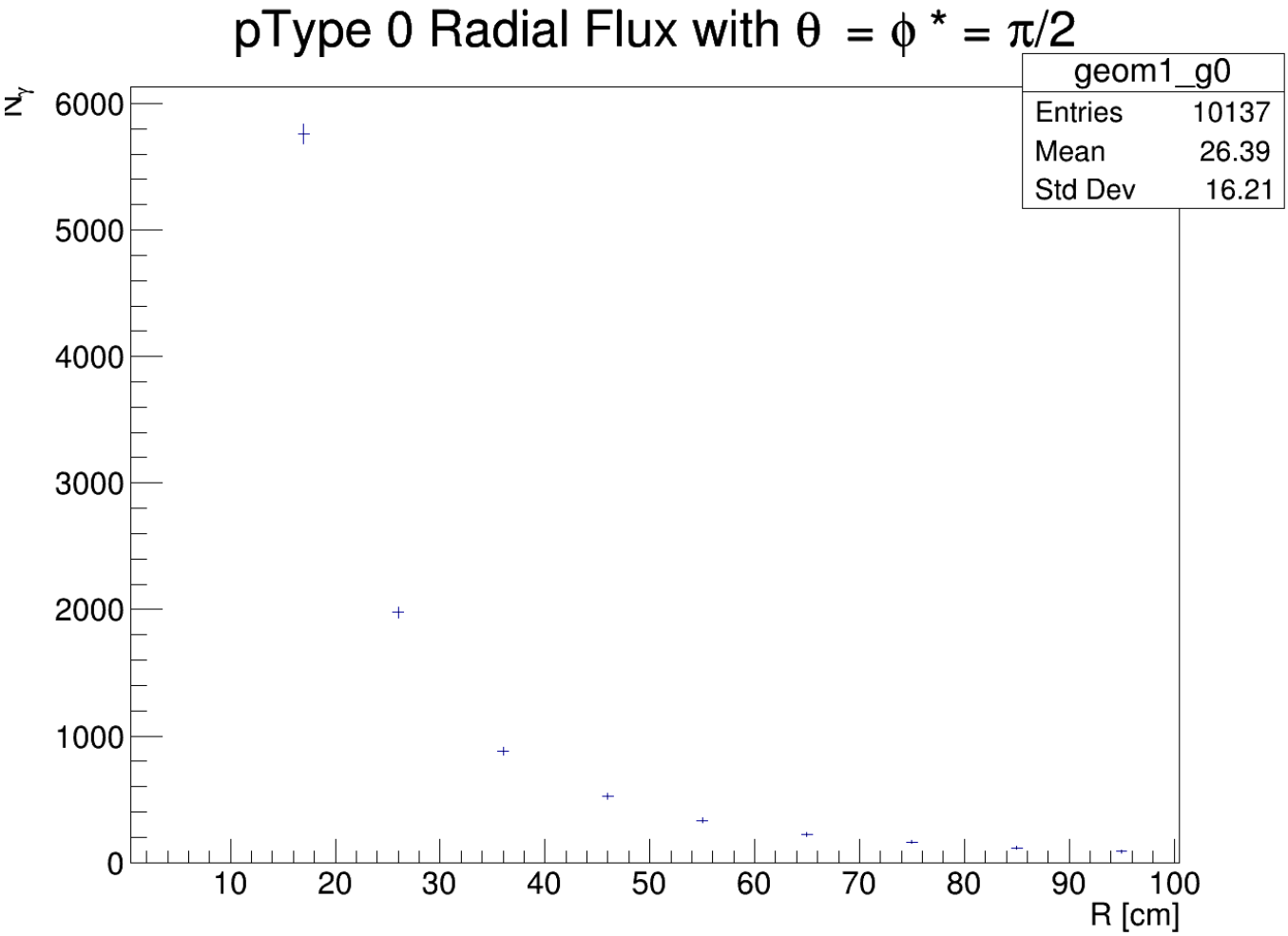
# PC update 3-11-21 ($\gamma$ flux)

- studied flux again with new cube method
- compared results

Cube method:

