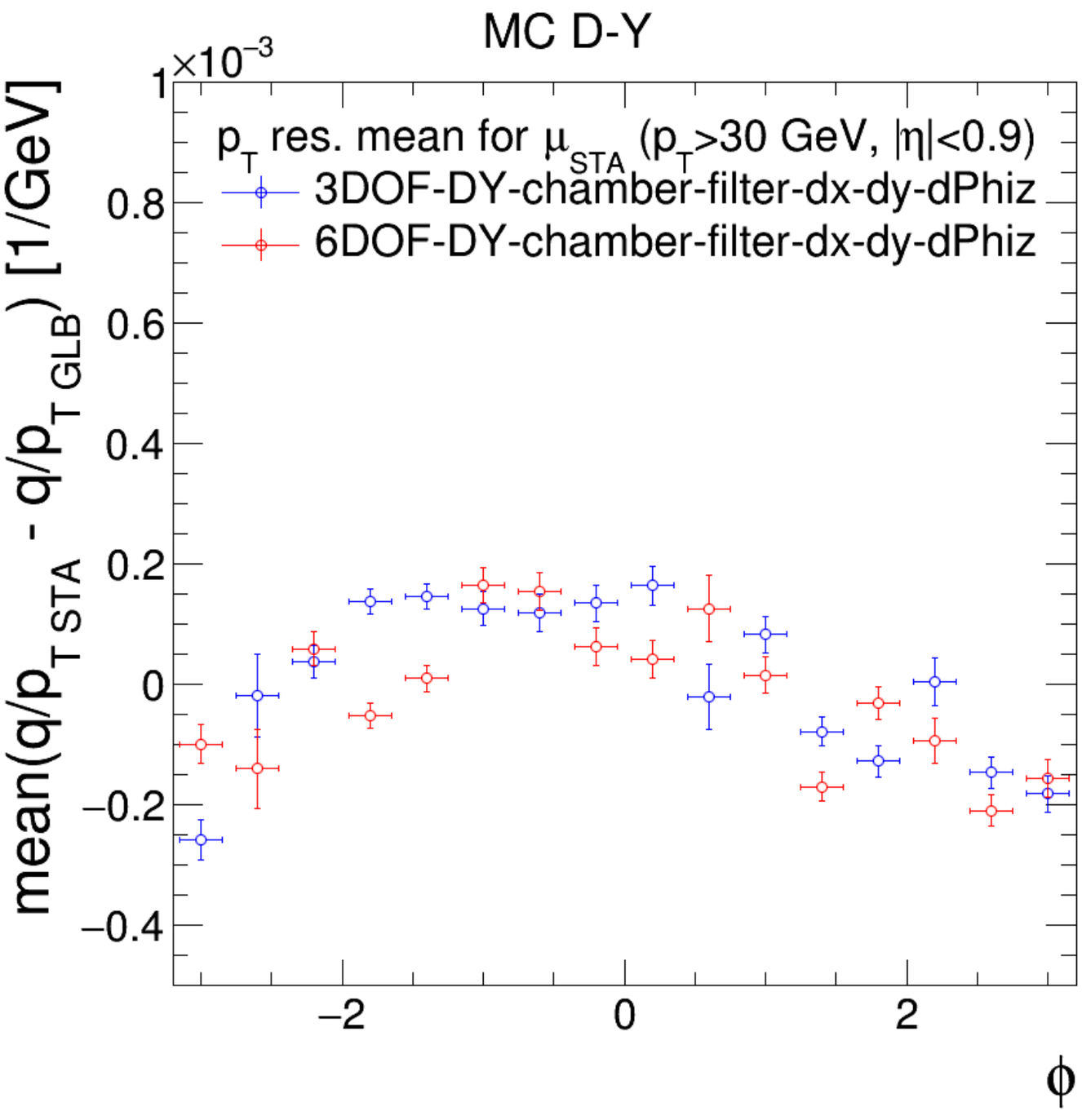
DY sample



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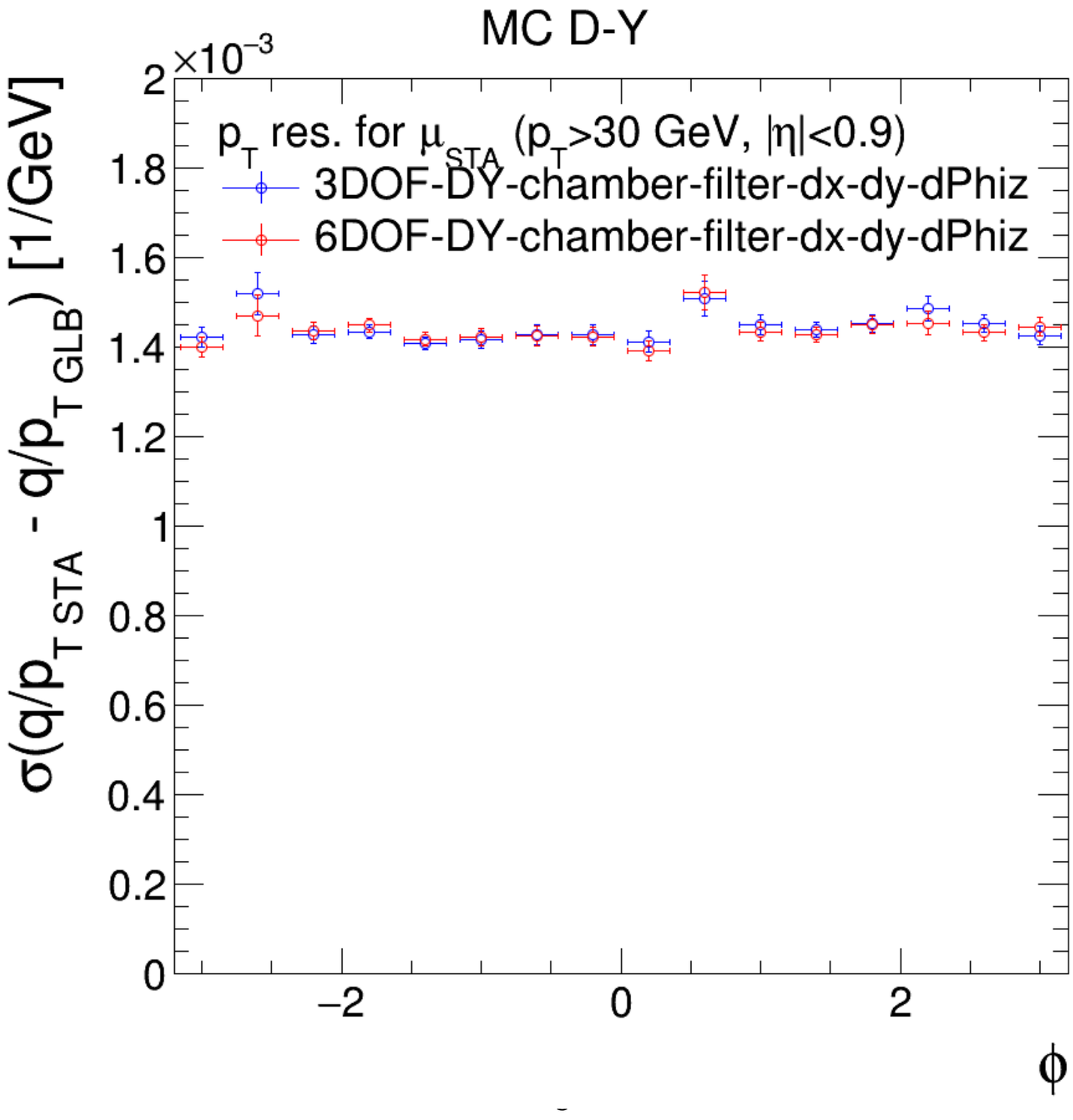
DY sample



