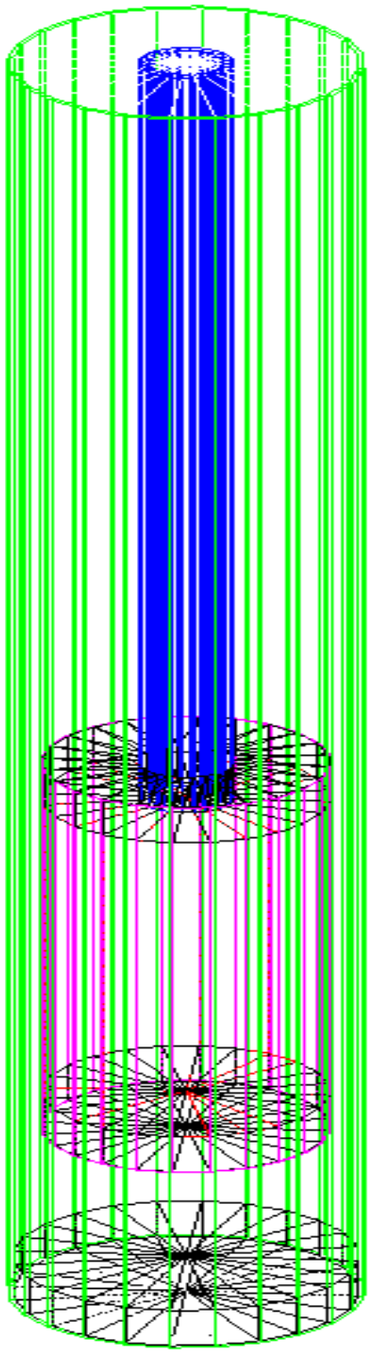
Elastic scattering study

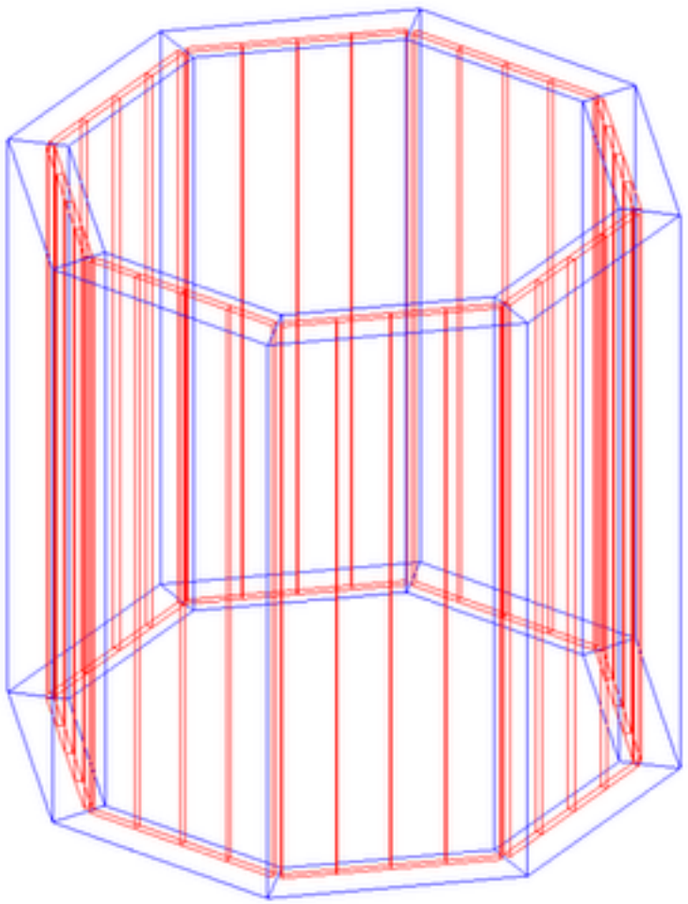
LH2 TARGET GEOMETRY

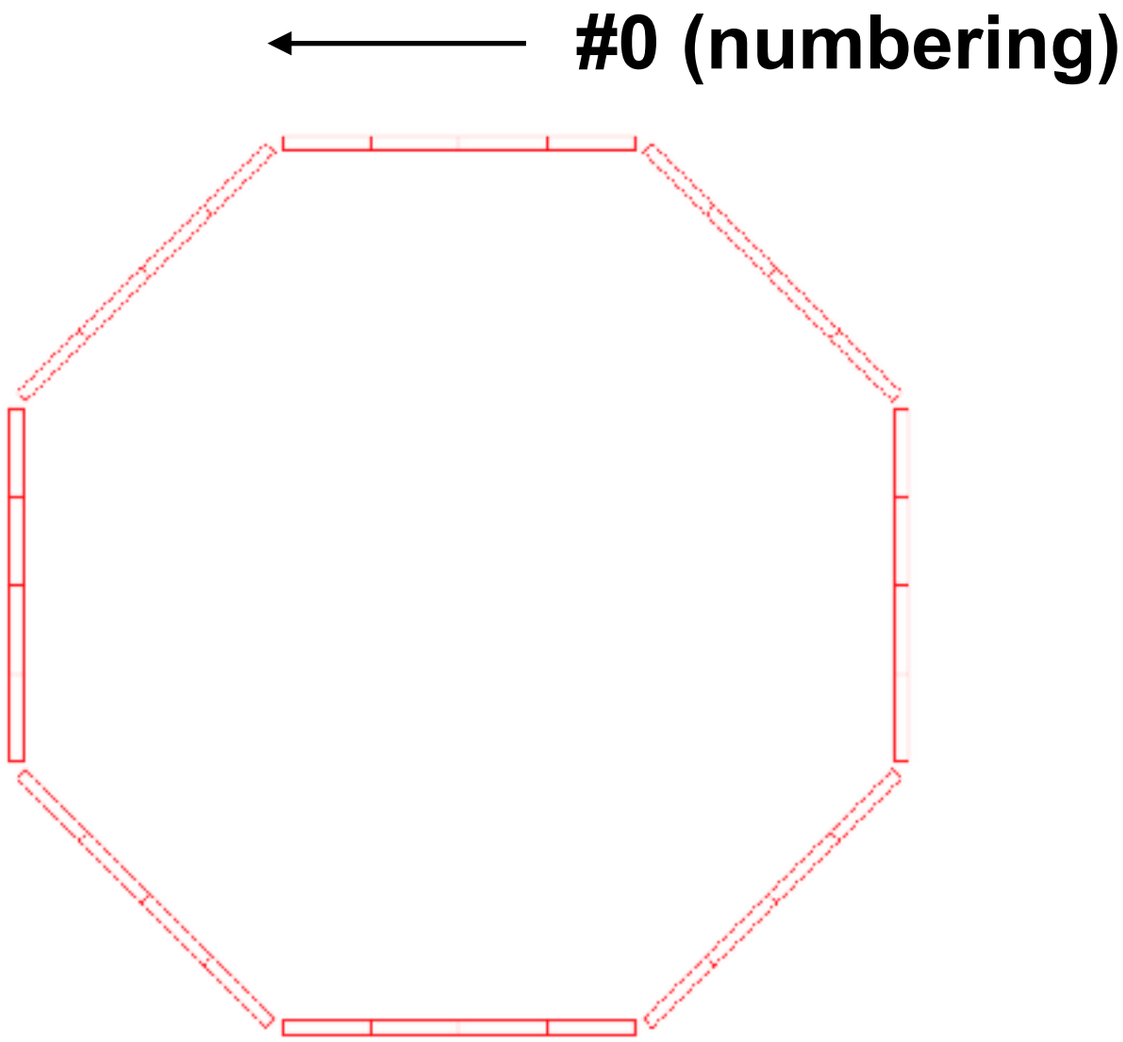


	Diameter	Length	Density
Target (LH2)	D=54	L=100	0.0709 g/cm3
Target_wall(Mylar)	ID=54 , OD=54+2x0.25	L=100+2x12	
Cylinder wall(G10)	ID=65 , OD=65+2x1.0	L=418	
Target world(vaccum)	D=65+2x1.0	L=418	
outside of target (air)	ID=65+2x1.0 OD=80	L=418	

