Search for time-dependent fluctuations in cosmic rays spectra with the AMS01 detector

- Comparison with reconstruction:

  dE/dx vs Rigidity

PRESELECTION

- ✓ No hits in Anticoincidence counter
- ✓ At least one reconstructed track
- ✓ At least one charge measurement
- ✓ At least one β measurement
- ✓ One reconstructed particle
- ✓ ChargeTOF==ChargeTRACKER
- ✓ Only downward going particles

Electron candidates: charge*sign(Pmom)=-1

Proton candidates: charge*sign(Pmom)=+1

Helium candidates: charge*sign(Pmom)=+2

SELECTION CUTS :

Preselection
Downward going

sign(R)
ABS(R asymmetry) < 0.5
ABS(ΔR/R) < 0.4

True K Clusters >=3
Number of TOF Planes >=3

First sample for Kinetic energy spectrum

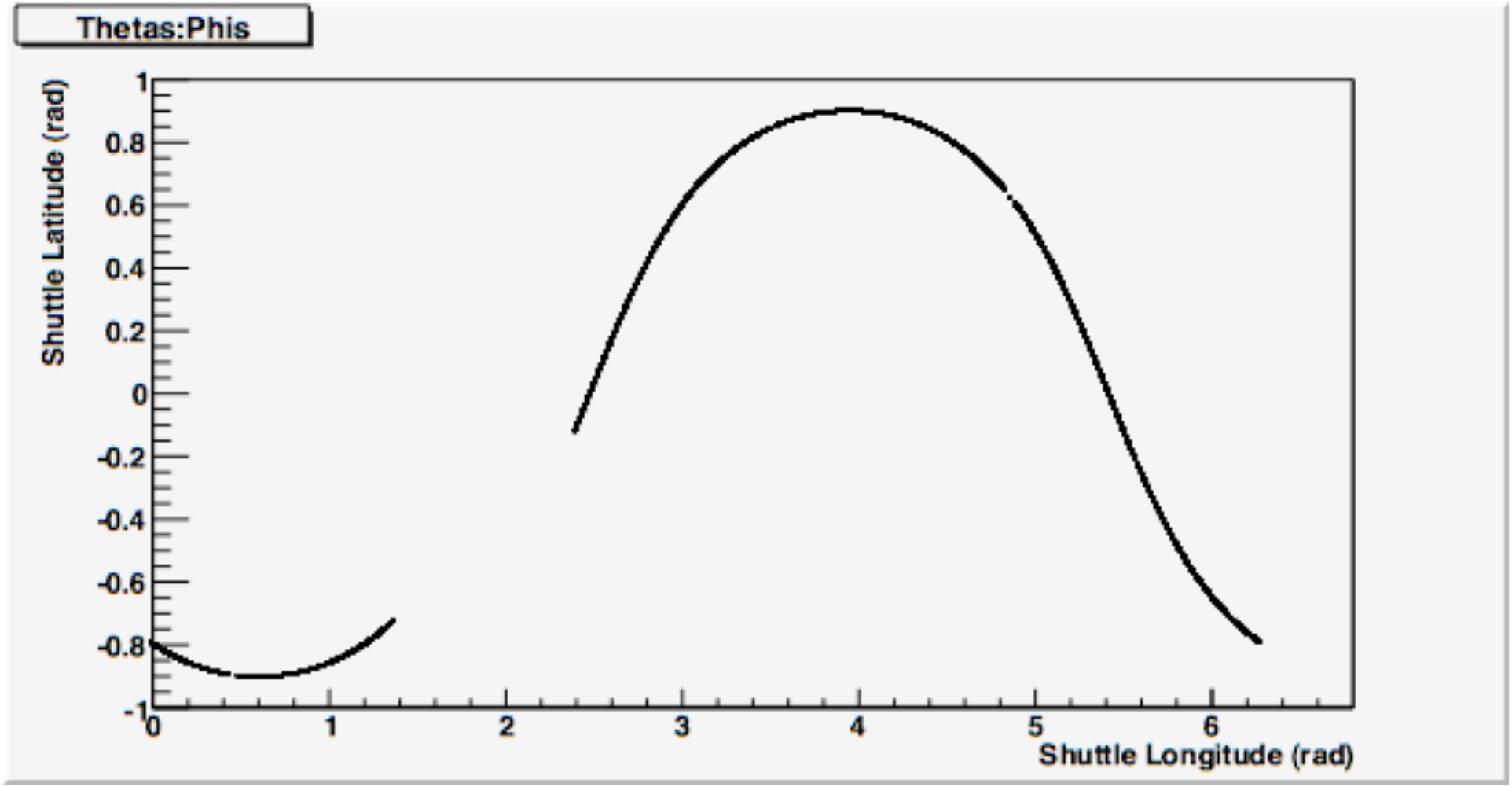
- 896851959.2.root
- 896853212.170399.root
- 896854106.57026.root
- 896854106.225969.root