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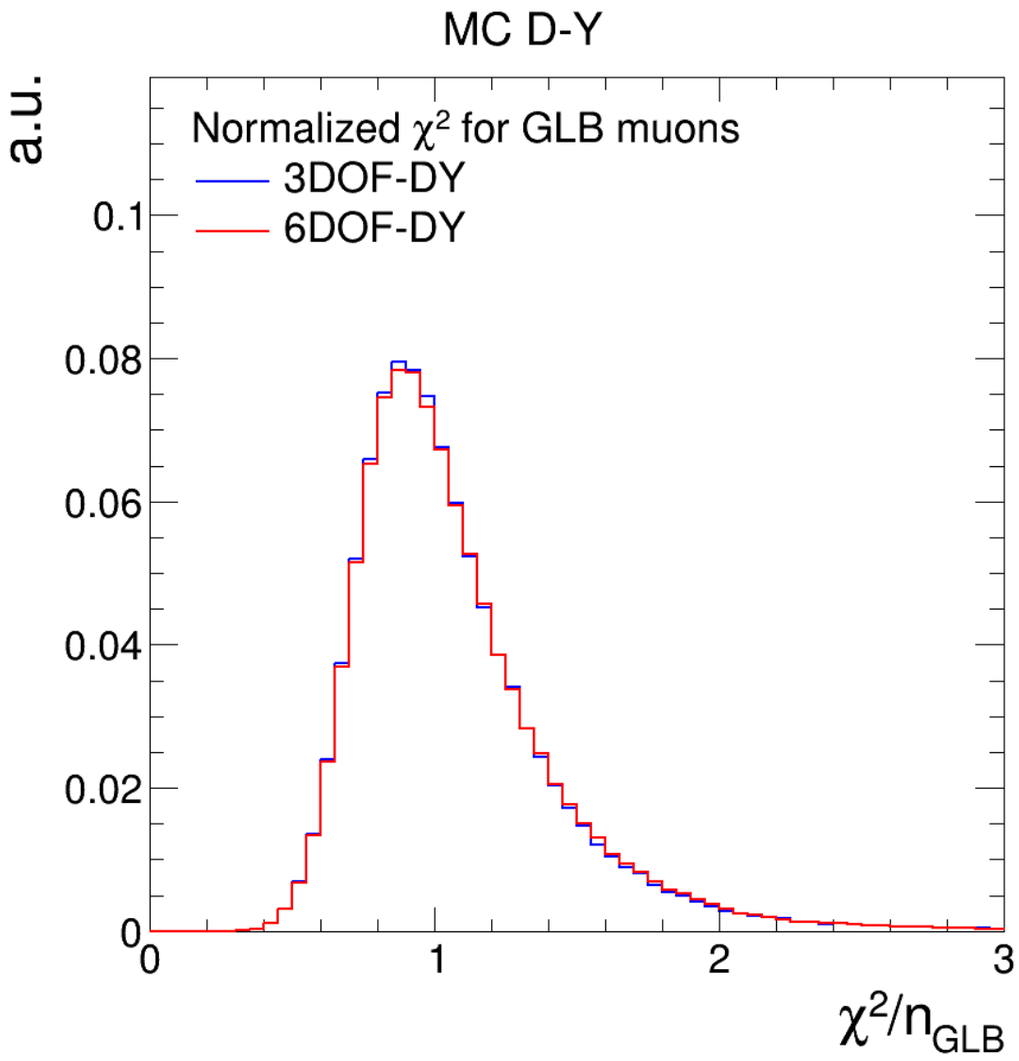
Update July 20th

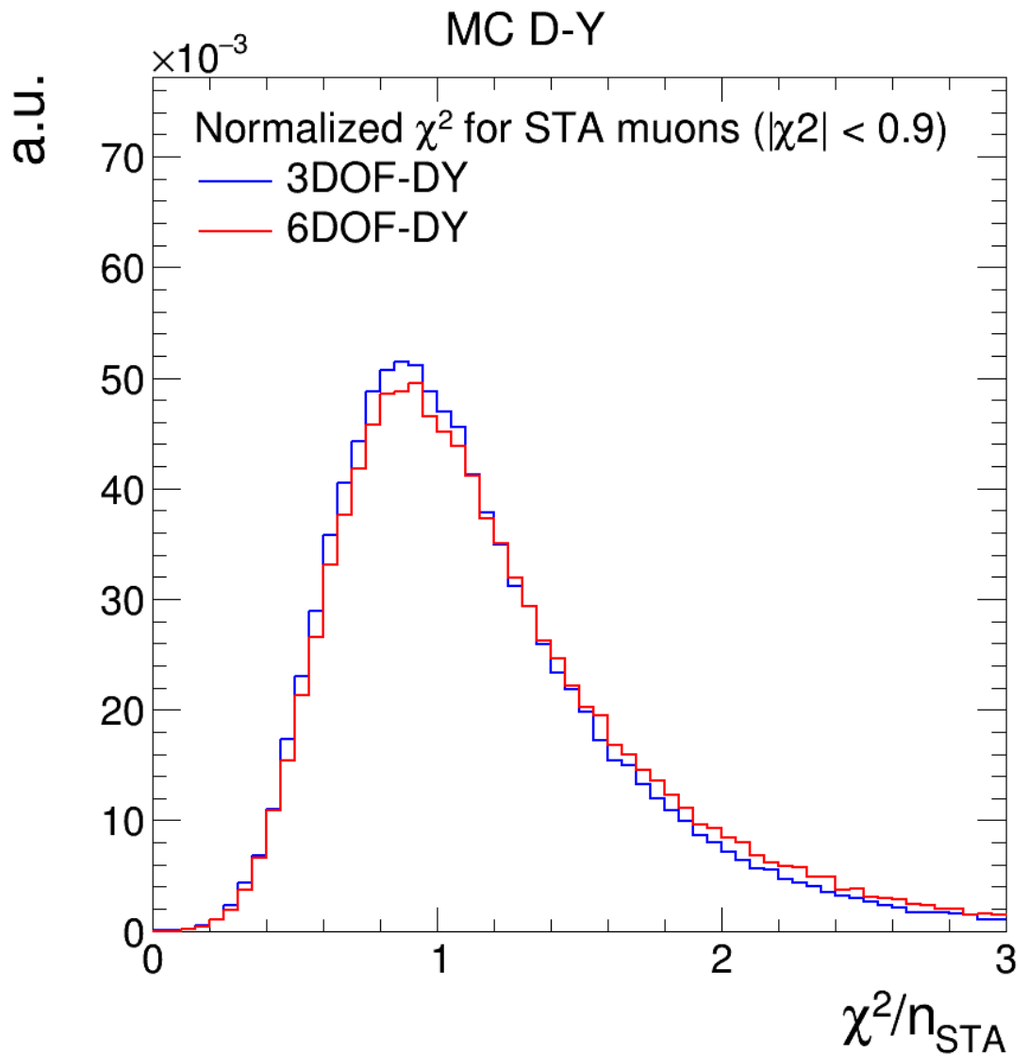
DY sample

- Sample: DYJetsToLL_M-50_TuneCUETP8M1_13TeV-amcatnloFXFX-pythia8
  - 6DOF: 90,050 events
  - 3DOF: 90,046 events