HODOSCOPE COUNTERS

Segment size: 70 mm*800 mm*10 mm
Distance from center: 350 mm





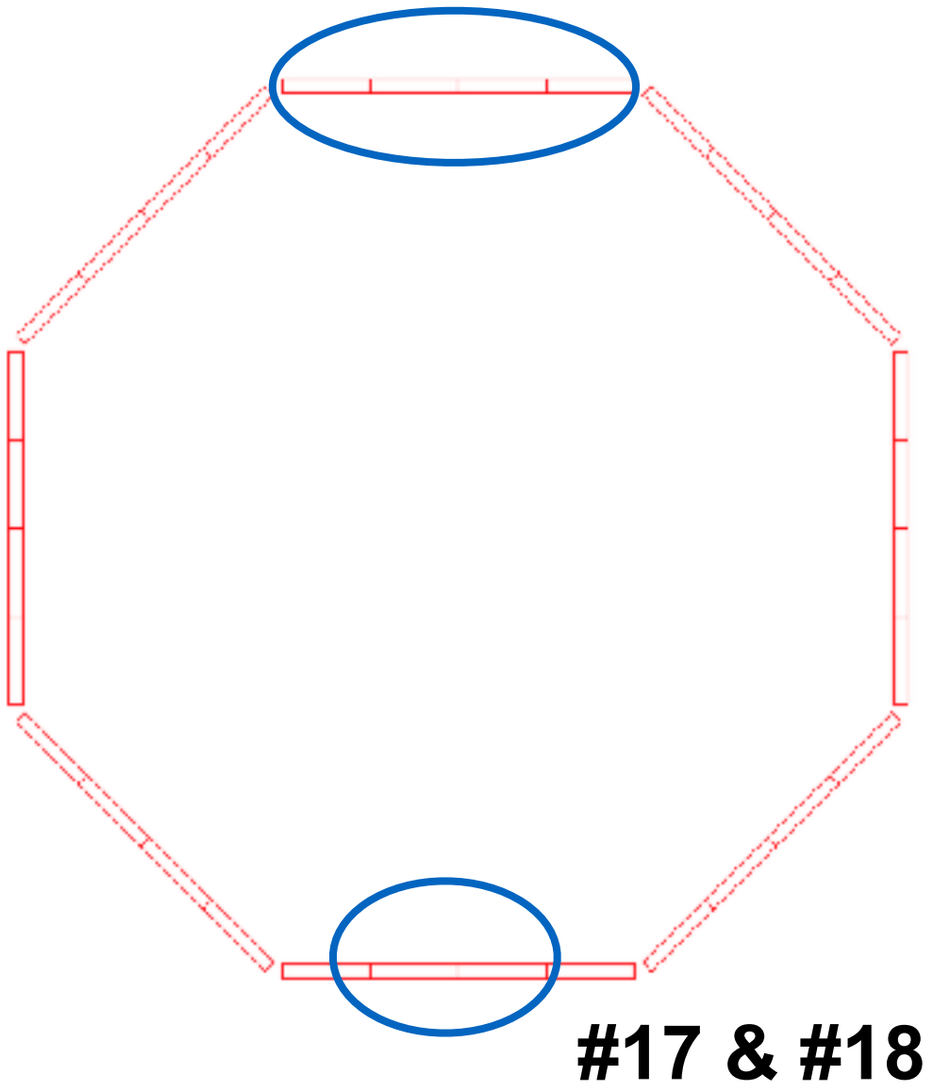
BEAM WINDOW

window

segment : #1 & #2 and #0, #4

#17 & #18

size : -2 cm < Y < 2 cm



CONDITIONS

B field ~ 1.0 T

EventGen - PHSP model

($\pi^+ p \rightarrow$) $\pi^+ p$

Beam momentum(Invariant mass) : 2.000 (2.16) GeV/c

CONDITIONS

vertex condition

(mm)

1. Vertex center : (0, 0, -143)

2. X & Y position : Gaussian distributions

sigma values : (7.6, 4.2)