  340 000 triggered events

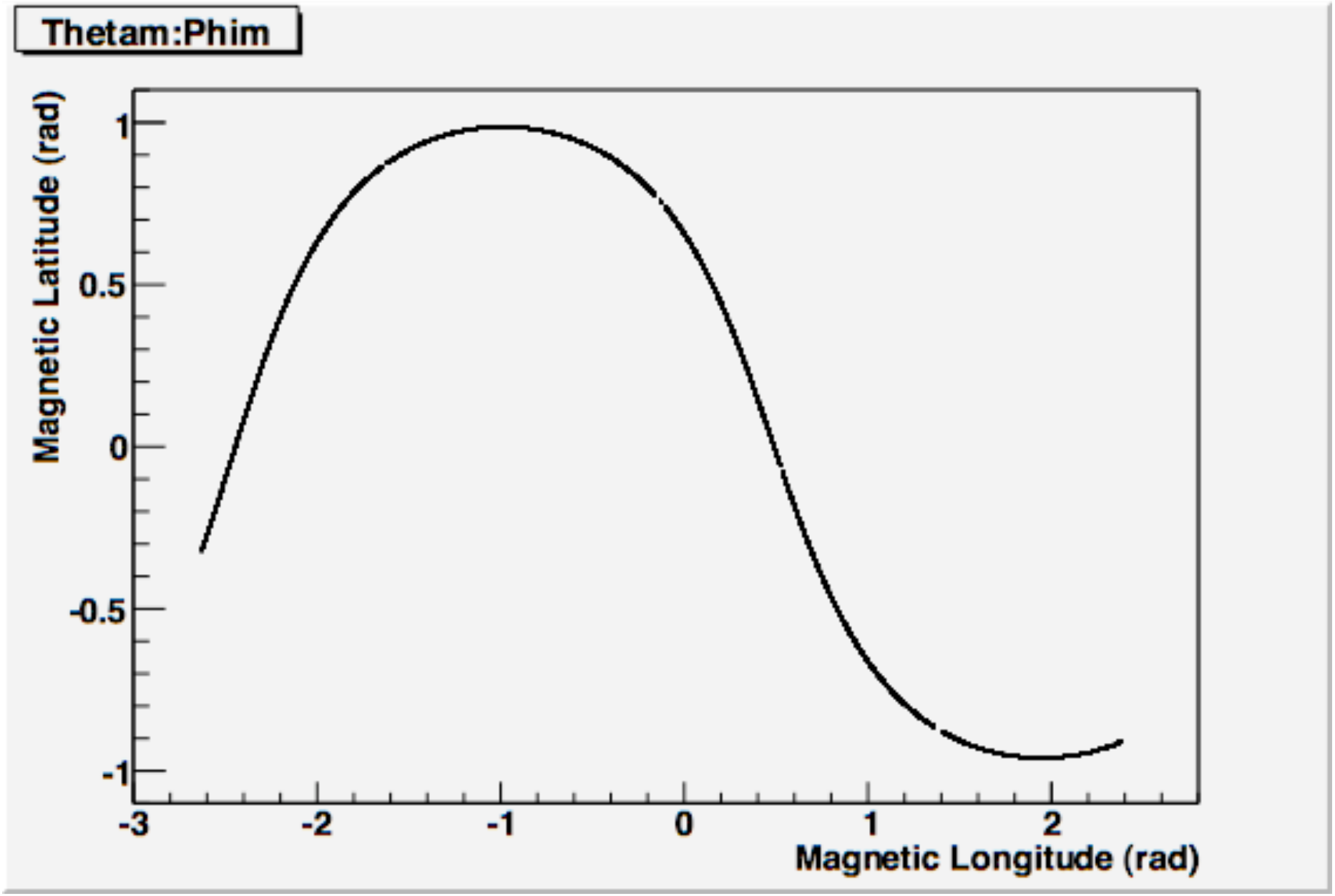
start: June 3, 1998 5h32:39 AM GMT
end: June 3, 1998 6h51:11 AM GMT