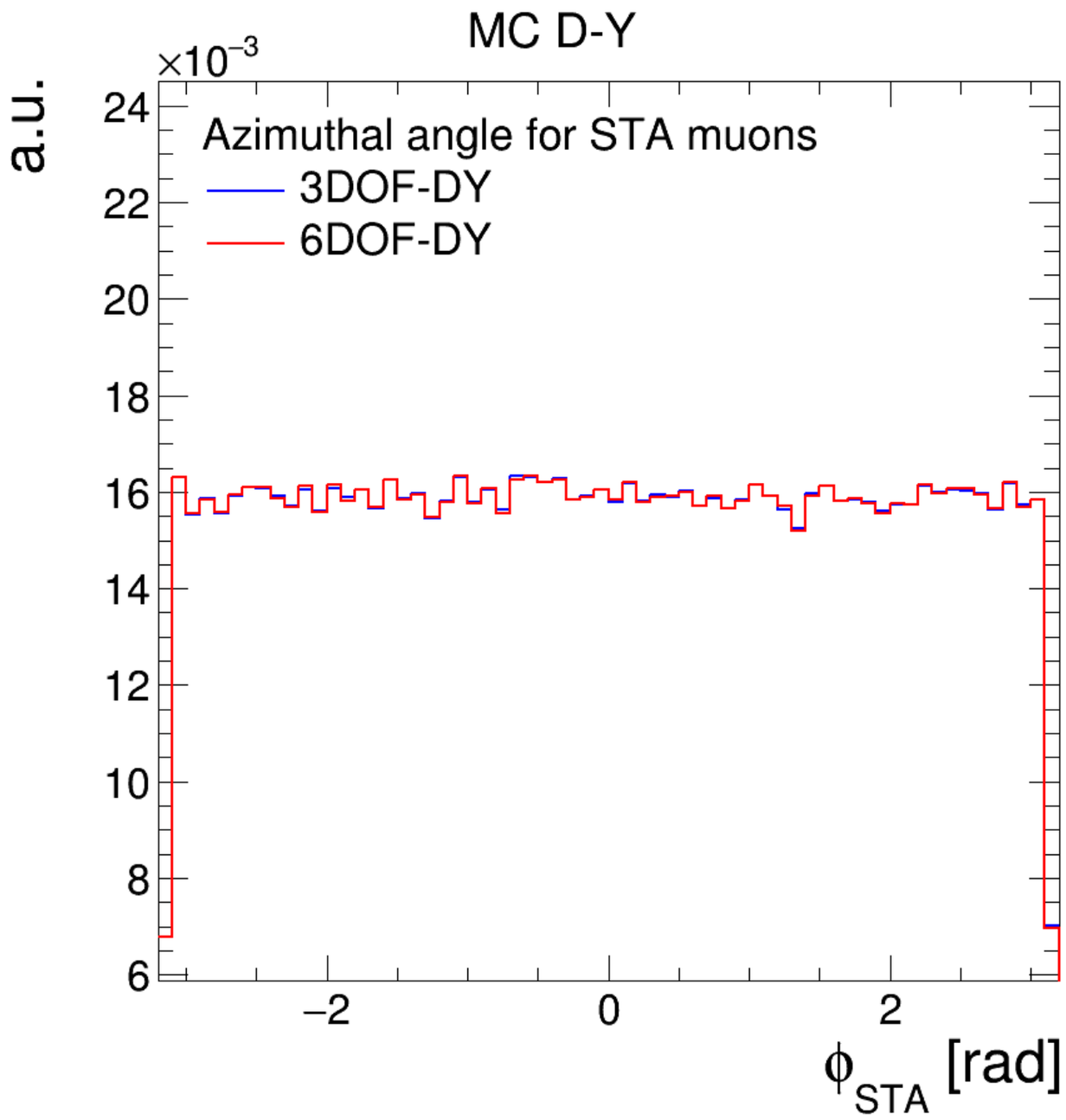
- Config:
  - 6DOF DT: mc_DT-1100-111111_CMSSW_8_0_8_patch1_missaligned_45M_8TeV_FIDT0fixRef_v4Ryan_03.db
  - 3DOF DT: mc_DT-1100-110001_CMSSW_8_0_8_patch1_mis_45M_8TeV_FIDT0fixRef_v4_03.db
  - All else from 80X_mcRun2_design_v14

nChi^2

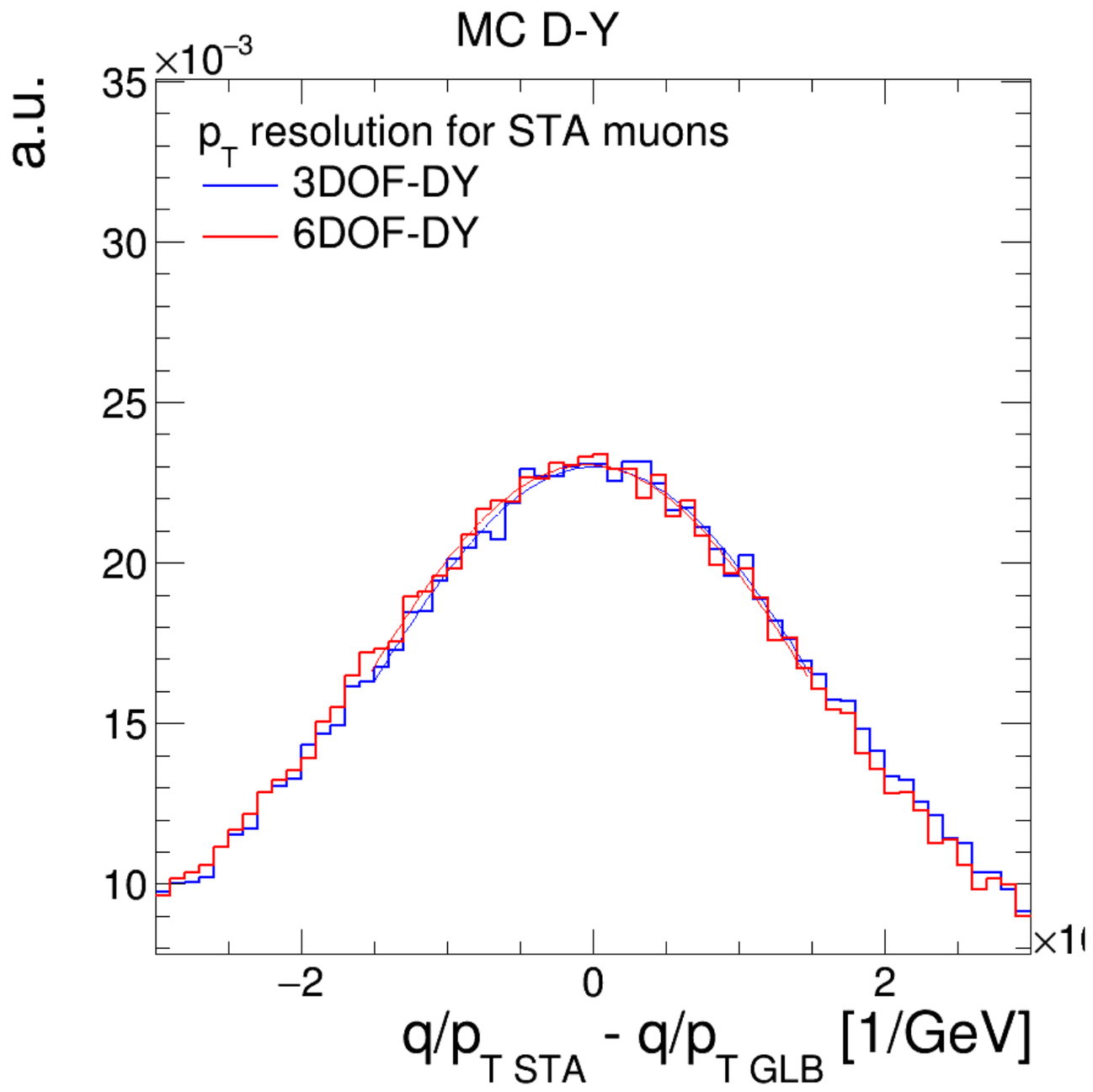

MC D-Y
a.u.
Normalized χ^2 for GLB muons
3DOF-DY
6DOF-DY
0.1
0.08
0.06
0.04
0.02
0
0
1
2
3
χ^2/n_{GLB}


MC D-Y
$\times 10^{-3}$
a.u.
Normalized χ^2 for STA muons (|χ2| < 0.9)
3DOF-DY
6DOF-DY
70
60
50
40
30
20
10
0
0
1
2
3
χ^2/n_{STA}