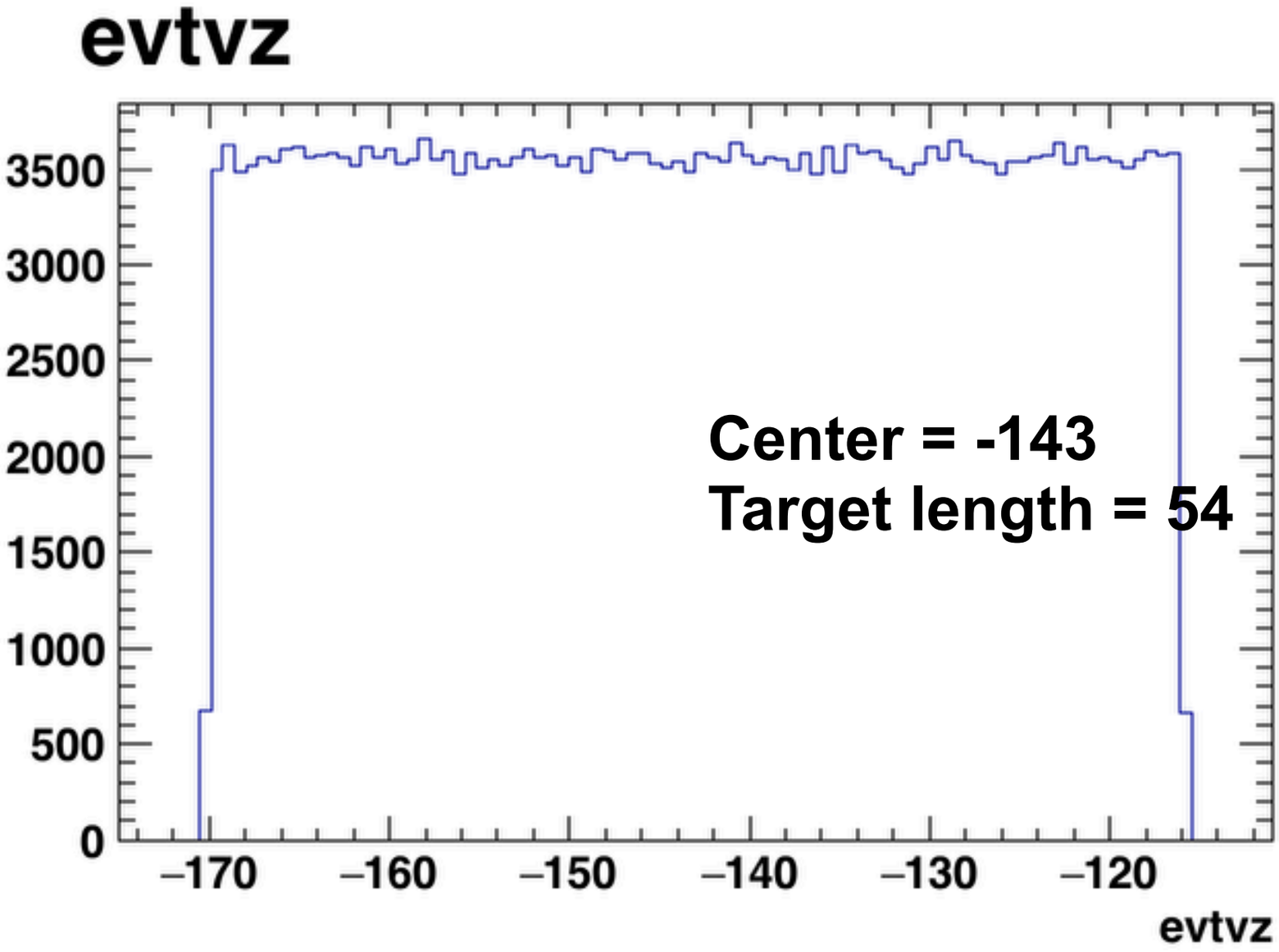
3. Z position : Uniform distributions

4. Vertex position is in the target

VERTEX

Z Vertex

: Uniform distributions

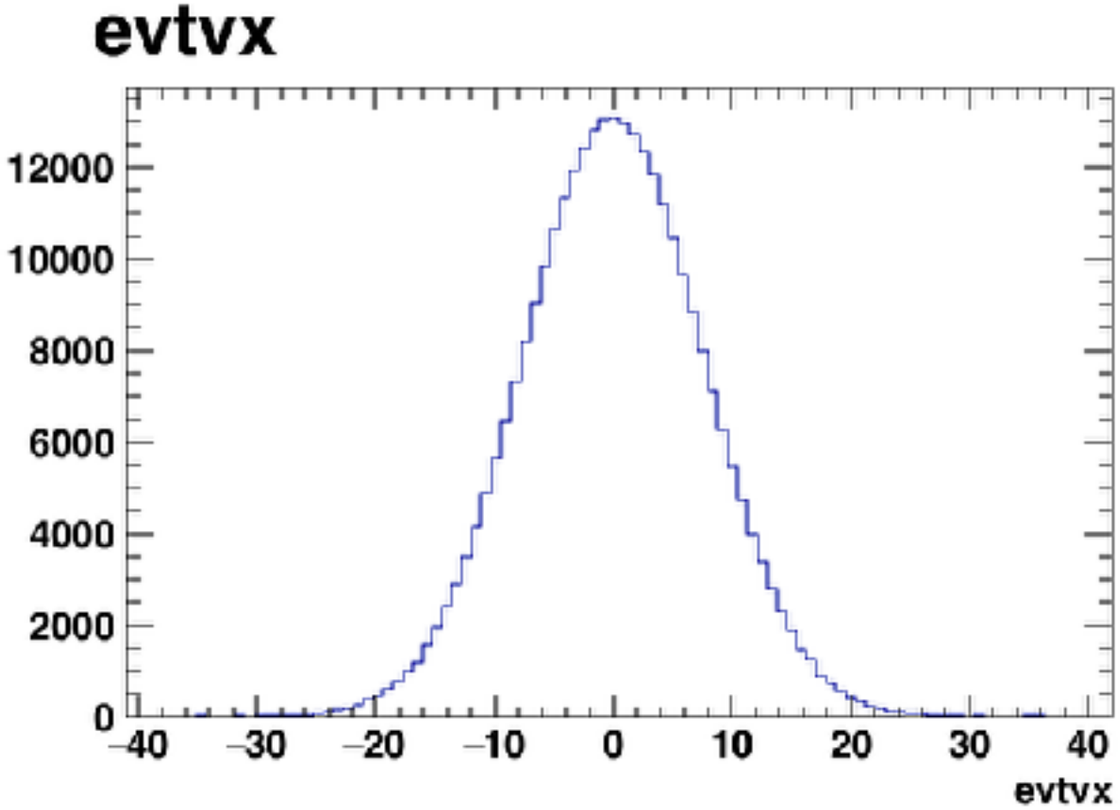


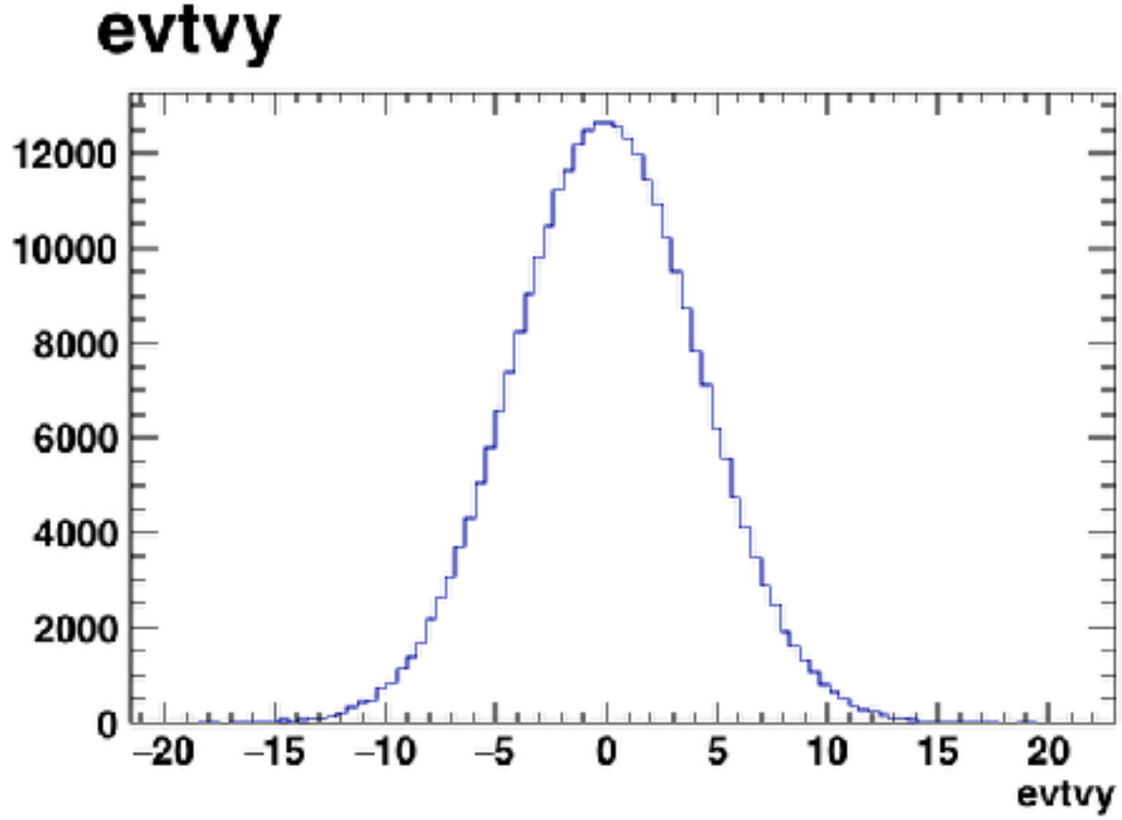
VERTEX

X & Y Vertex

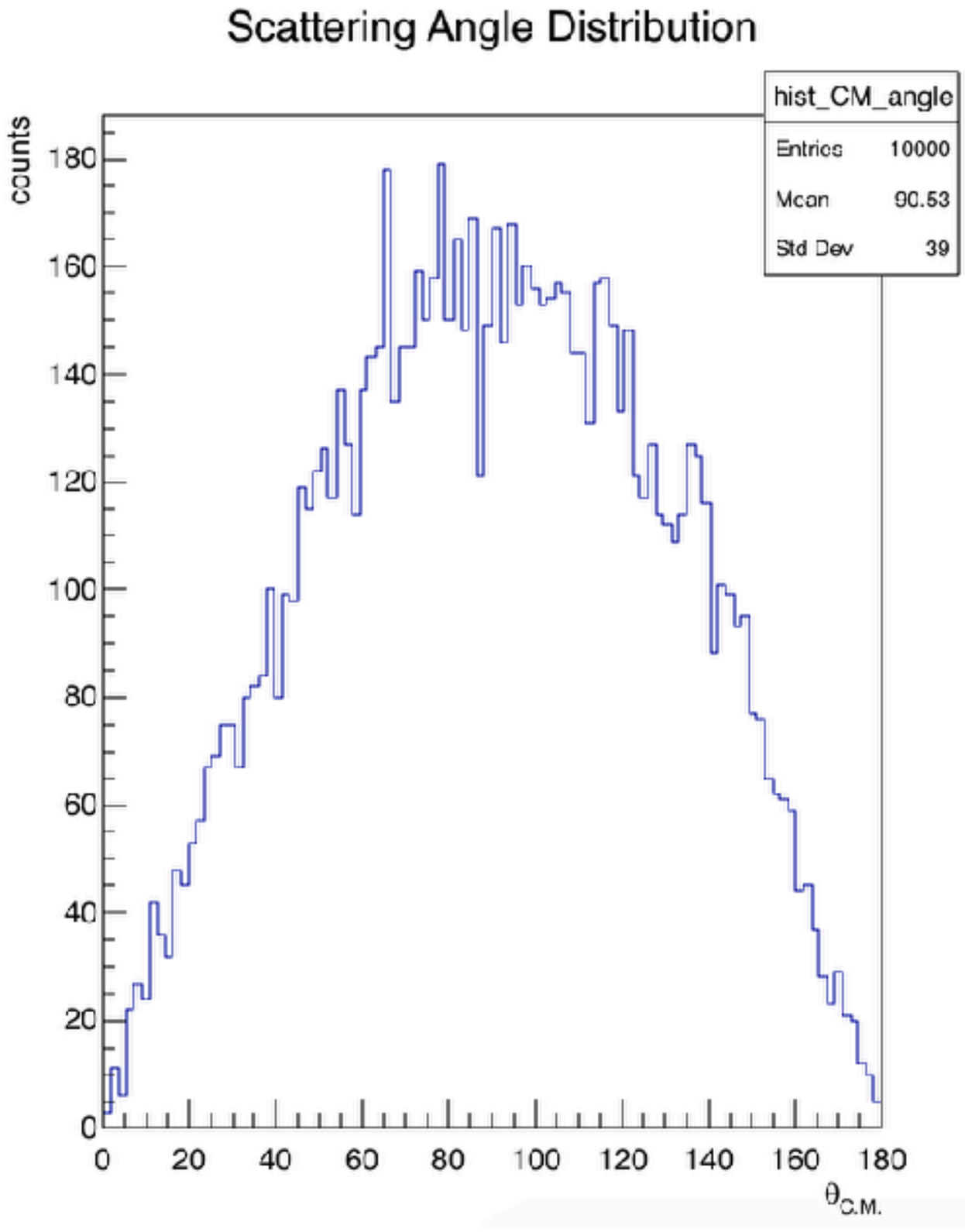
: Gaussian distributions

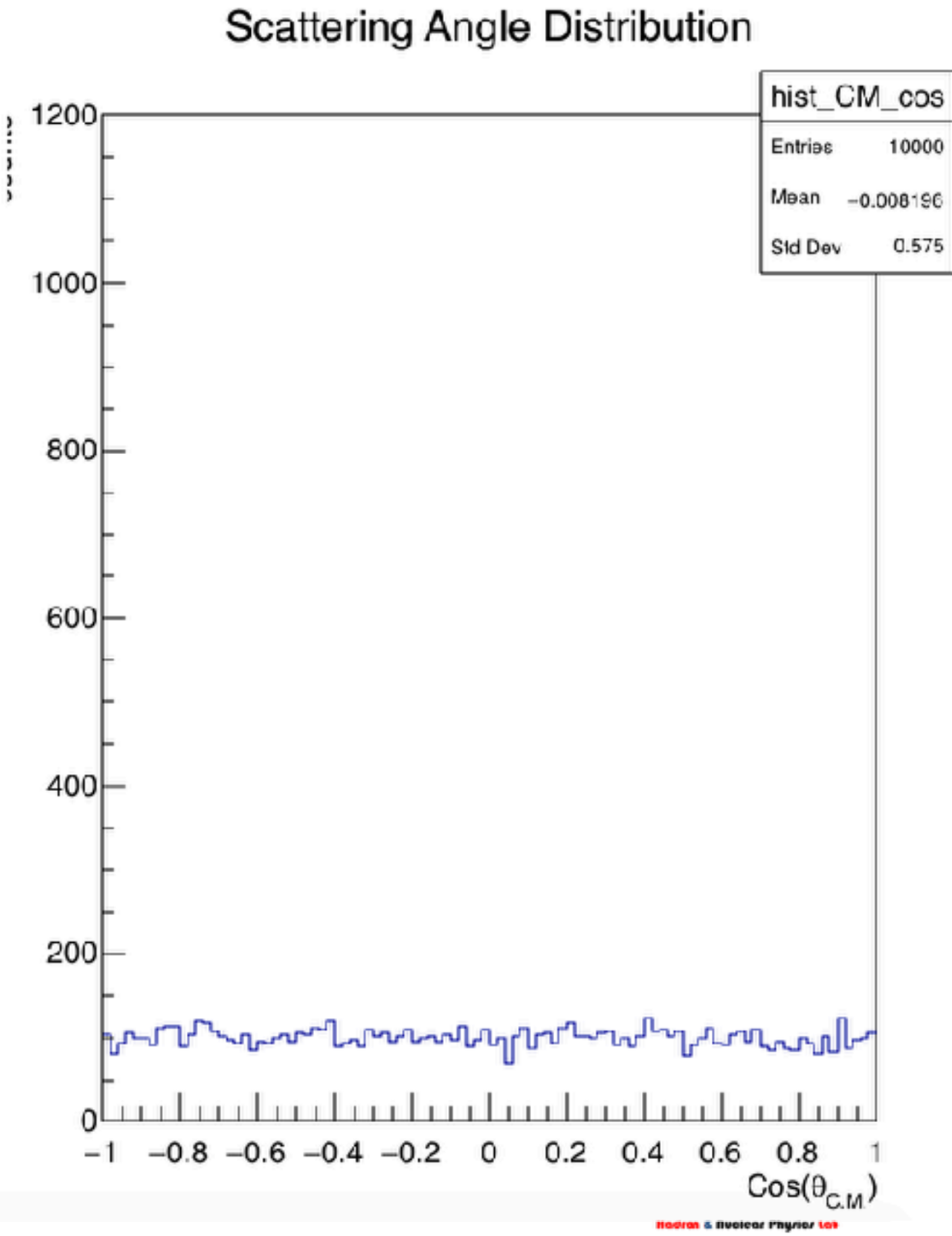
sigma values : (7.6, 4.2)