AMS pointing 45 deg to Zenith
Shuttle altitude: 340 Km

Shuttle Geodetic coordinates



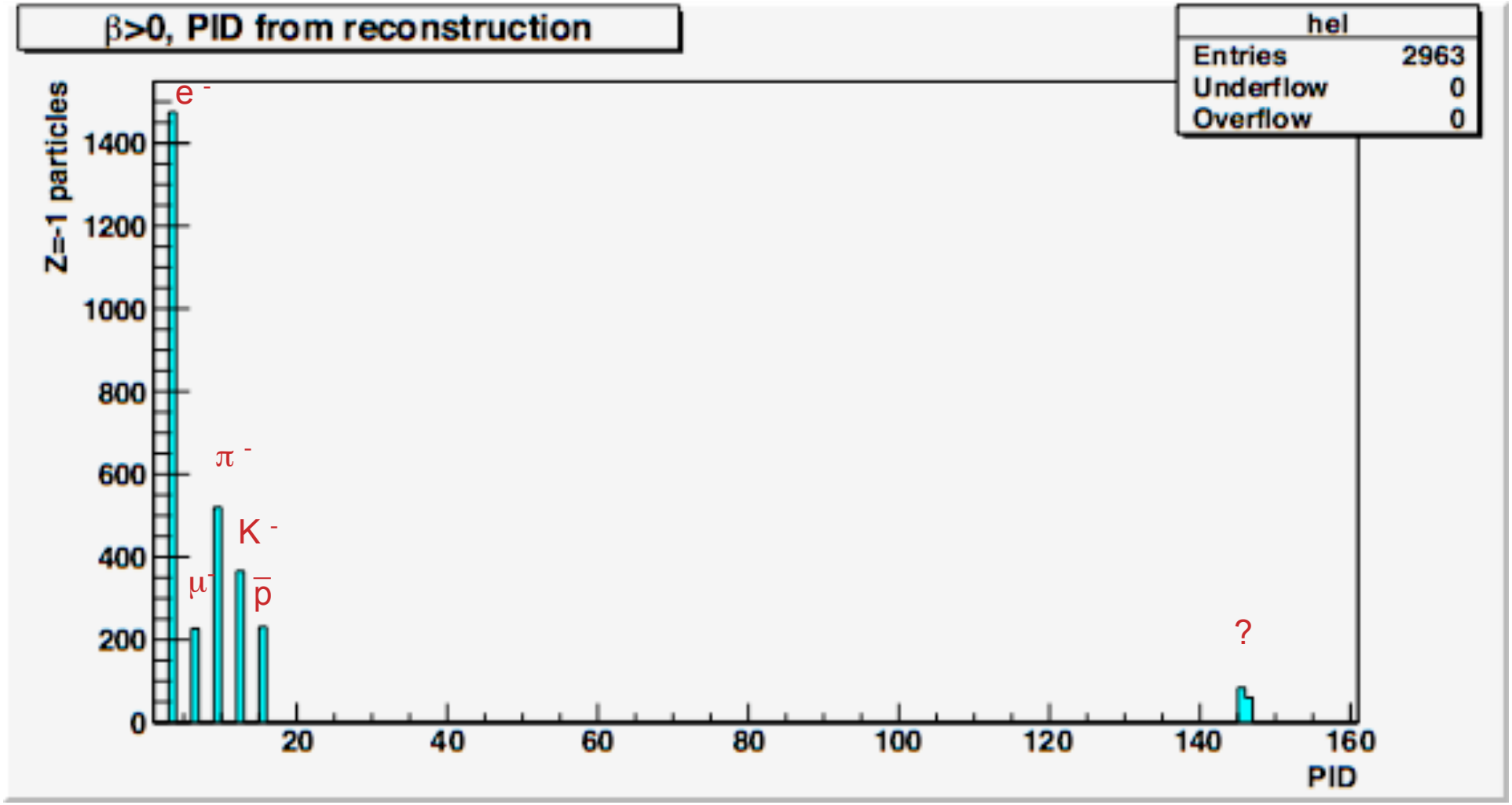
Shuttle Geomagnetic coordinates



After selection cuts:

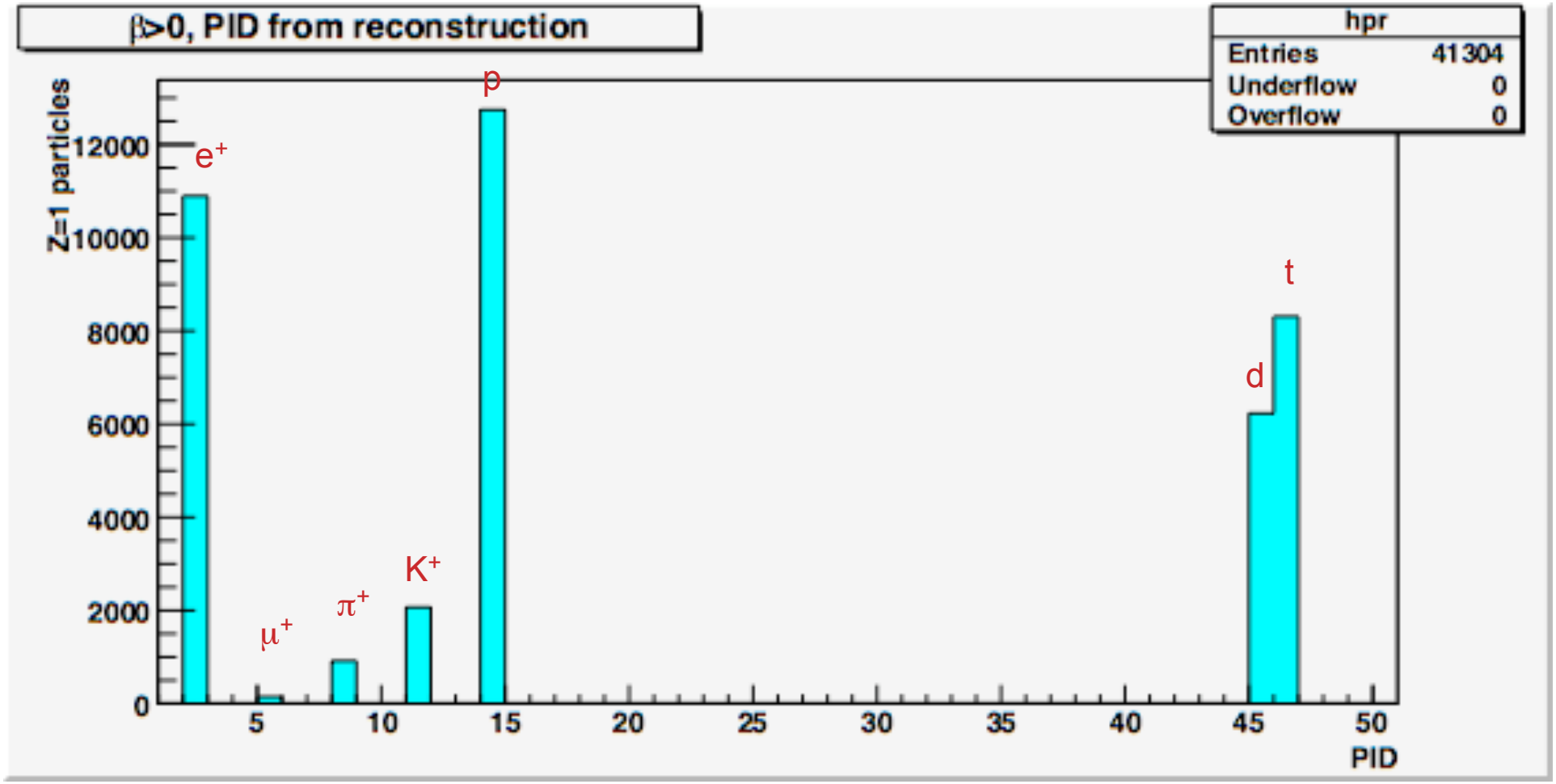
Candidates e-	2963
Candidates p	41304
Candidates He	16696