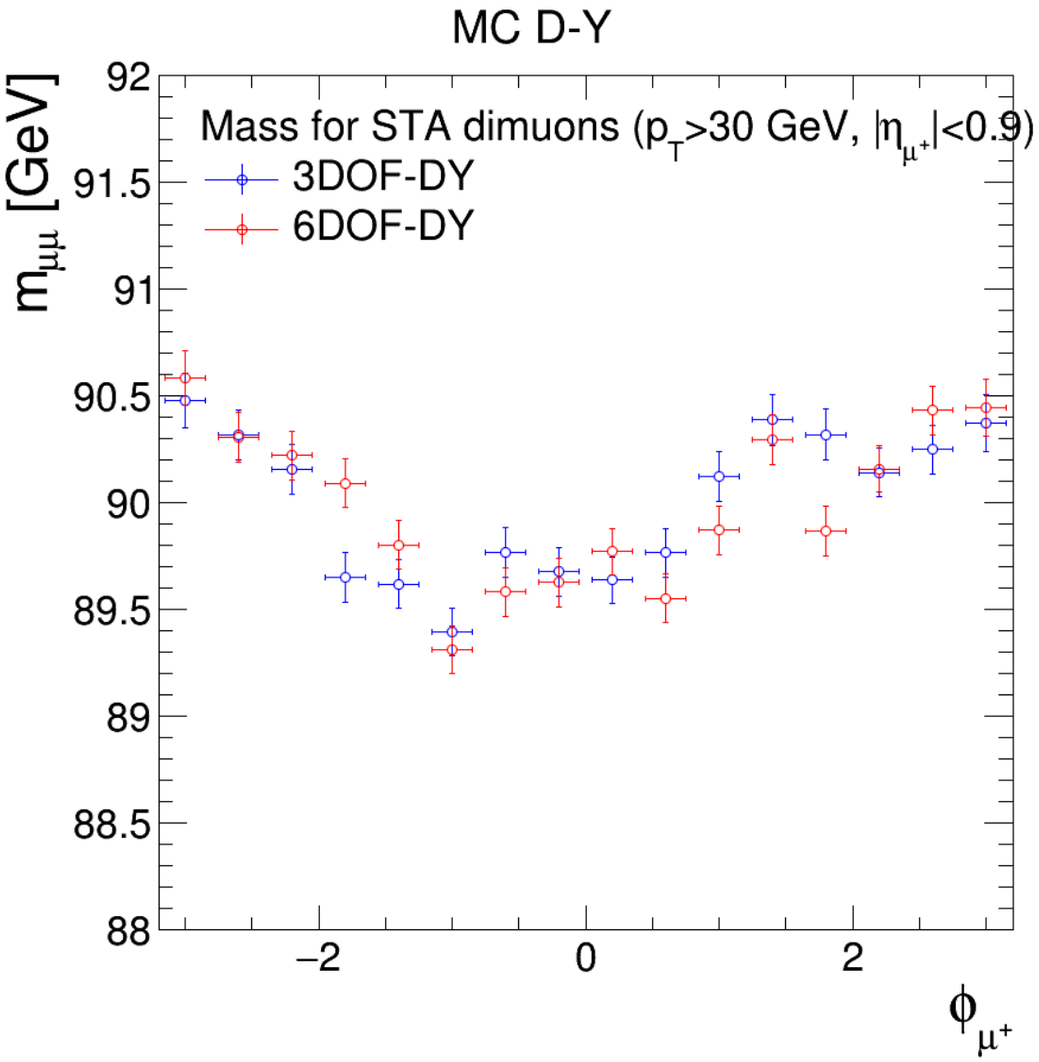
sta phi

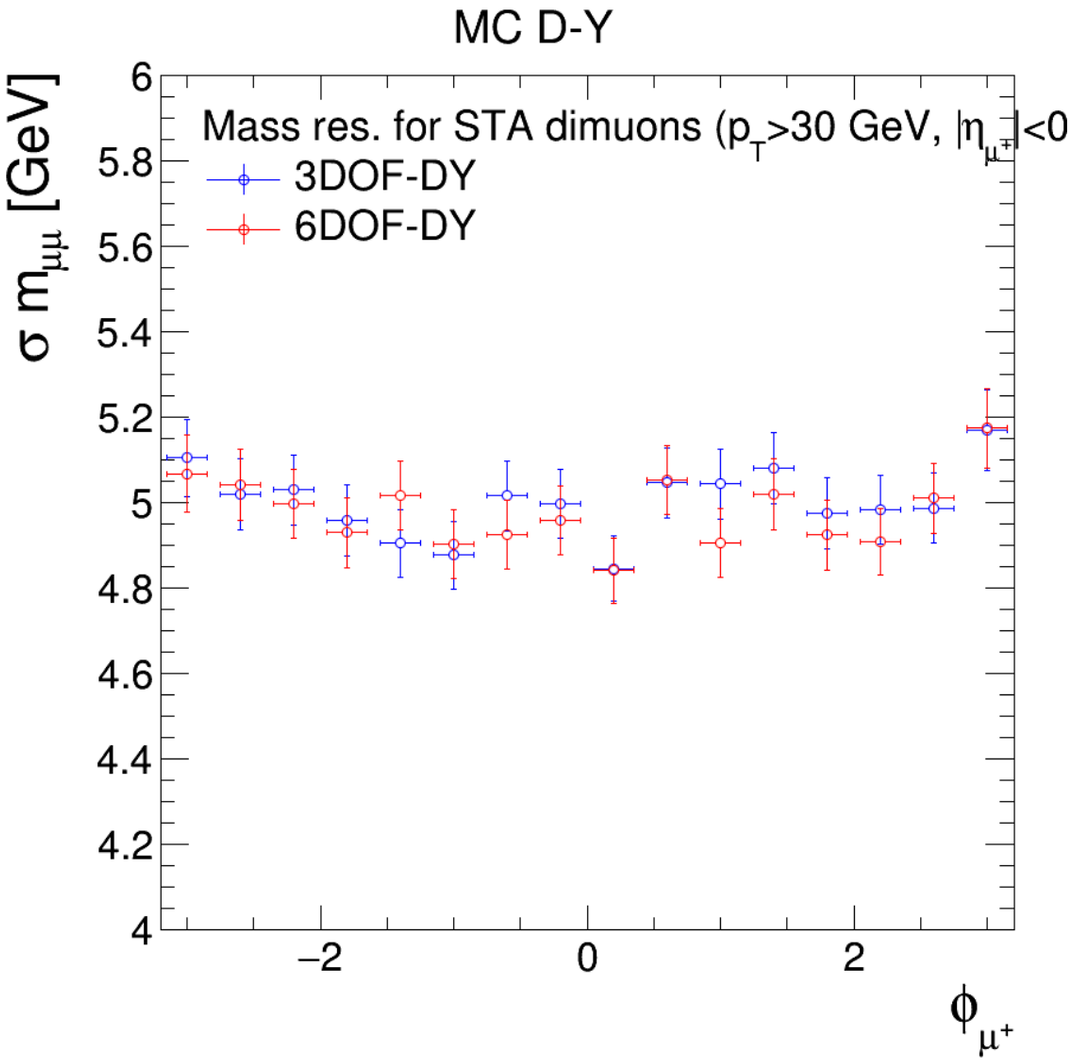

MC D-Y
×10⁻³
a.u.
Azimuthal angle for STA muons
3DOF-DY
6DOF-DY
24
22
20
18
16
14
12
10
8
6
−2
0
2
ϕSTA [rad]