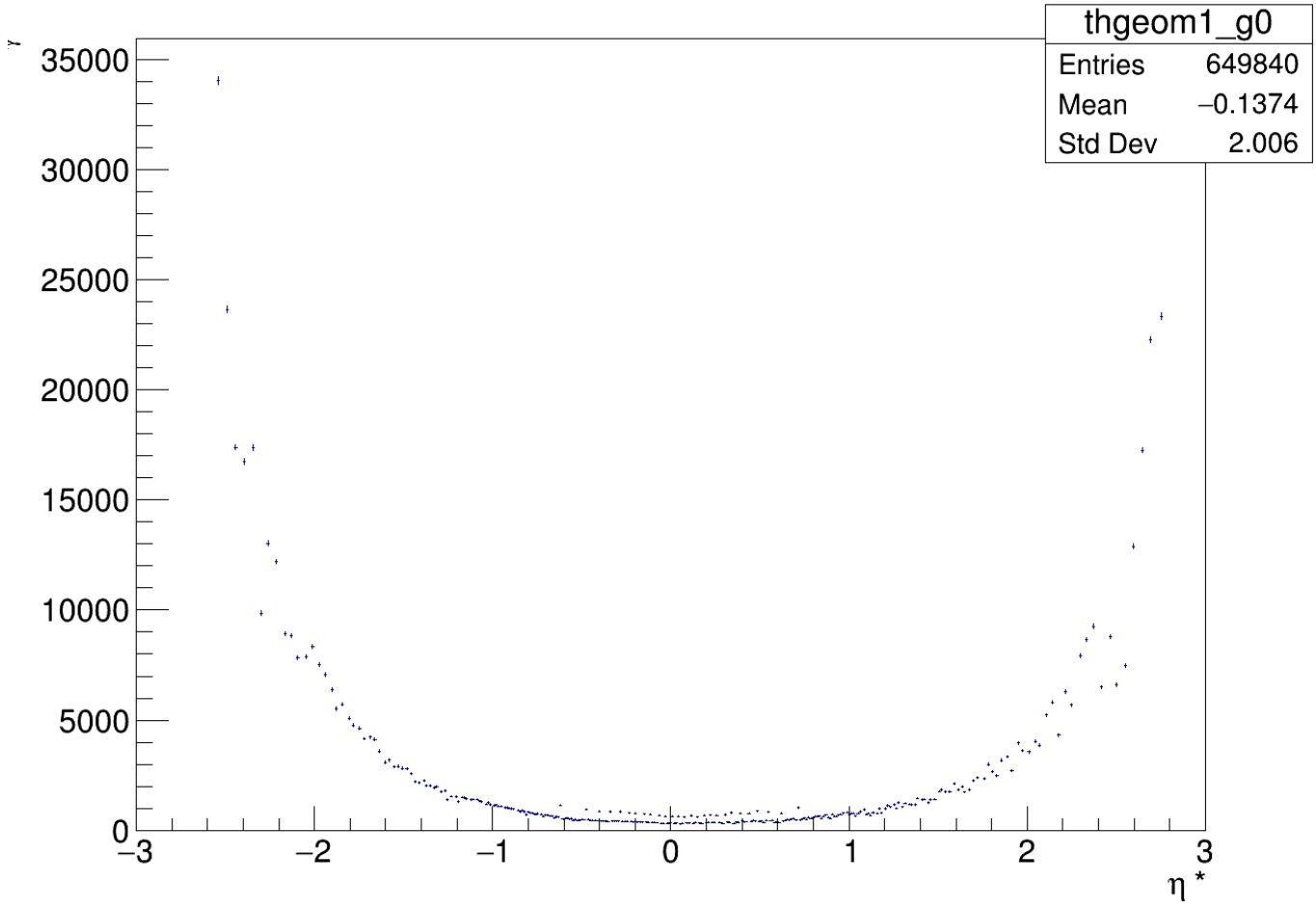
- place a cube of volume V in the detector
- compute intersection of cube planes with photon parametric line
- check if intersection falls within cube
  - require photon momentum and vector to cube center dot product to be positive
  - require photon R_origin to be less than R_cube
  - require photon R_end to be after R_cube