Z=-1 particles, Particle ID from reconstruction



Identified as electrons: 1475

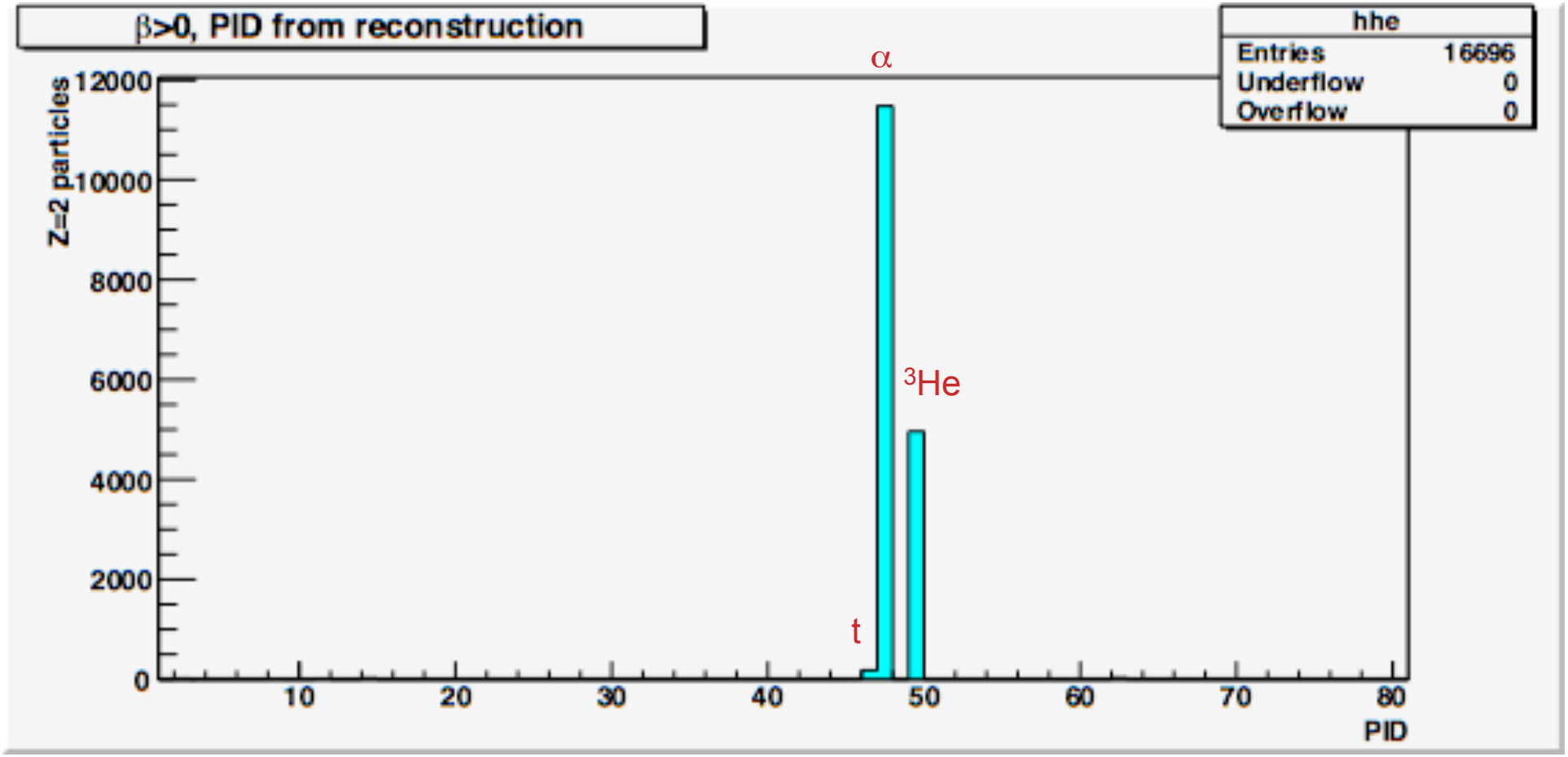
Z=1 particles, Particle ID from reconstruction