pT Res

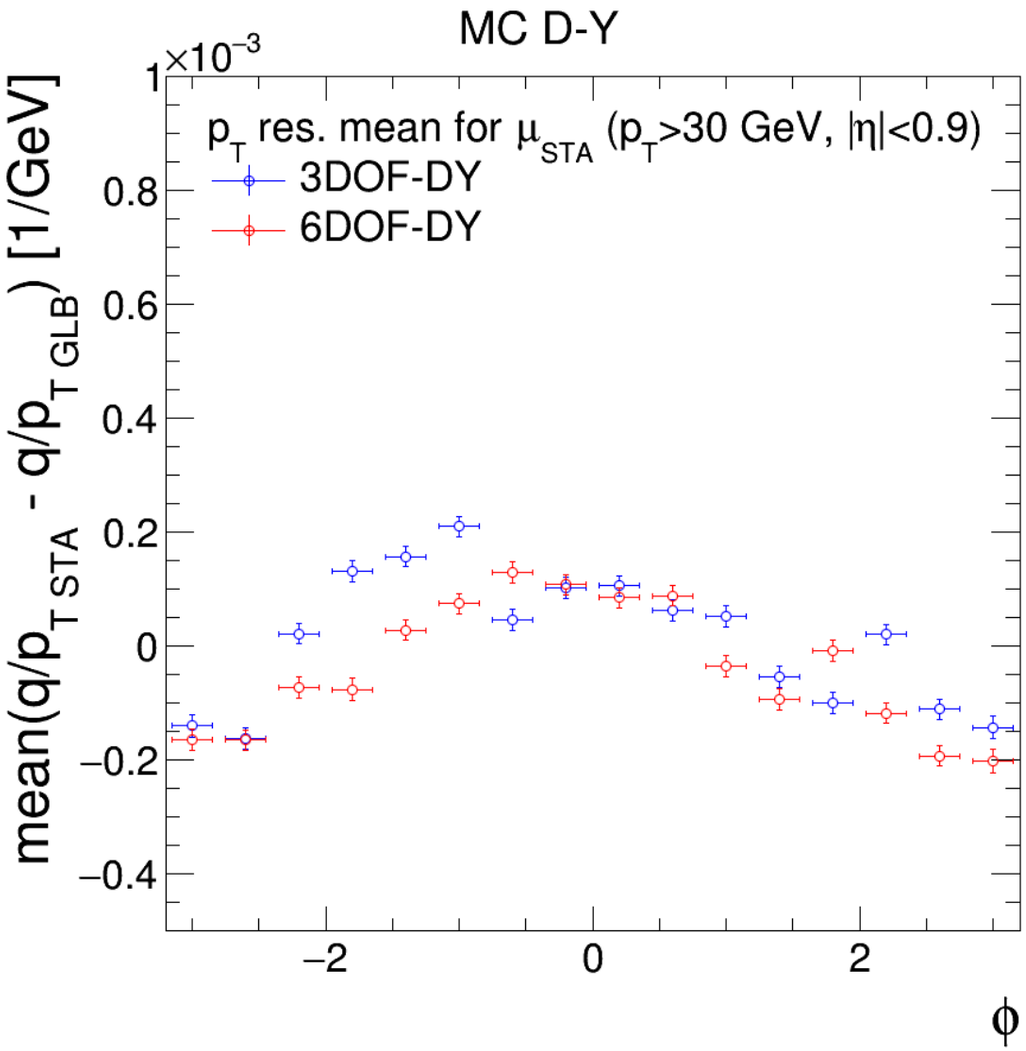

MC D-Y
a.u.
×10⁻³
35
30
25
20
15
10
p_T resolution for STA muons
3DOF-DY
6DOF-DY
−2
0
2
q/p_T STA - q/p_T GLB [1/GeV]

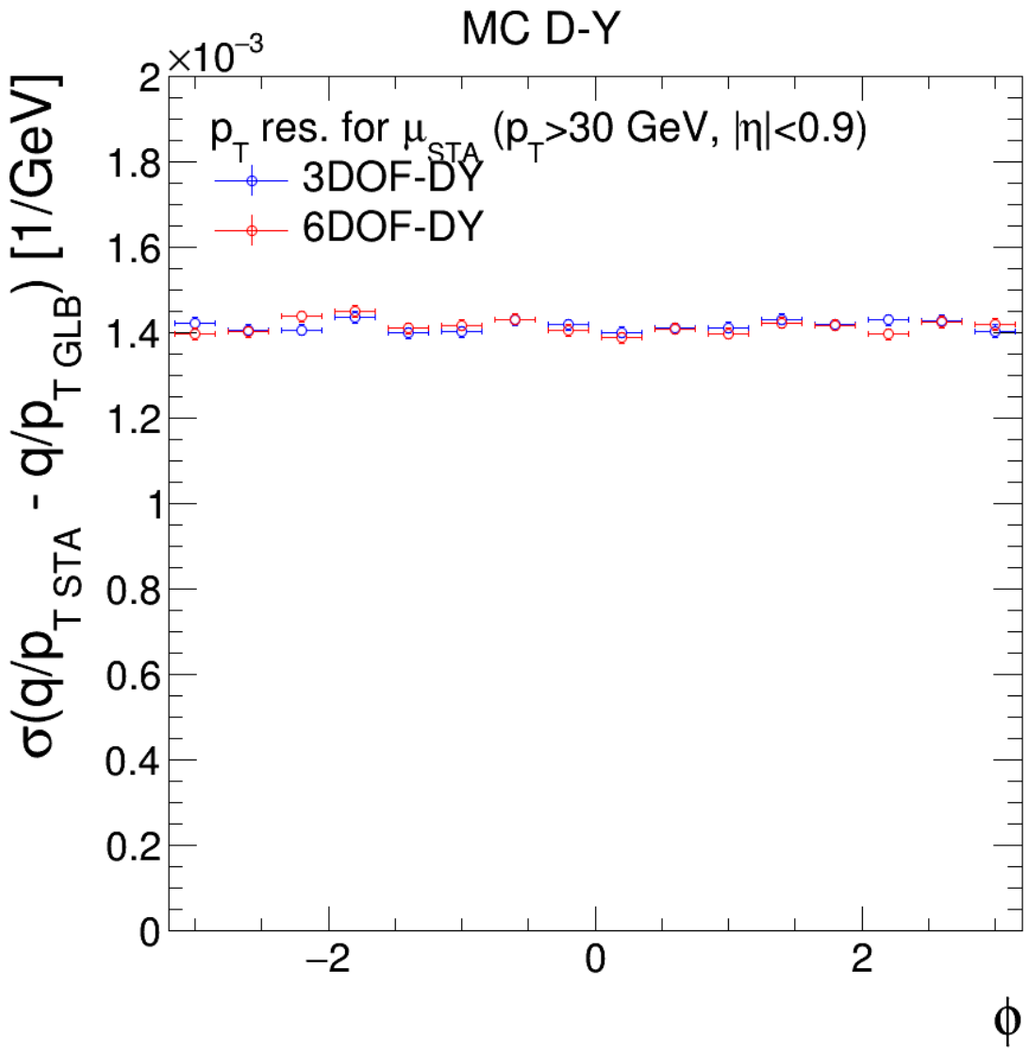
mass fit


MC D-Y
Mass for STA dimuons (p_T>30 GeV, $|\eta_{\mu^+}|$<0.9)
3DOF-DY
6DOF-DY
$m_{\mu\mu}$ [GeV]
92
91.5
91
90.5
90
89.5
89
88.5
88
−2
0
2
ϕ_{μ^+}