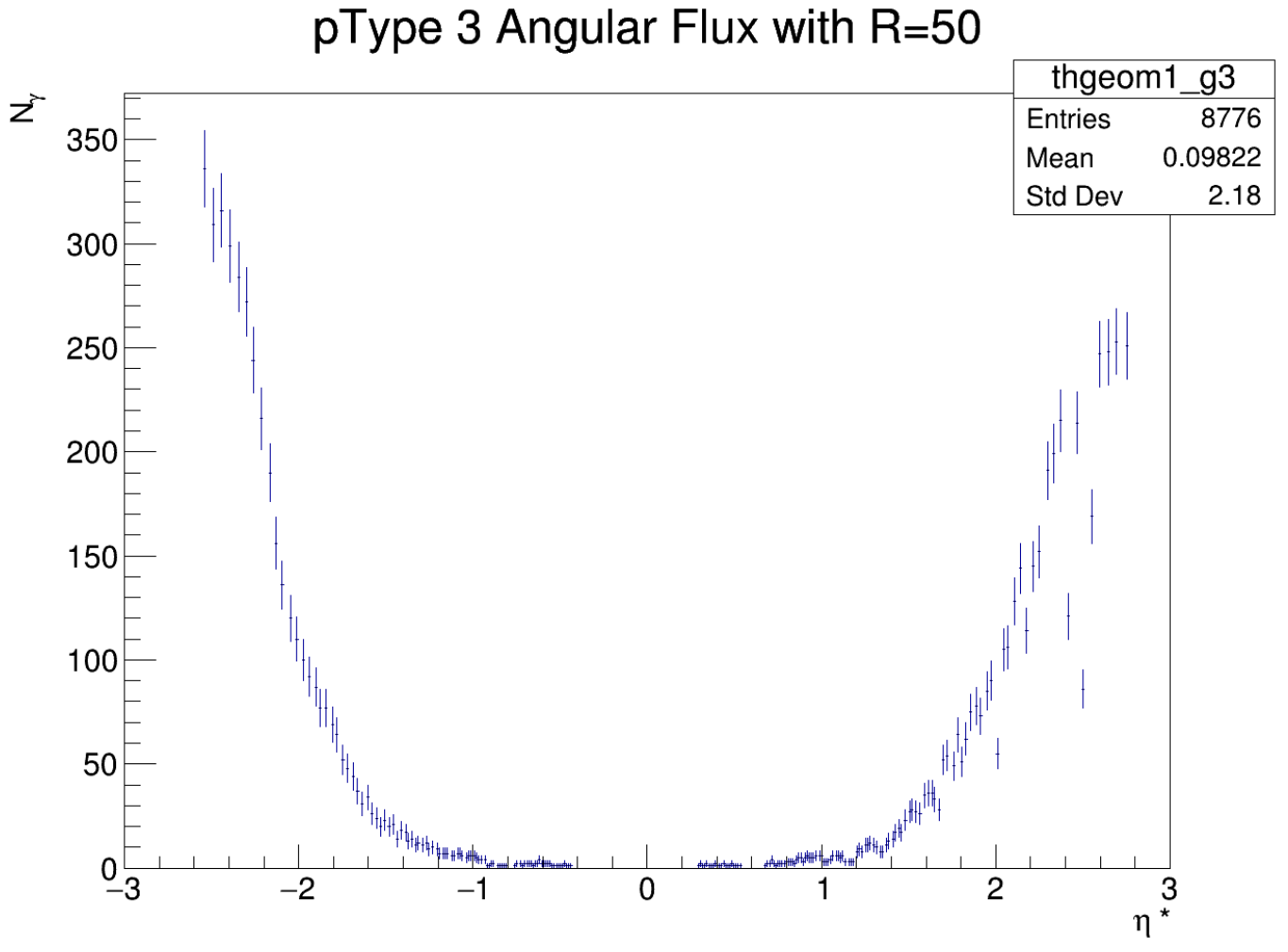
Cube with 5cm lengths, at R [10 -100] cm at $\theta^* = \phi^* = \pi/2$