d: deuteron ; t: tritium

Identified as protons: 12745

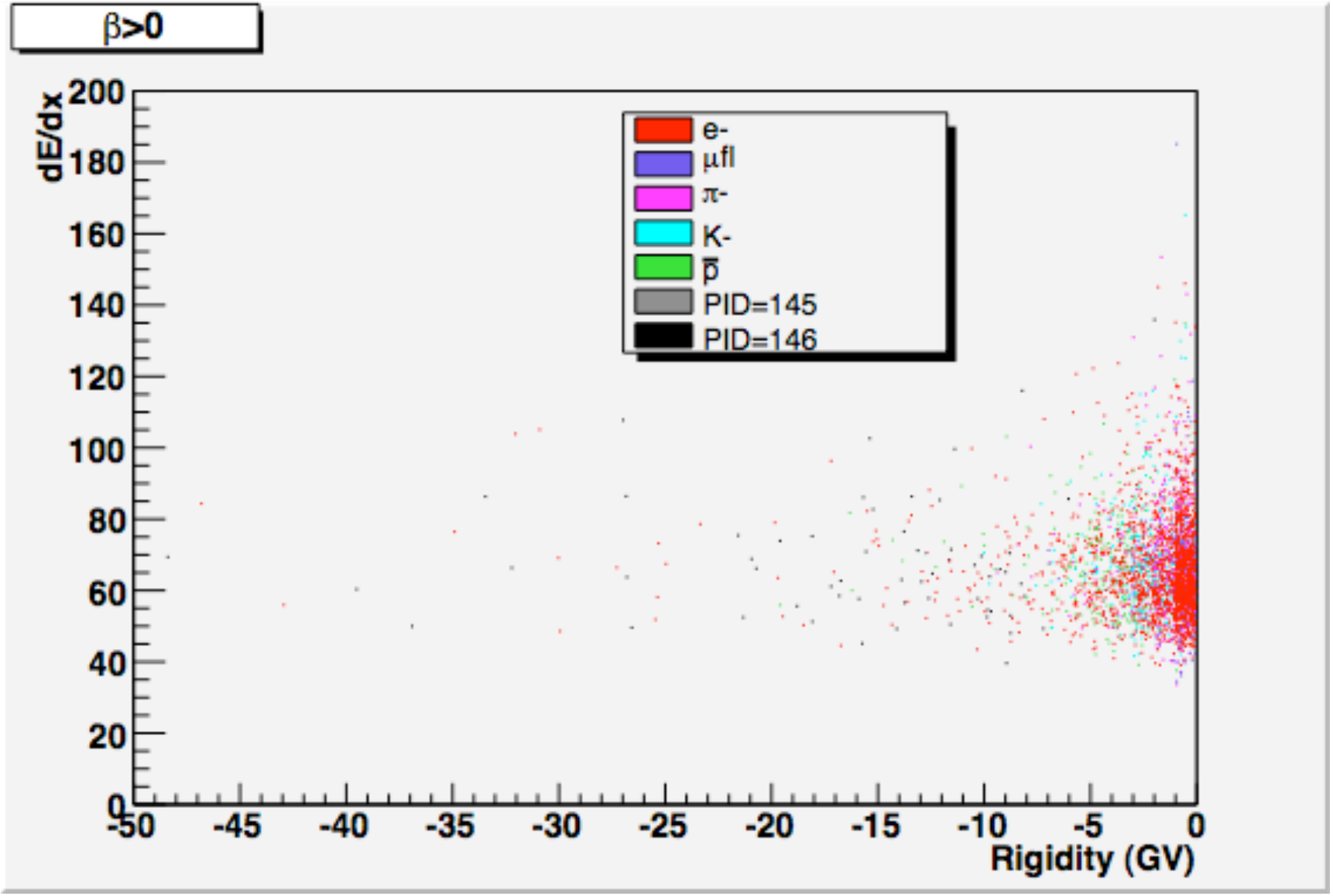
Z=2 particles, Particle ID from reconstruction