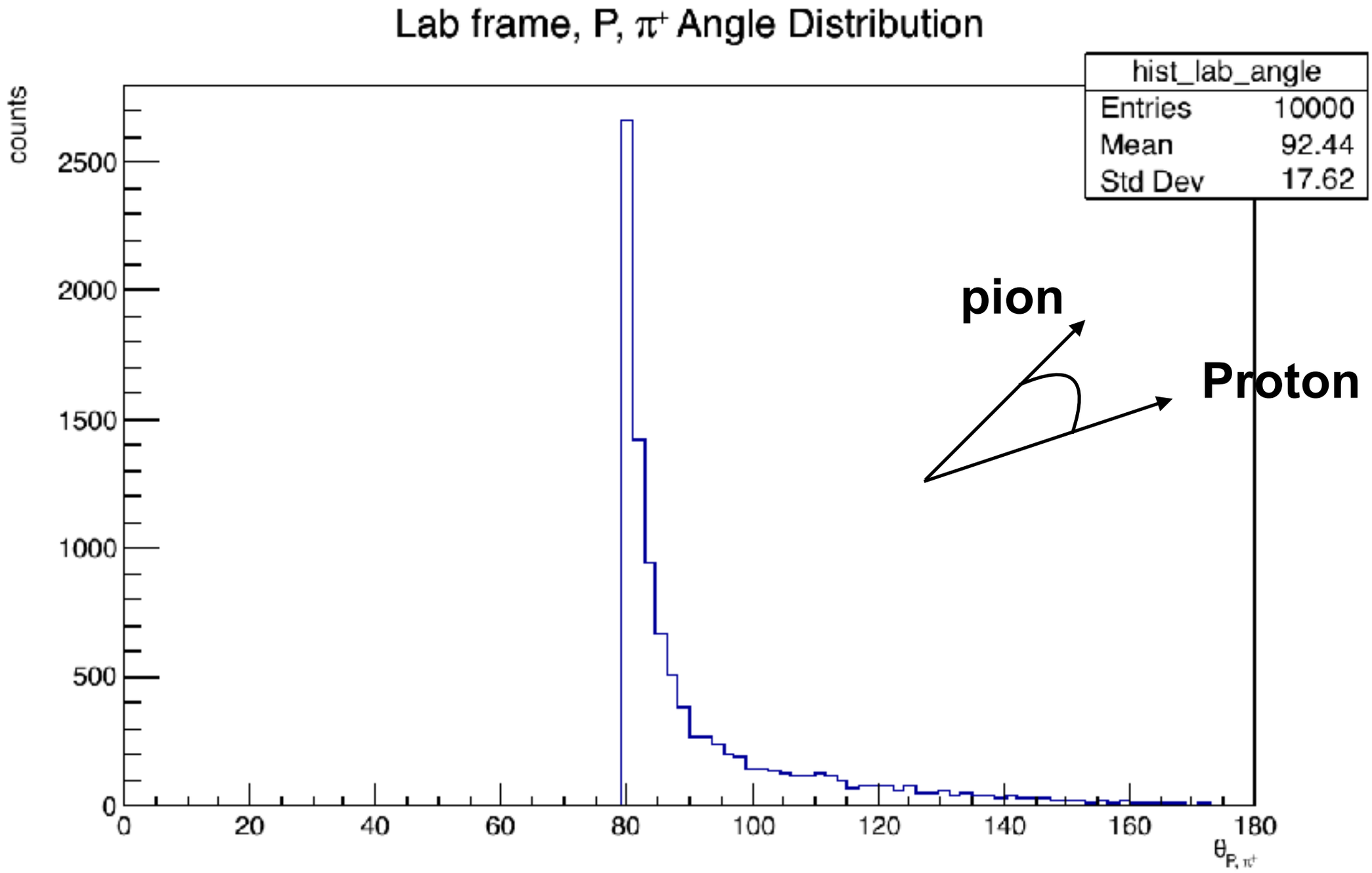
CM SCATTERING ANGLE





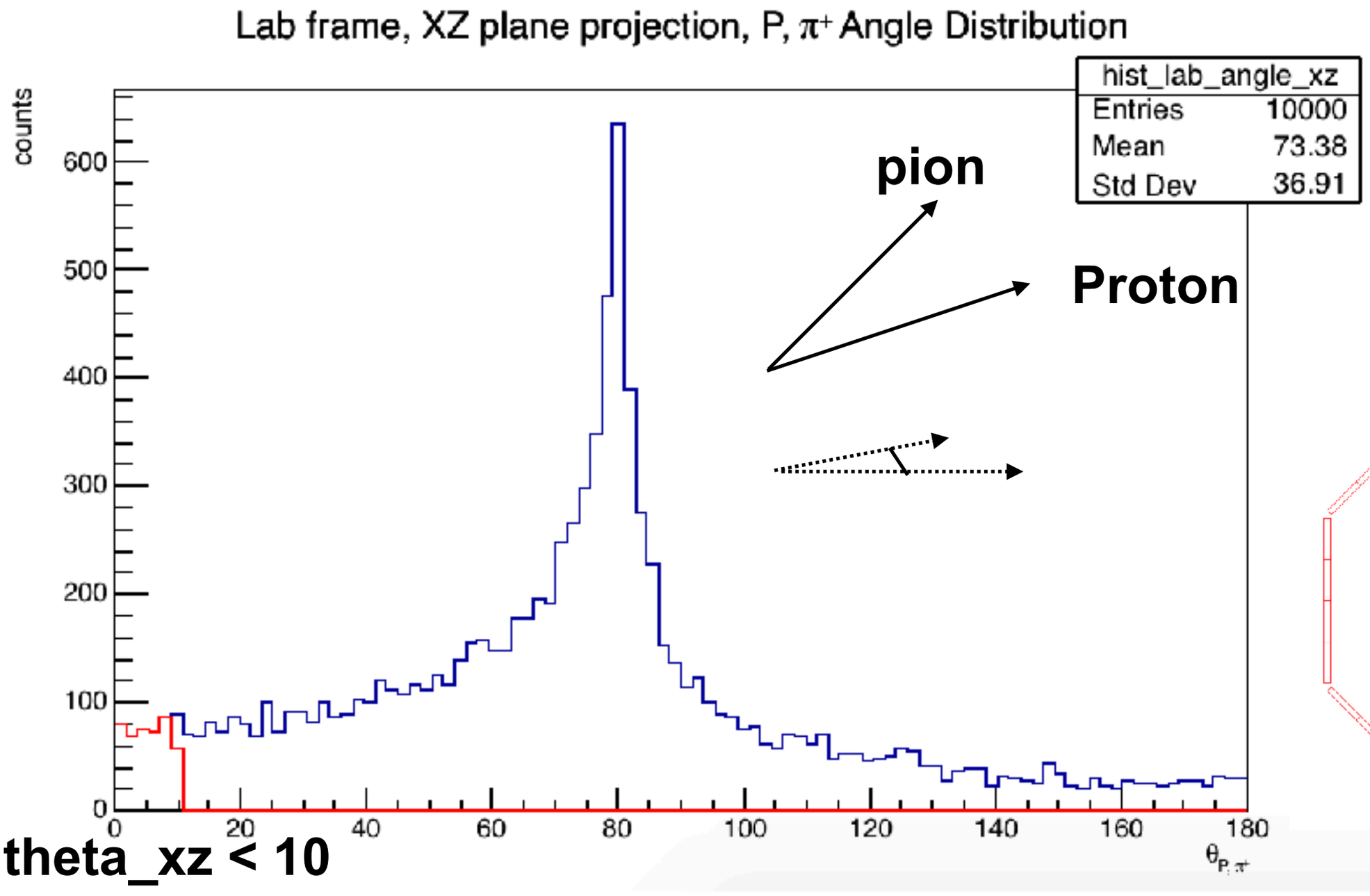
LAB ANGLE BETWEEN P, PI

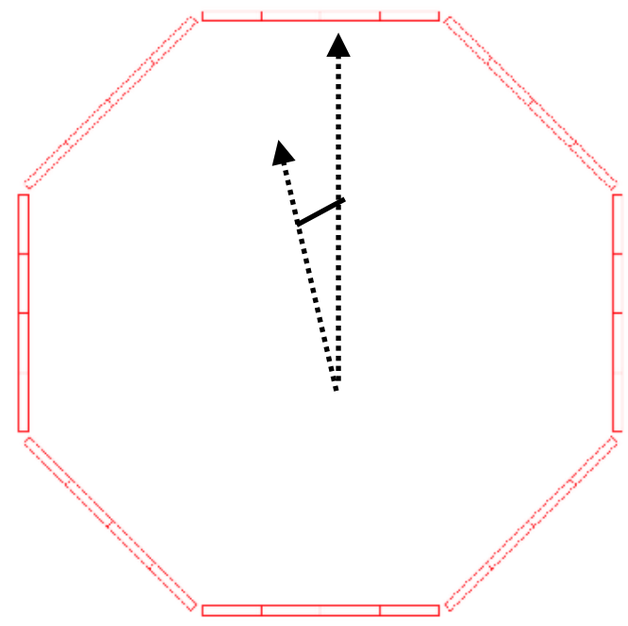
distribution of angle between pi, p



LAB ANGLE BETWEEN P, PI

Projection to XZ plane

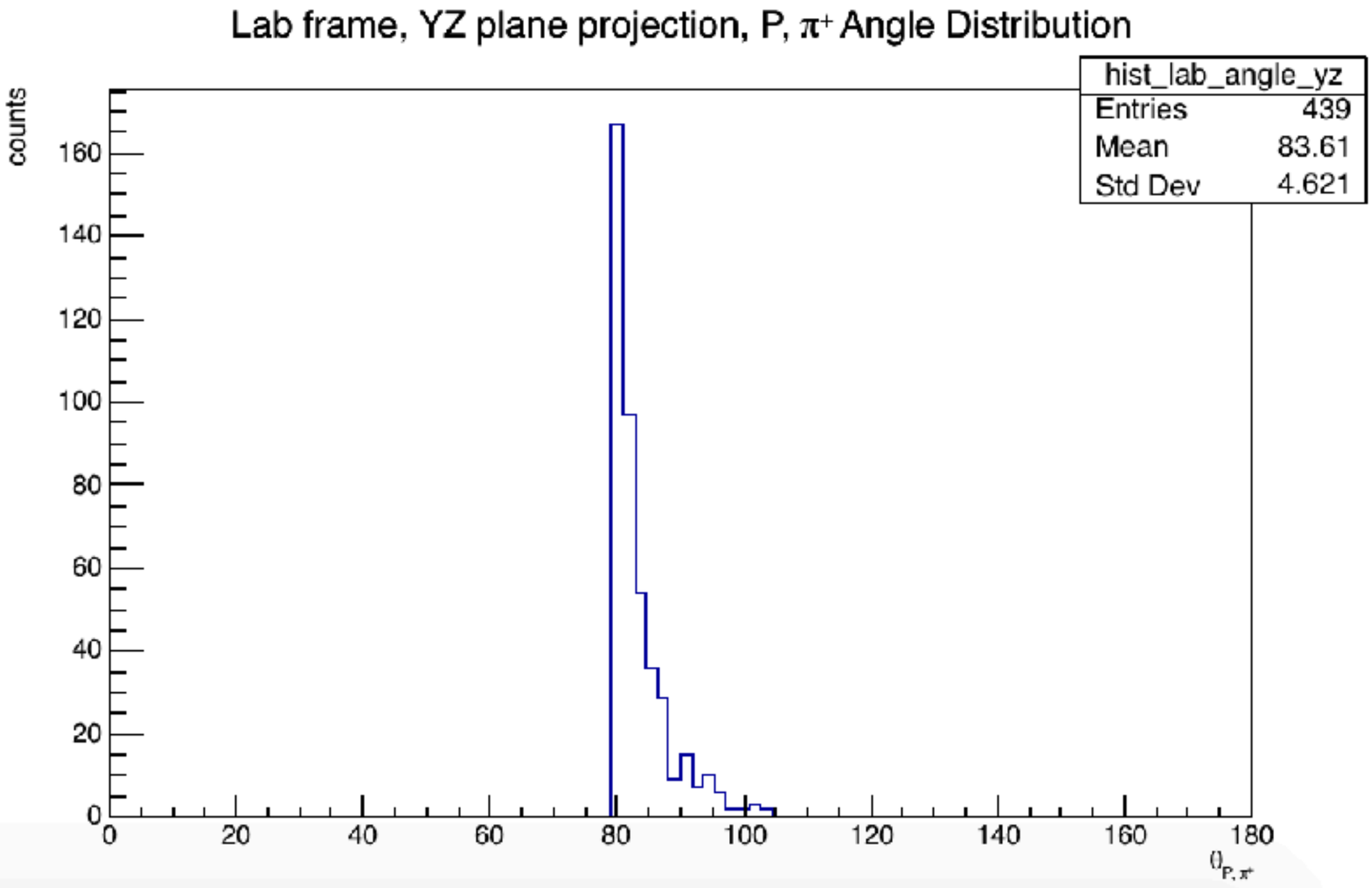