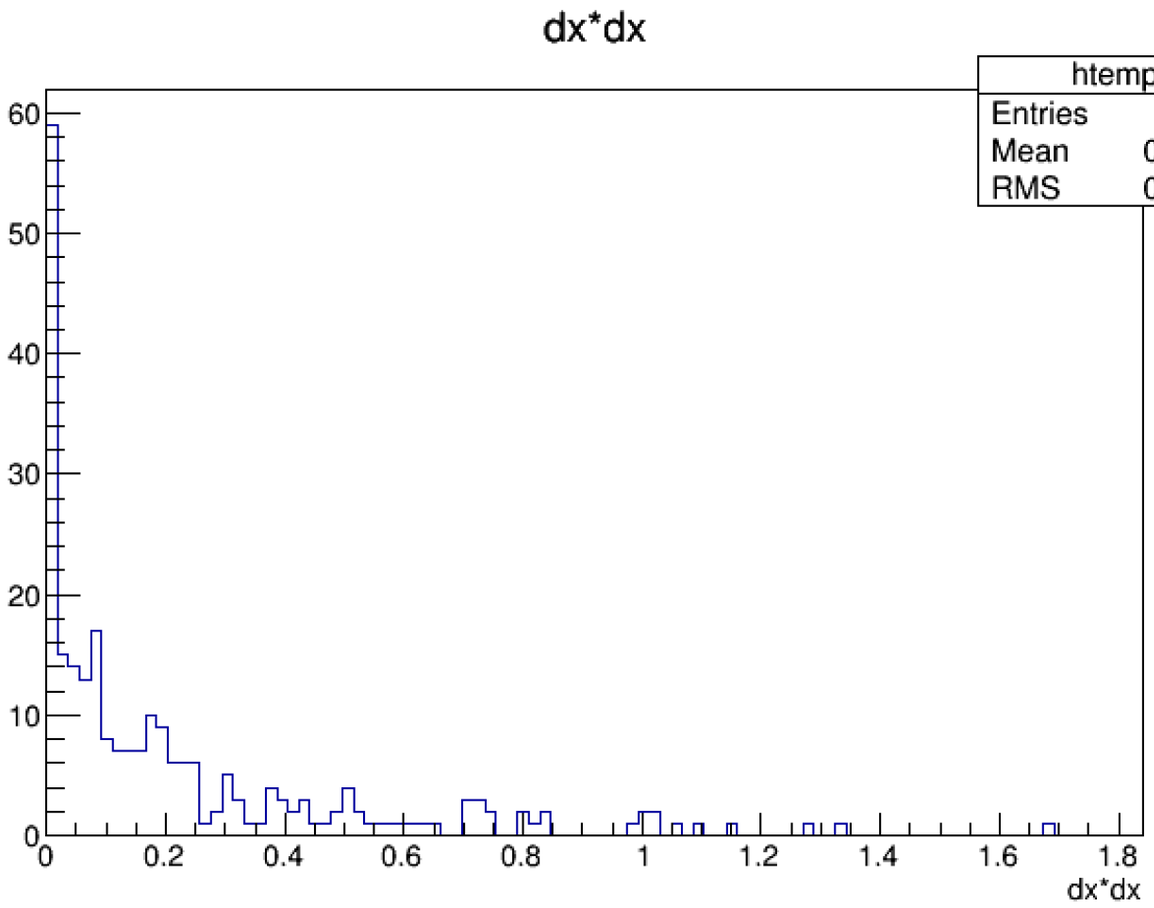

MC D-Y
Mass res. for STA dimuons (p_T>30 GeV, $|\eta_{\mu^+}|$<0
3DOF-DY
6DOF-DY
$\sigma m_{\mu\mu}$ [GeV]
6
5.8
5.6
5.4
5.2
5
4.8
4.6
4.4
4.2
4
−2
0
2
ϕ_{μ^+}