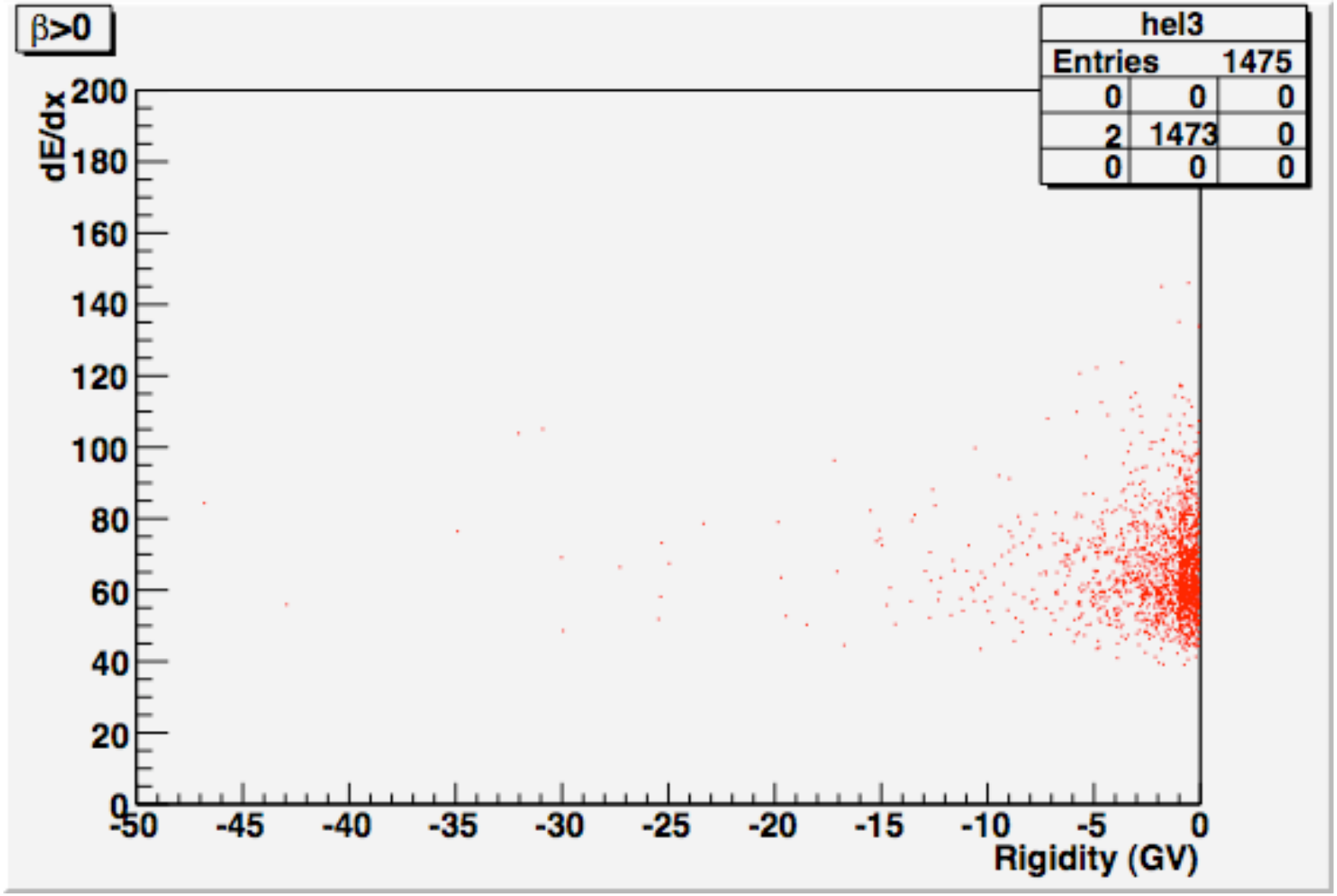
	e^+	π^+	K^+	p	d	^{7}Li
N events	14	4	12	22	1	27