theta_xz < 10

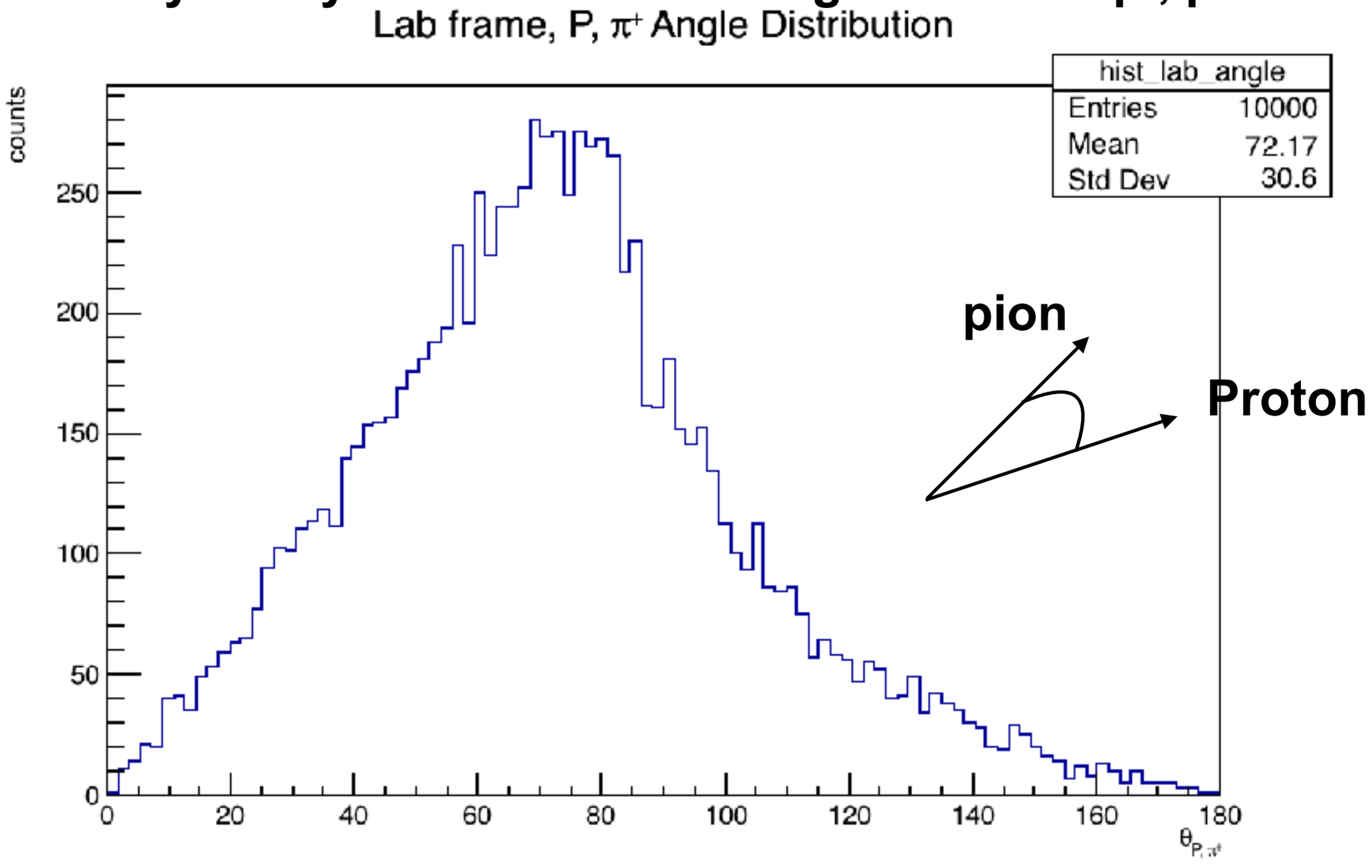
LAB ANGLE BETWEEN P, PI

Projection to YZ plane theta_xz < 10



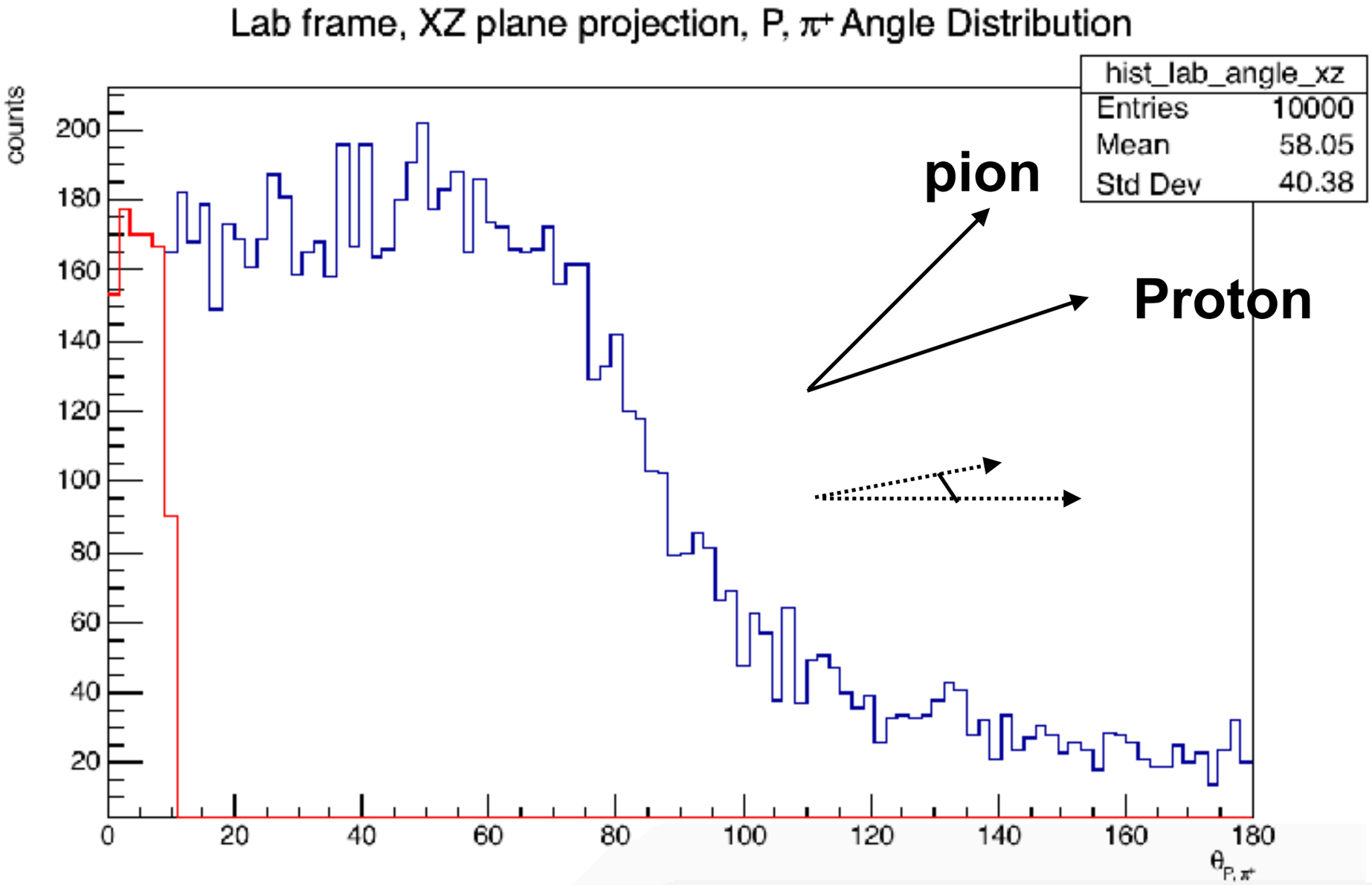
3 BODY DECAY

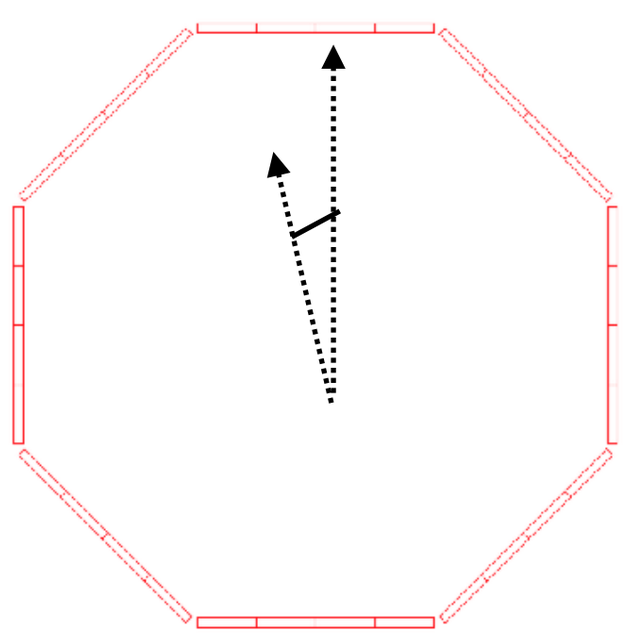
c.f. 3 body decay's distribution of angle between pi, p