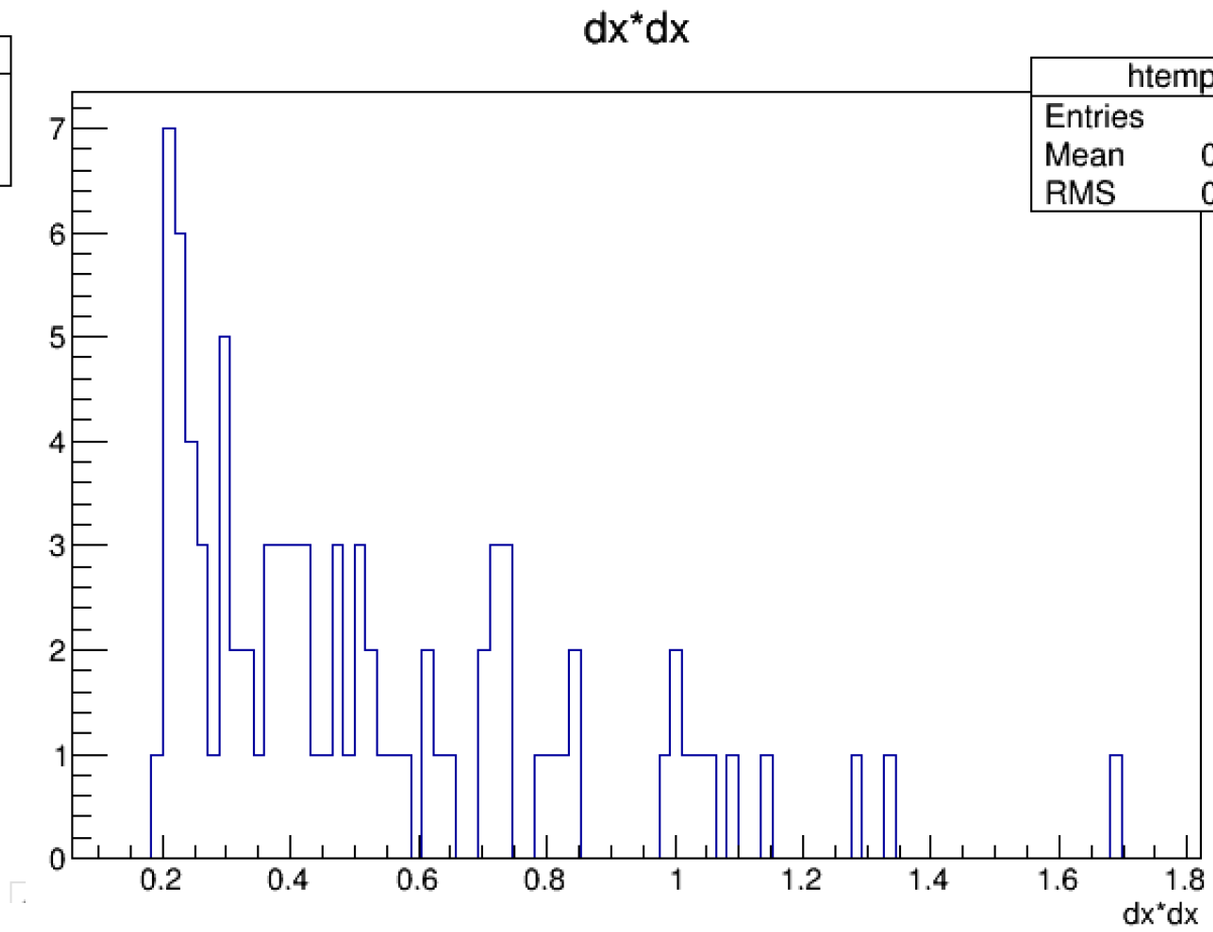
pT

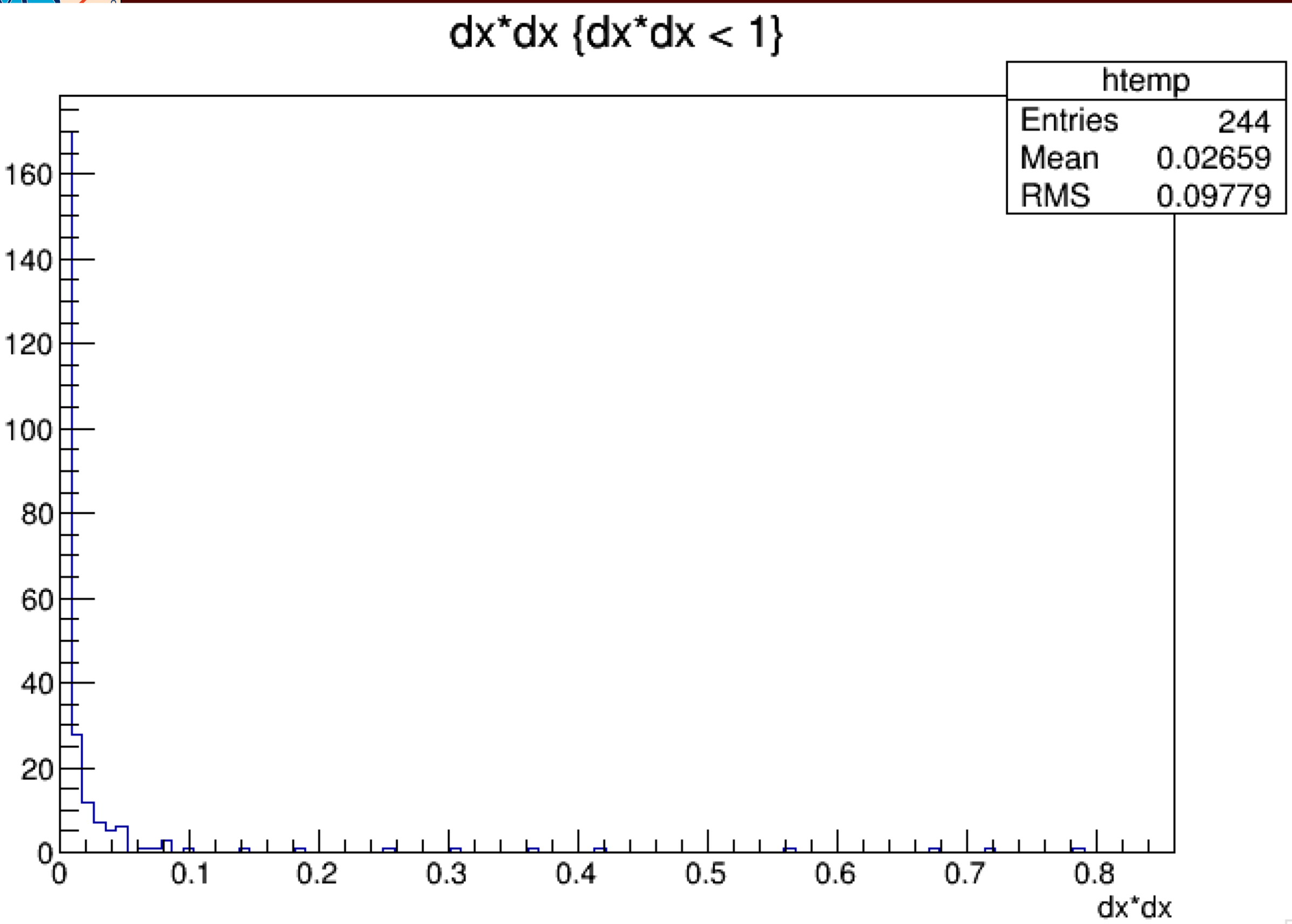

MC D-Y
p_T res. mean for μ_STA (p_T>30 GeV, |η|<0.9)
3DOF-DY
6DOF-DY
mean(q/p_T STA - q/p_T GLB) [1/GeV]
×10^−3
1
0.8
0.6
0.4
0.2
0
−0.2
−0.4
−2
0
2
ϕ


MC D-Y
p_T res. for μ_STA (p_T>30 GeV, |η|<0.9)
3DOF-DY
6DOF-DY
σ(q/p_T STA - q/p_T GLB) [1/GeV]
×10^−3
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
−2
0
2
ϕ

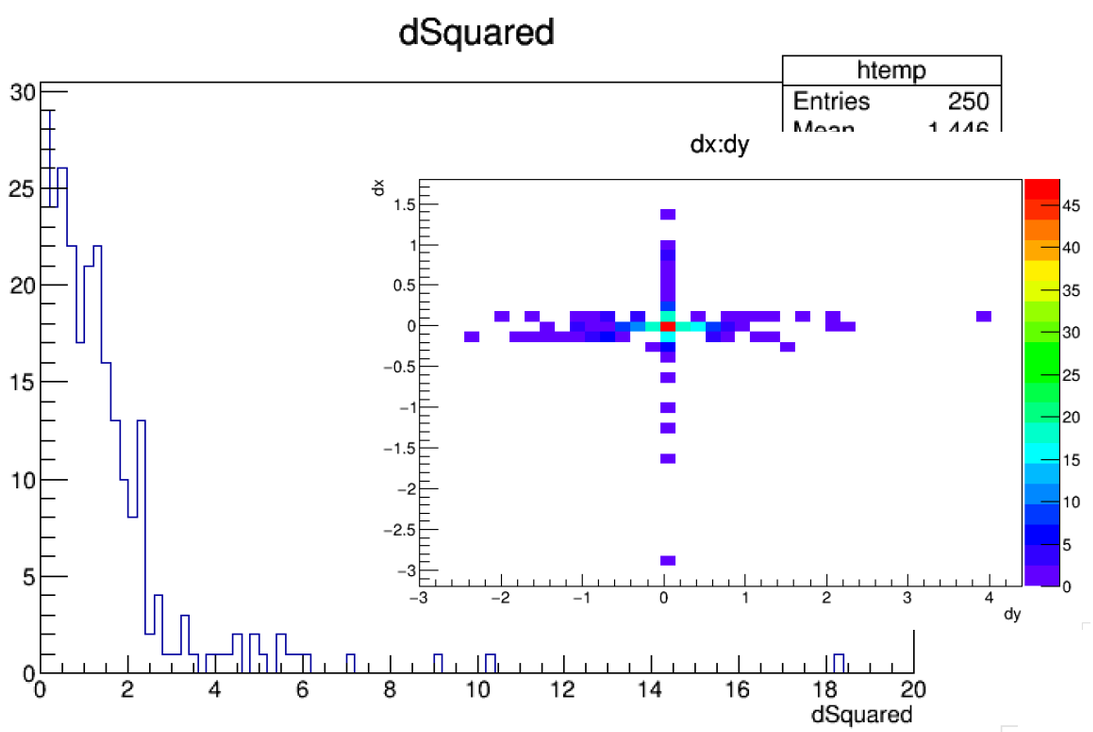
dx^2 > .2

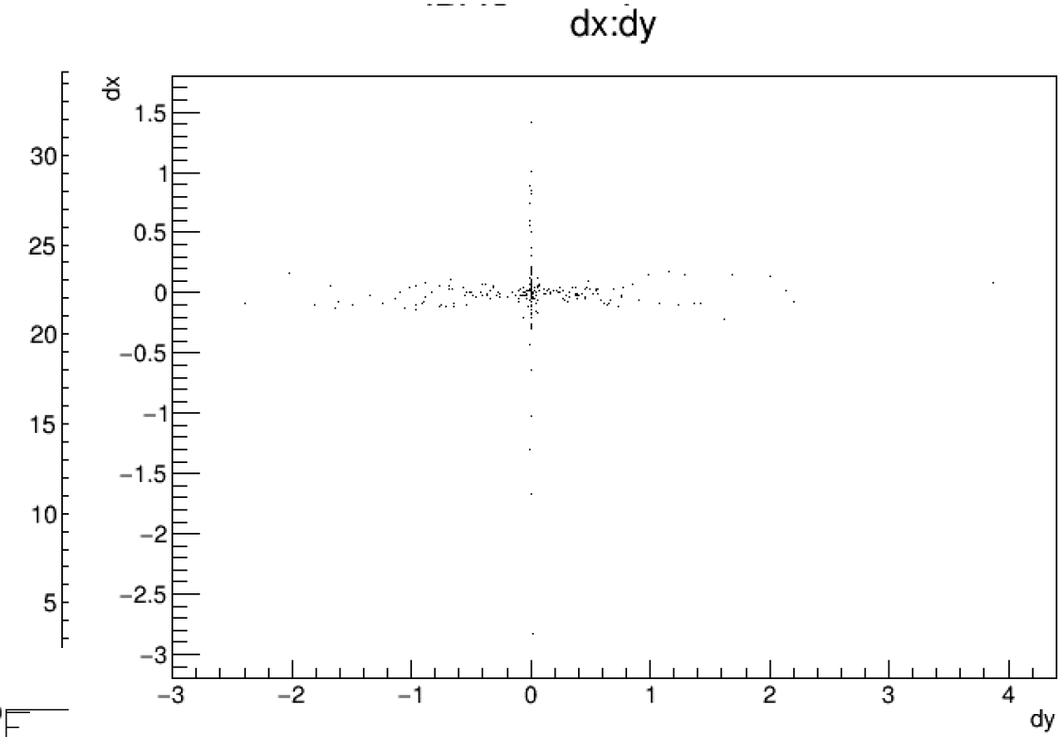

dx*dx
htemp
Entries 250
Mean 0.2217
RMS 0.2876
60
50
40
30
20
10
0
0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8
dx*dx