Identified as Helium nuclei: 11474 α+ 4960 ^{3}He

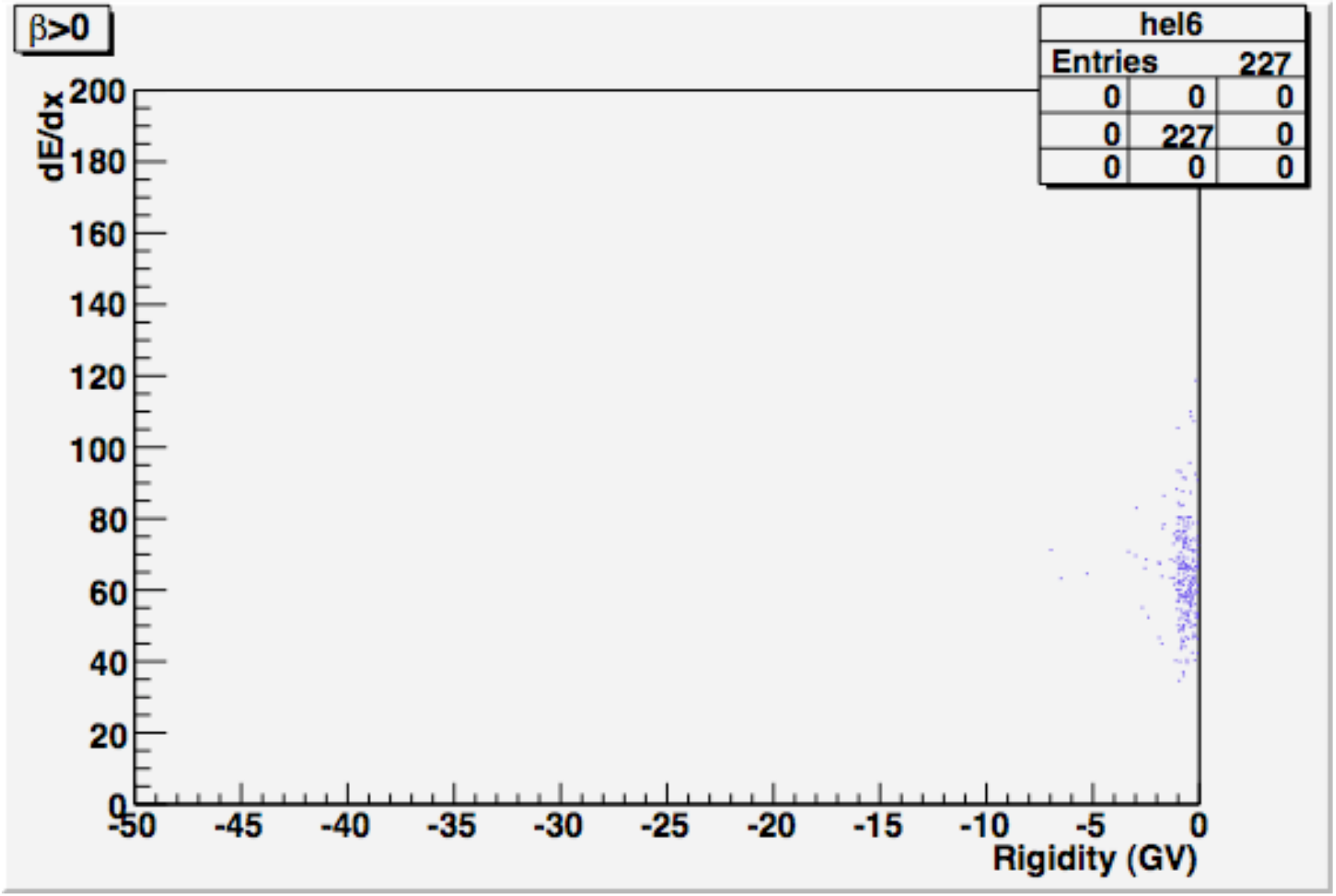
Z=-1 particles, dE/dx vs Rigidity



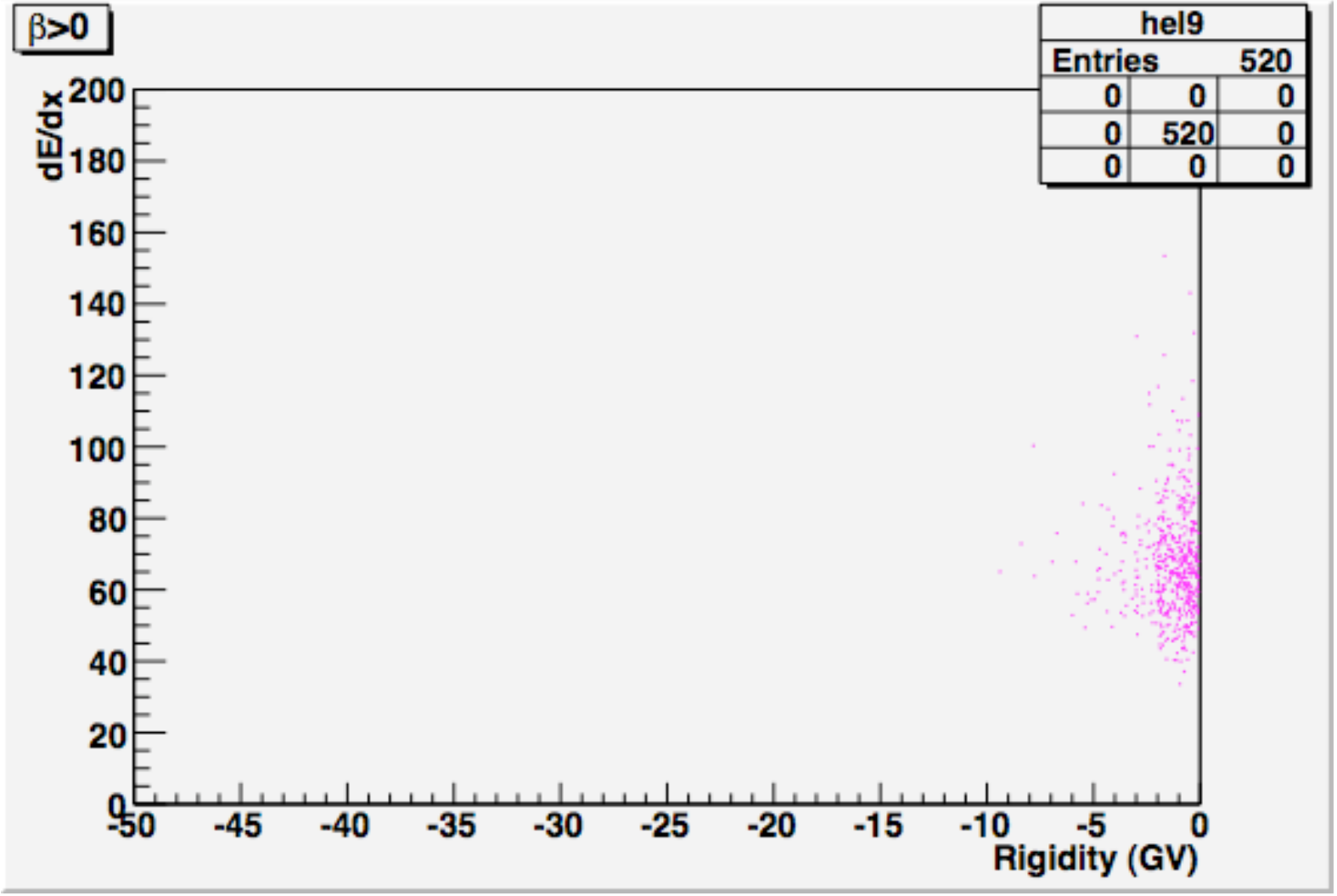
Z=-1 particles, dE/dx vs Rigidity
PID 3 (electron)