3 BODY DECAY

Projection to XZ plane

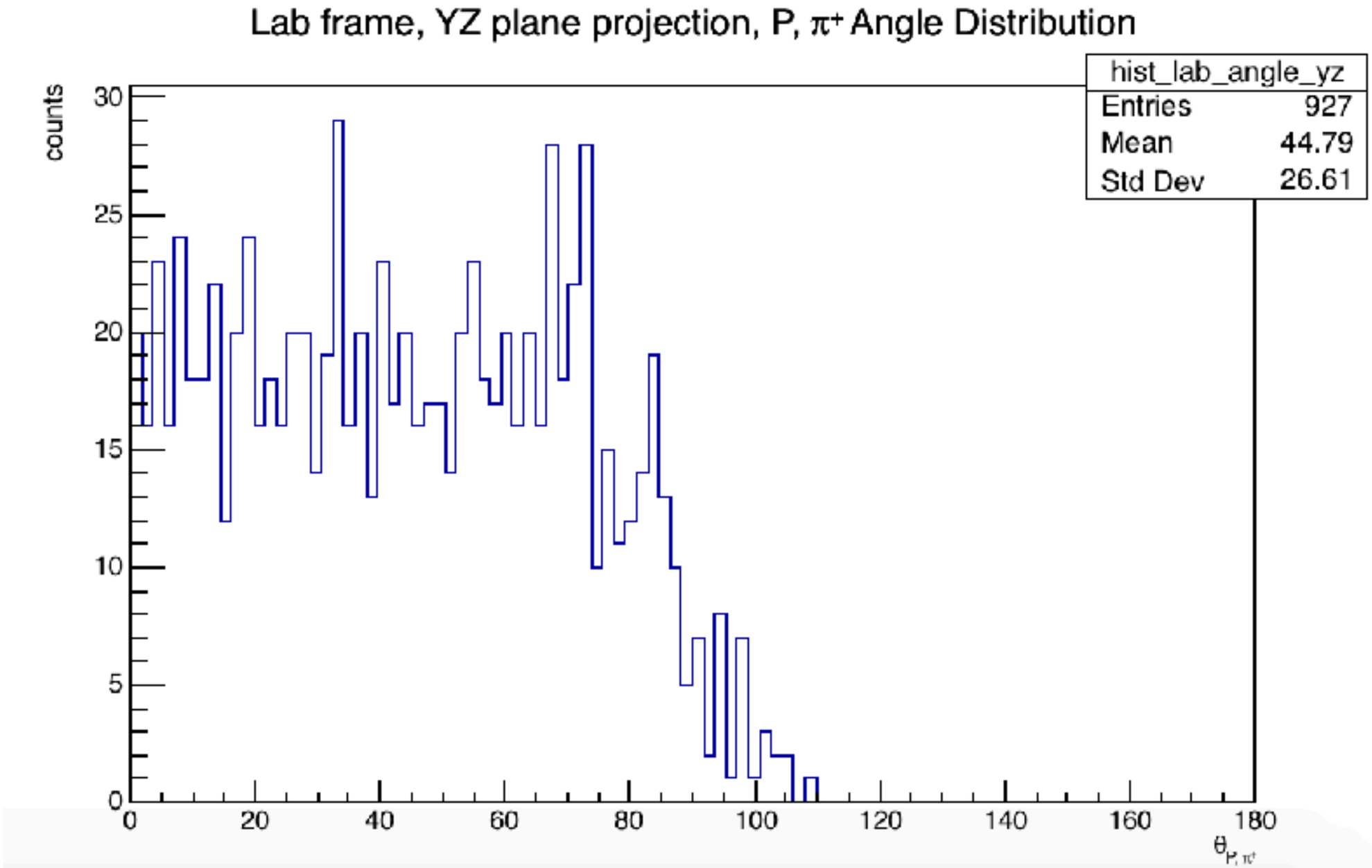




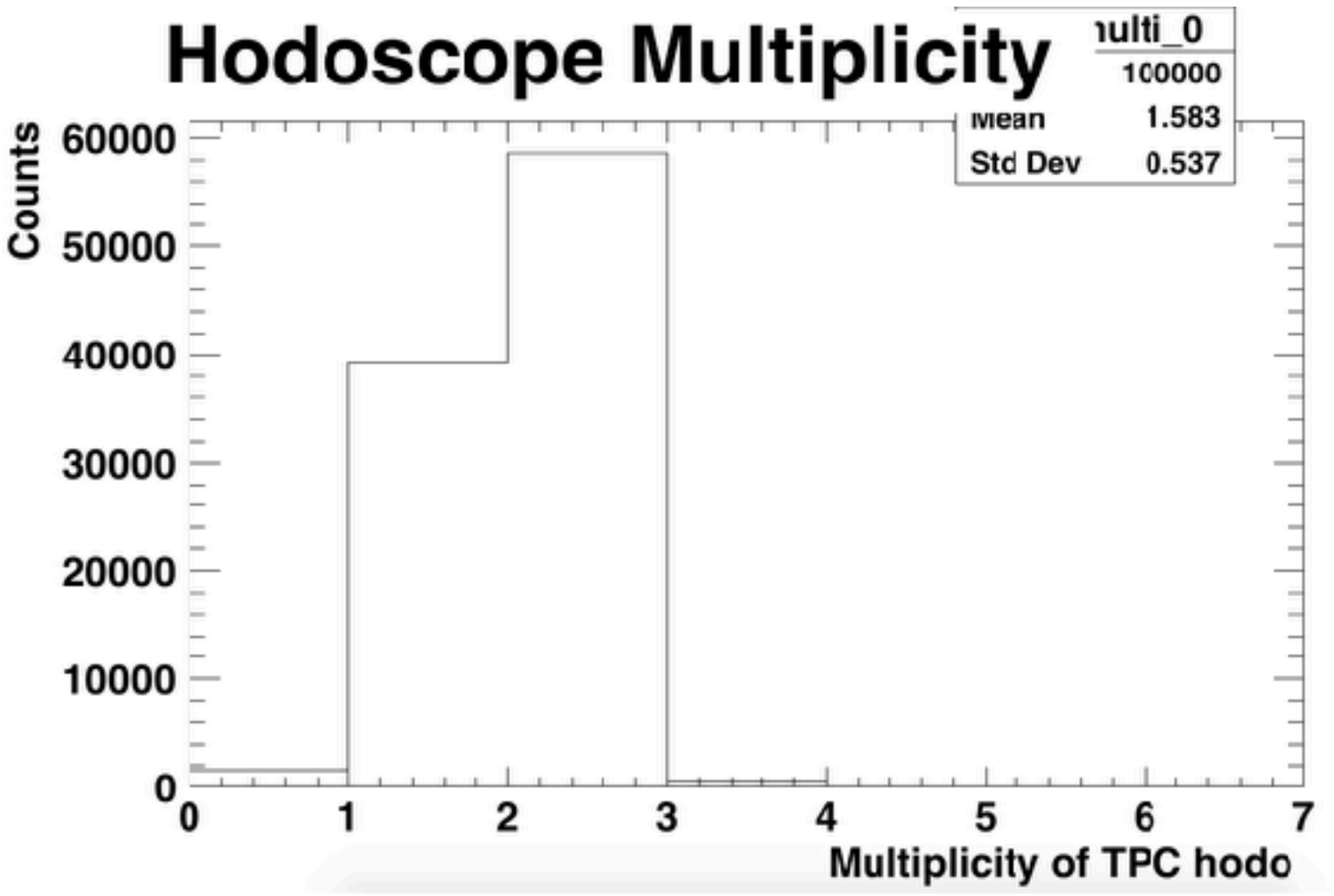
theta_xz < 10

3 BODY DECAY

Projection to YZ plane theta_xz < 10



ELASTIC SCATTERING MULTIPLICITY



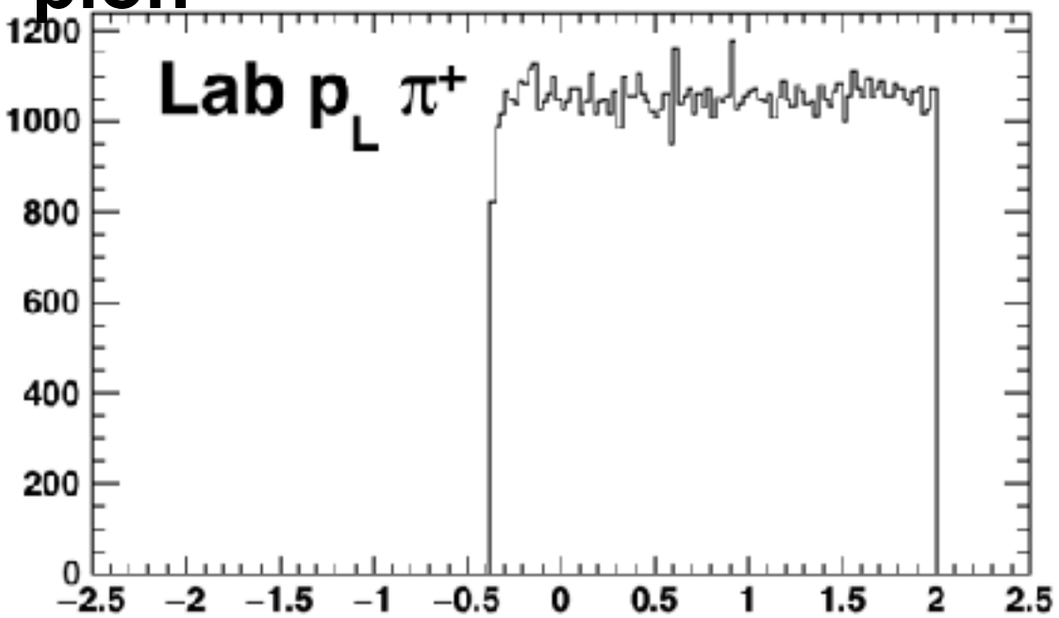
M-0 : 1.636 %
M-1 : 39.103 %
M-2 : 59.261 %