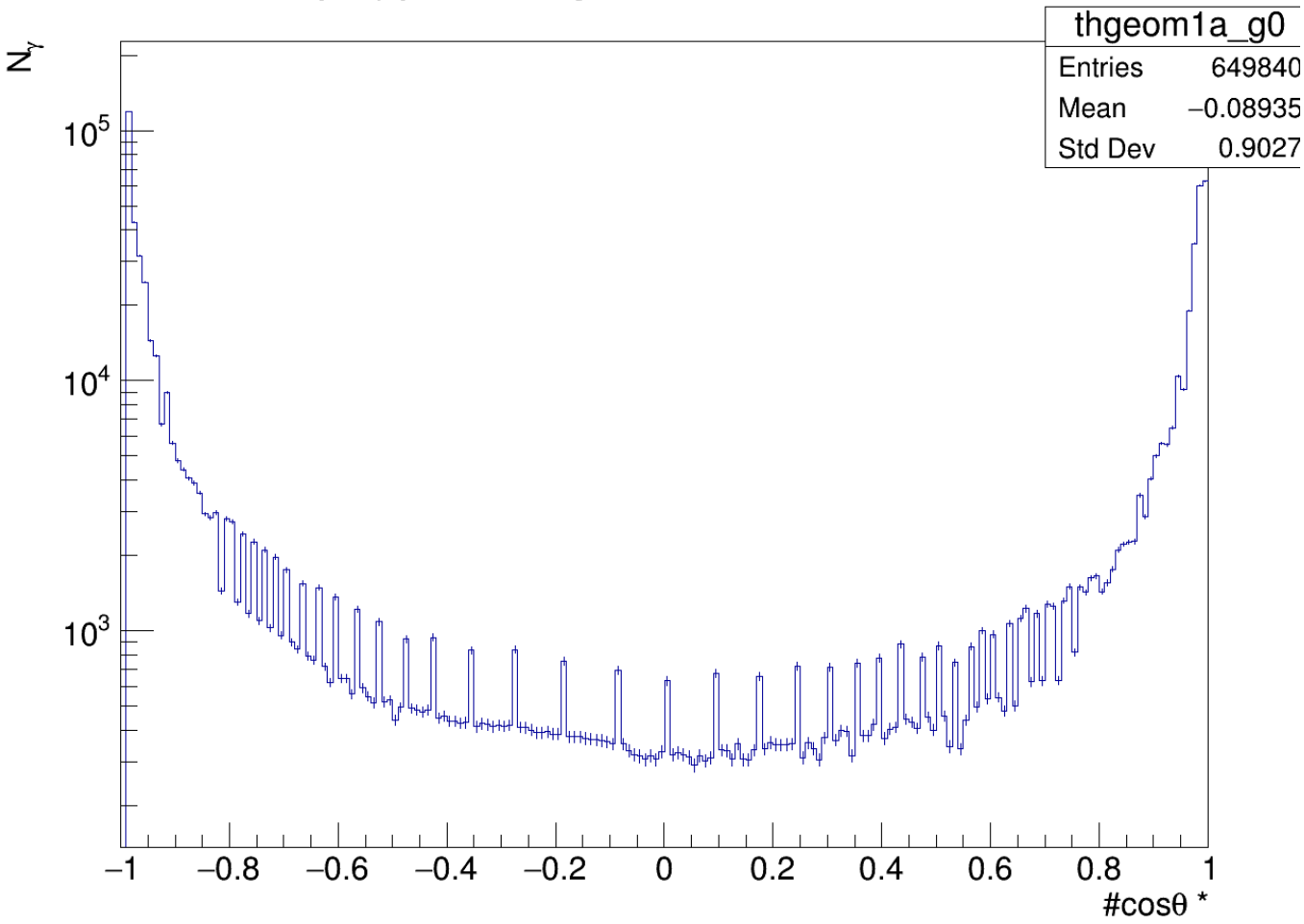


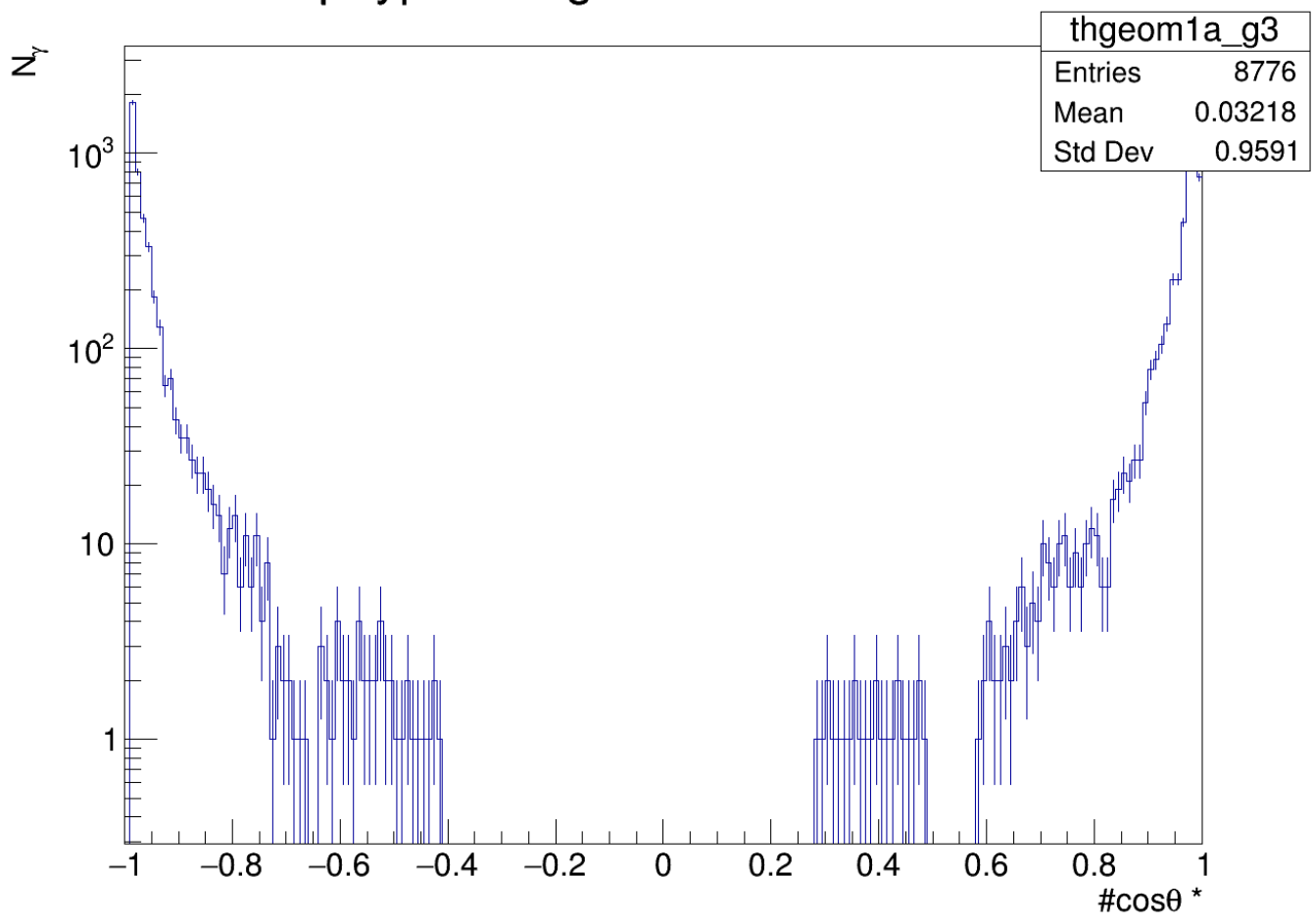

- There are only 2 instances ptype 3 that occuring at these angles
- ptype 201 is same shape, lower stats