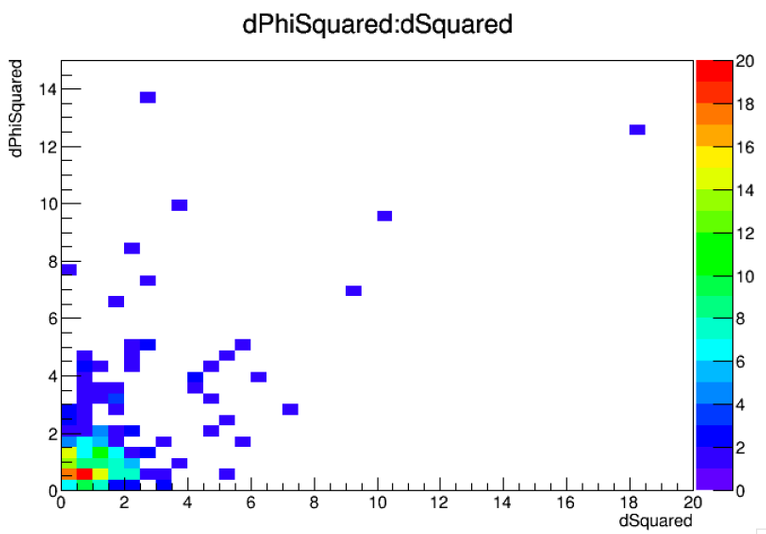

dx*dx
htemp
Entries 8
Mean 0.523
RMS 0.307
7
6
5
4
3
2
1
0
0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8
dx*dx

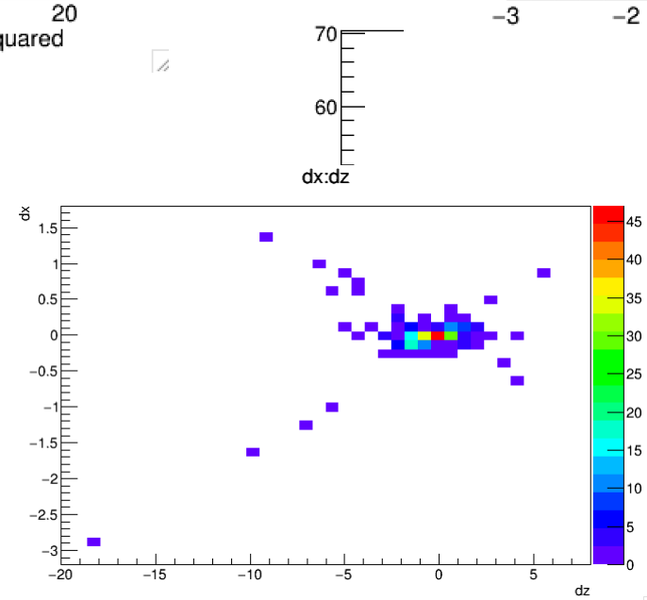

dx*dx {dx*dx < 1}
htemp
Entries 244
Mean 0.02659
RMS 0.09779
160
140
120
100
80
60
40
20
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
dx*dx

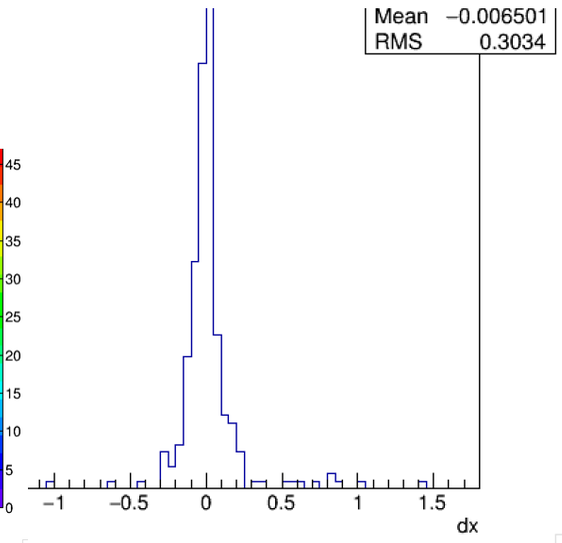
DY sample


dSquared
htemp
Entries 250
dx:dy
dx
dy
dSquared

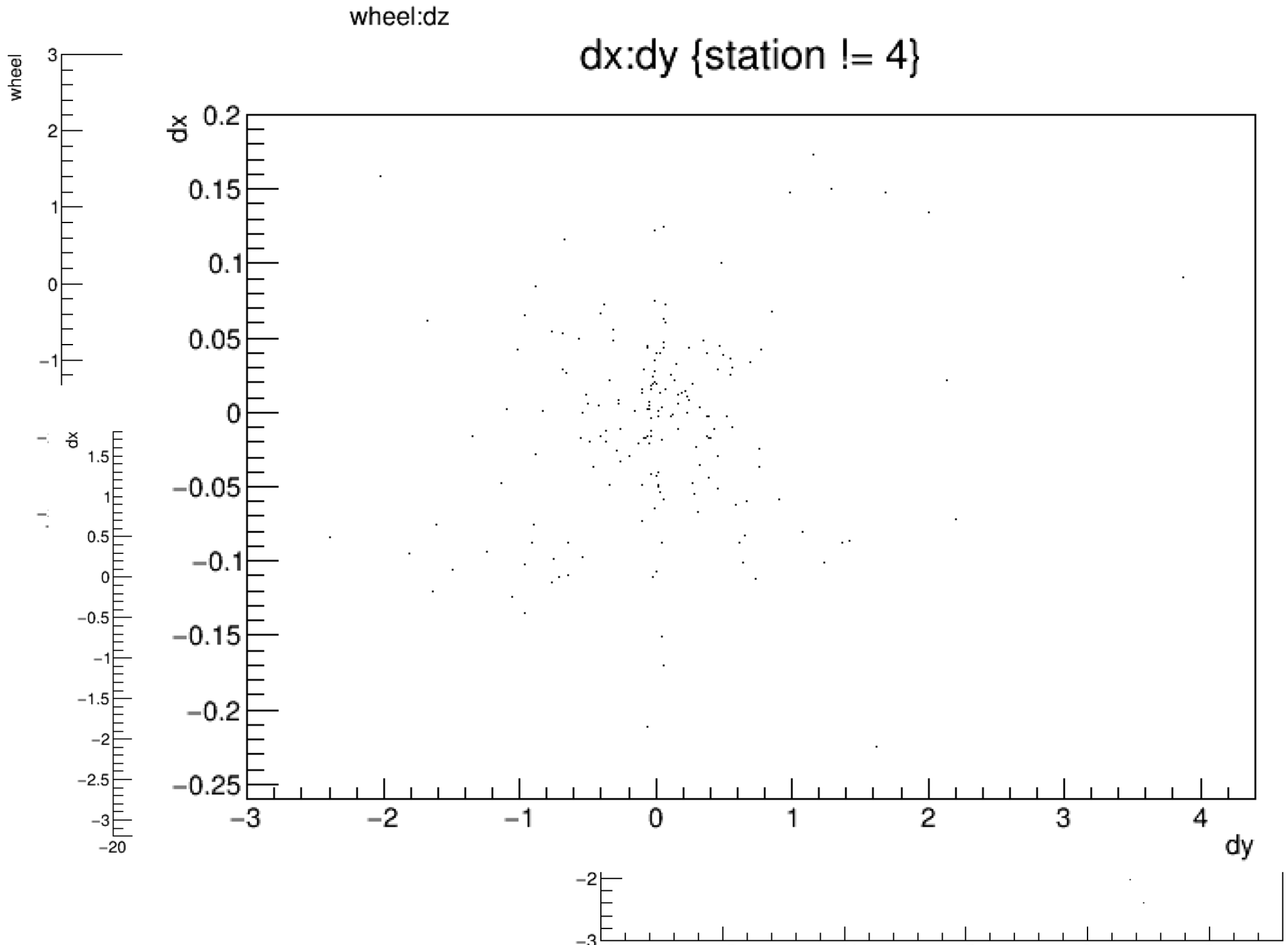

dx:dy
dx
dy


dPhiSquared:dSquared
dPhiSquared
dSquared


dx:dz
dx
dz


Mean −0.006501
RMS 0.3034
dx

DY sample



ueller