number of two particle hit in one segment : 0

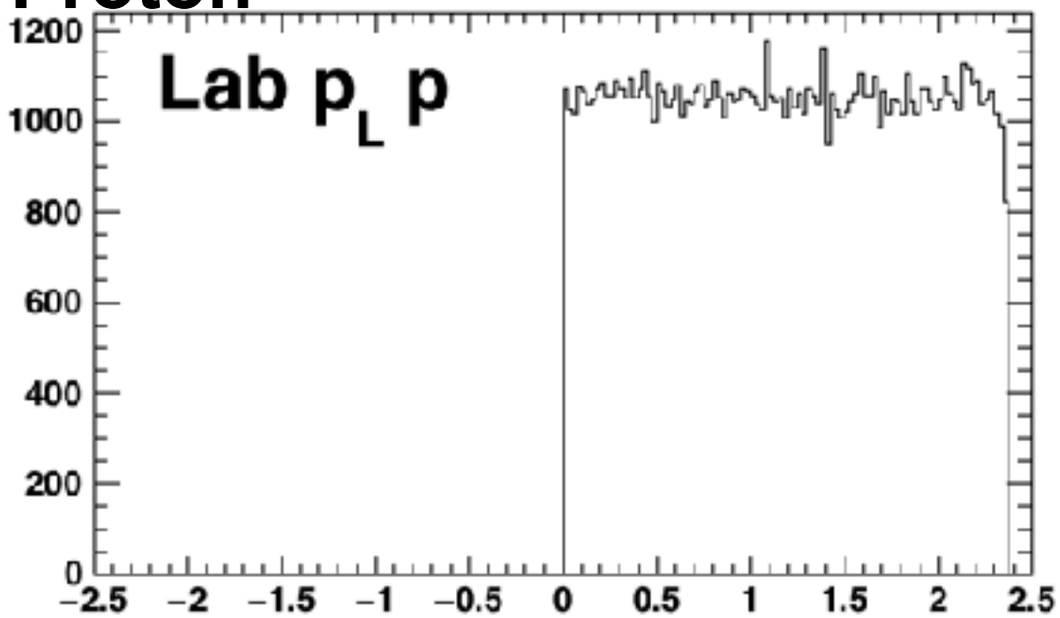
BACKUP

LAB FRAME P_L

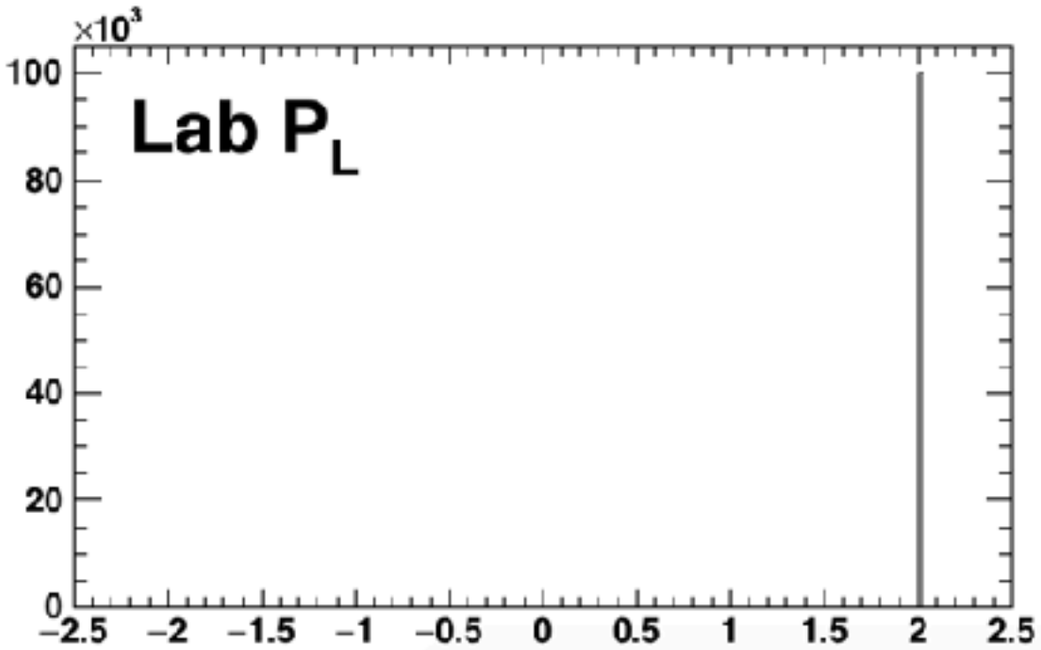
pion



Proton

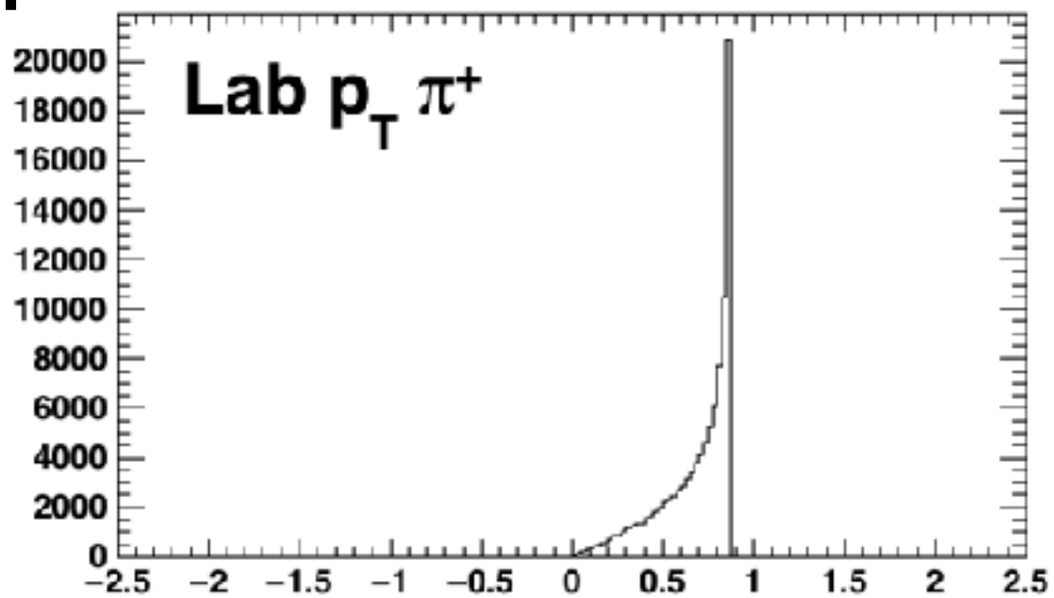


total

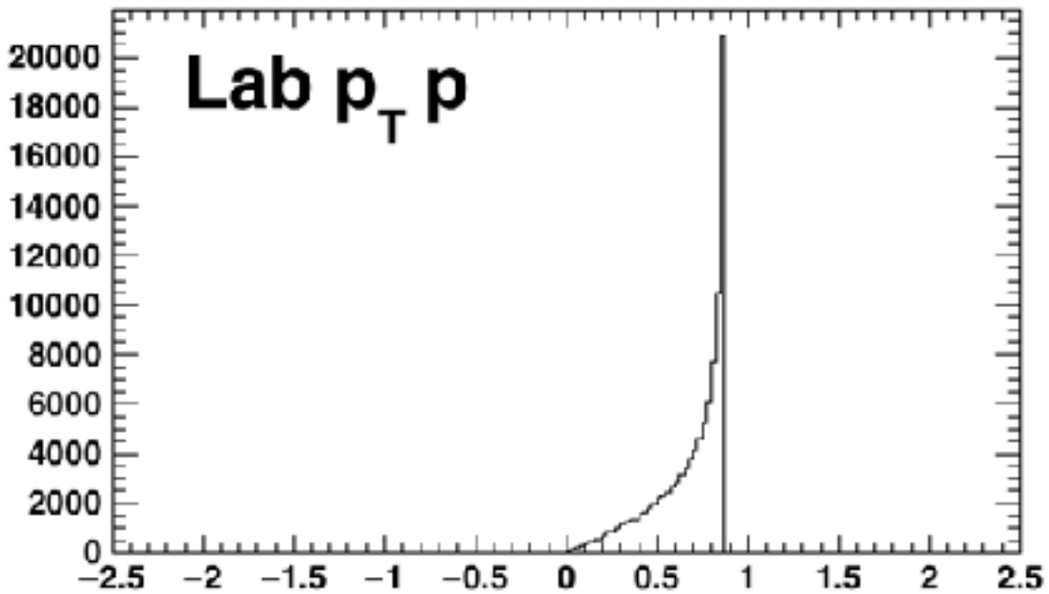


LAB FRAME P_T

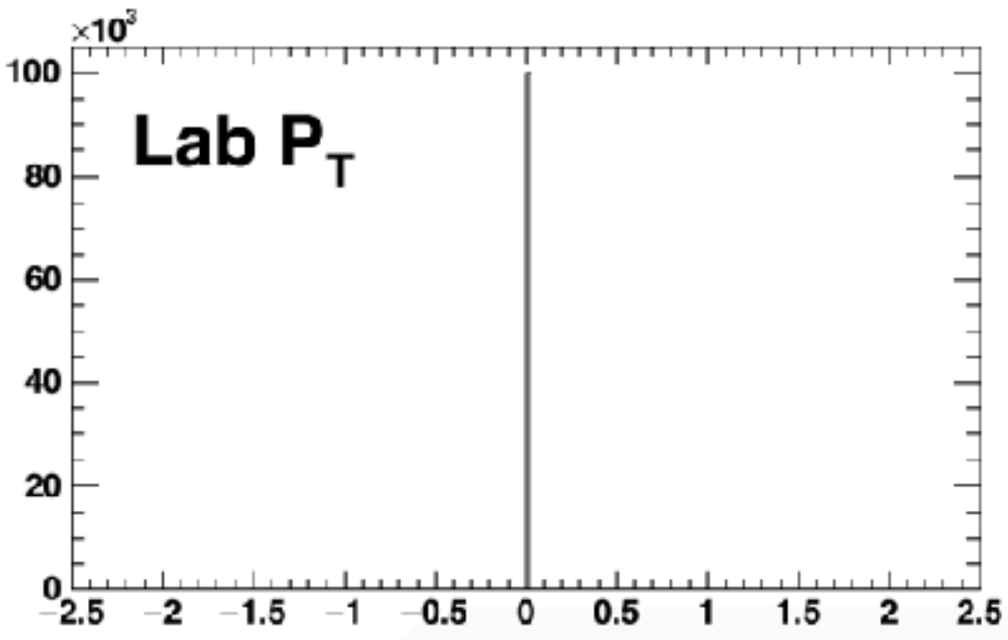