Cube varying $\theta$ in .1 steps

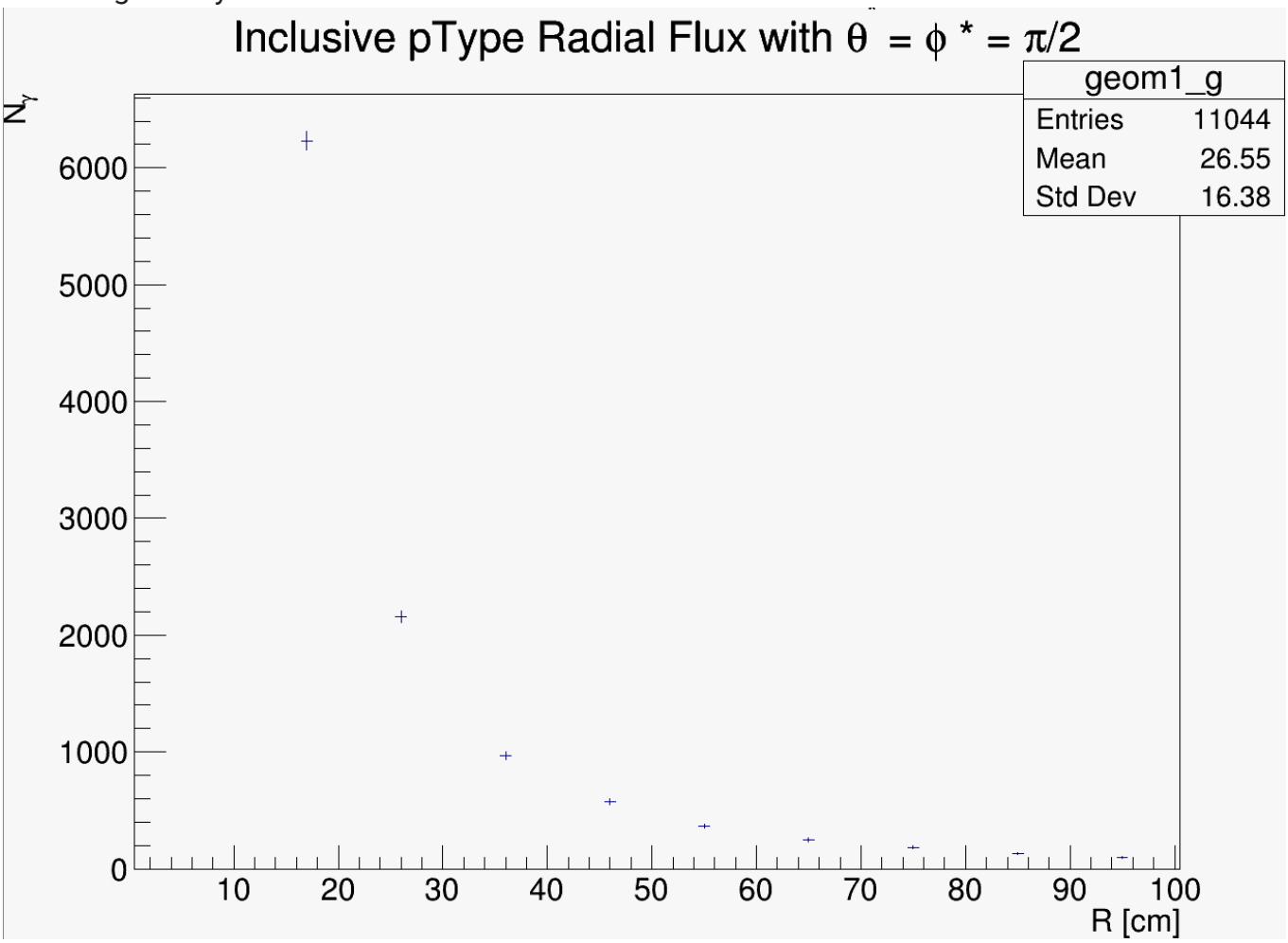

pType 0 Angular Flux with R=50
thgeom1_g0
Entries 649840
Mean −0.1374
Std Dev 2.006
$N_\gamma$
35000
30000
25000
20000
15000
10000
5000
0
−3
−2
−1
0
1
2
3
$\eta^*$


pType 3 Angular Flux with R=50
thgeom1_g3
Entries 8776
Mean 0.09822
Std Dev 2.18
$N_\gamma$
350
300
250
200
150
100
50
0
−3
−2
−1
0
1
2
3
$\eta^*$


pType 0 Angular Flux with R=50
thgeom1a_g0
Entries 649840
Mean −0.08935
Std Dev 0.9027
$N_\gamma$
$10^5$
$10^4$
$10^3$
−1 −0.8 −0.6 −0.4 −0.2 0 0.2 0.4 0.6 0.8 1
#cosθ *


pType 3 Angular Flux with R=50
thgeom1a_g3
Entries 8776
Mean 0.03218
Std Dev 0.9591
$N_\gamma$
$10^3$
$10^2$
10
1
−1 −0.8 −0.6 −0.4 −0.2 0 0.2 0.4 0.6 0.8 1
#cosθ *

weighted bins
bins weighted by R



bins weighted by $\sin\theta$