pion



Proton

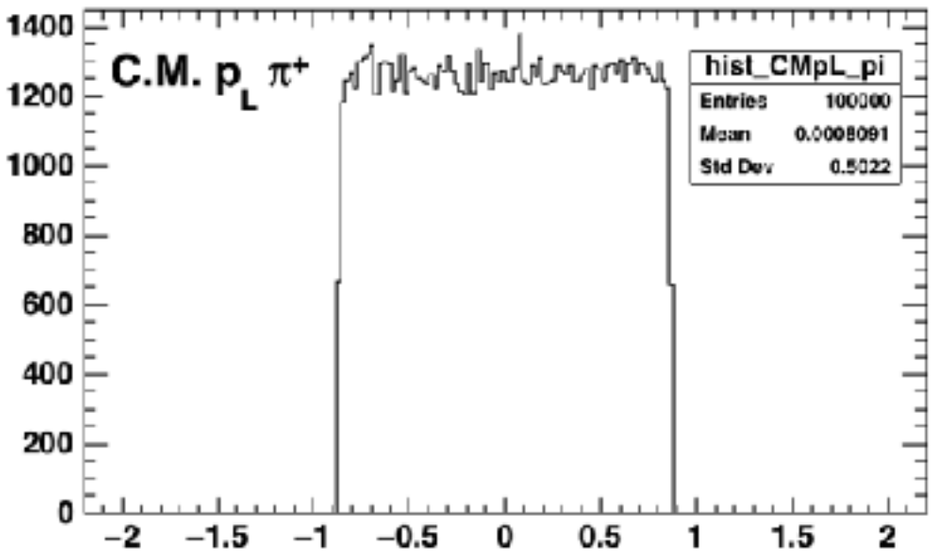


total

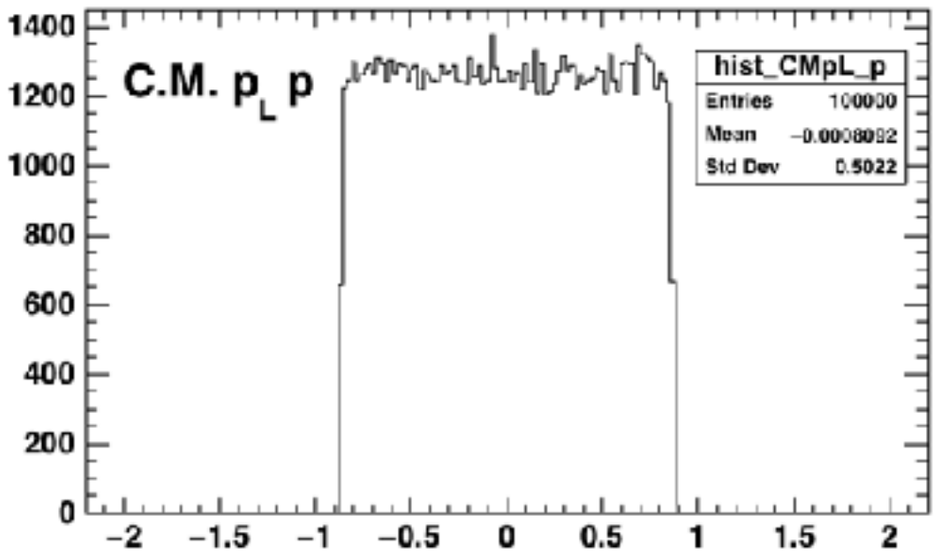


CM FRAME P_L

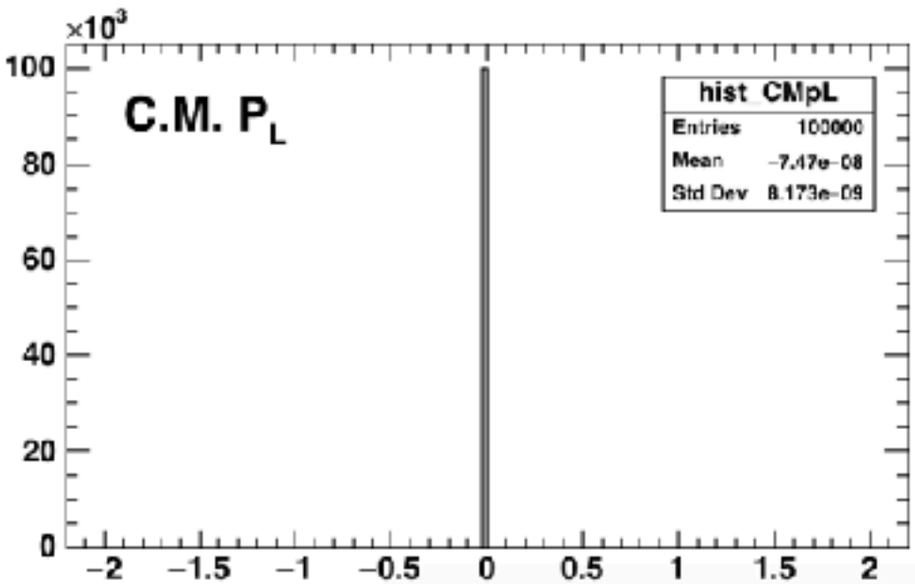
pion



Proton

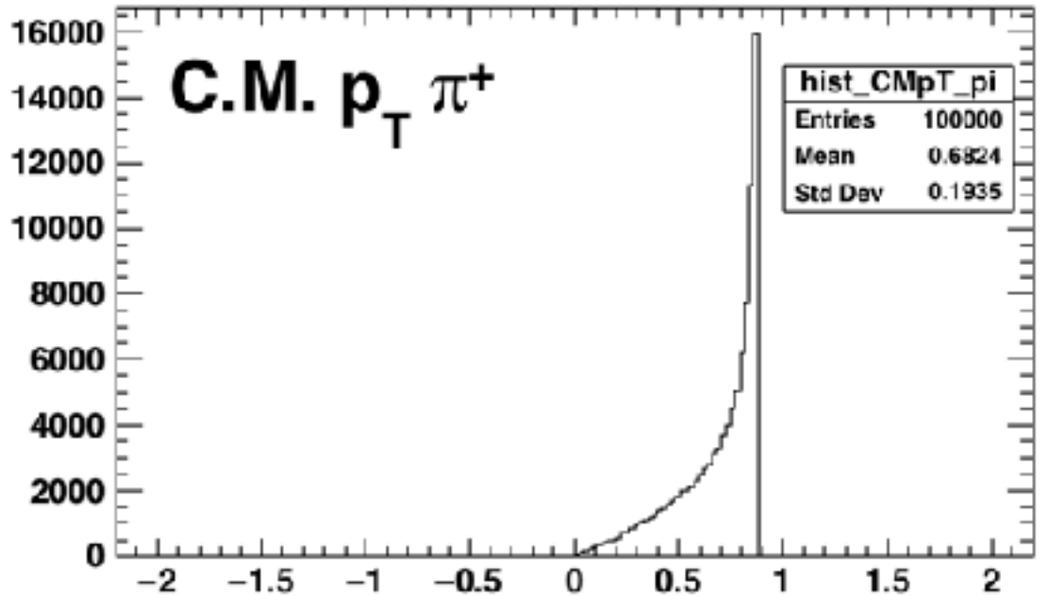


total

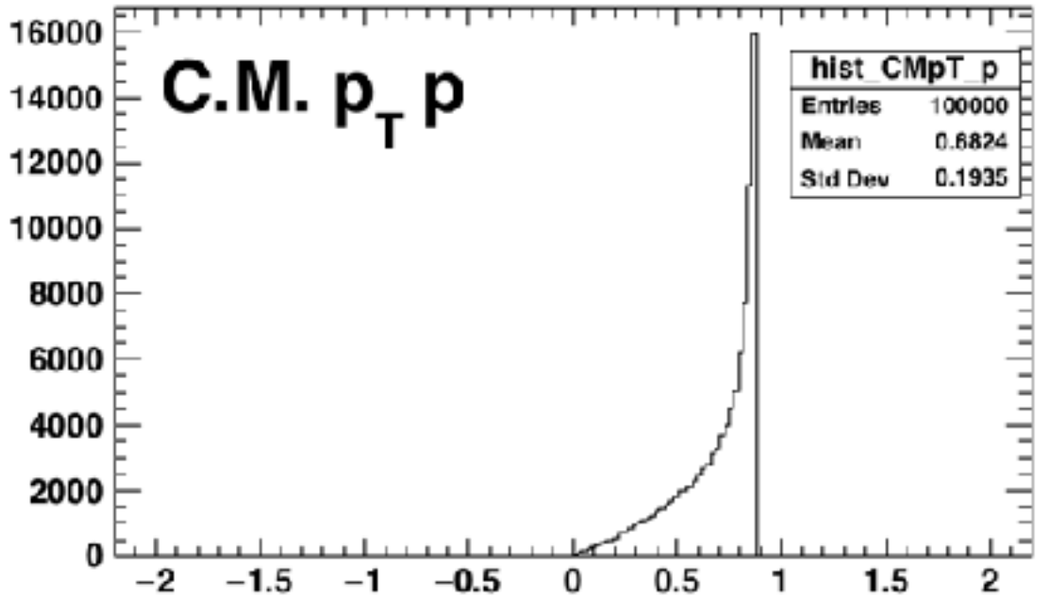


CM FRAME P_T

pion



Proton



total