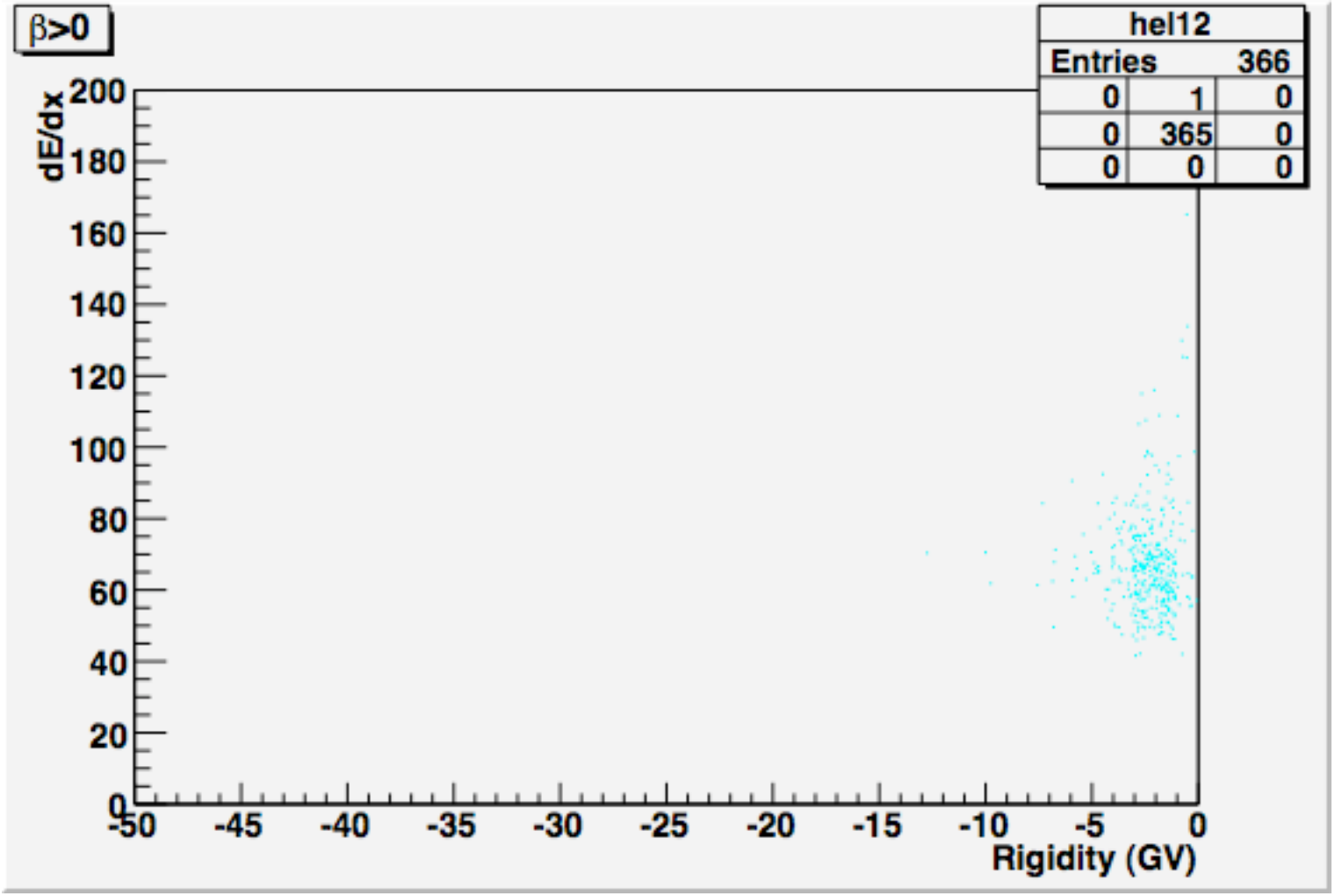
Z=-1 particles, dE/dx vs Rigidity
PID 6 (muon)



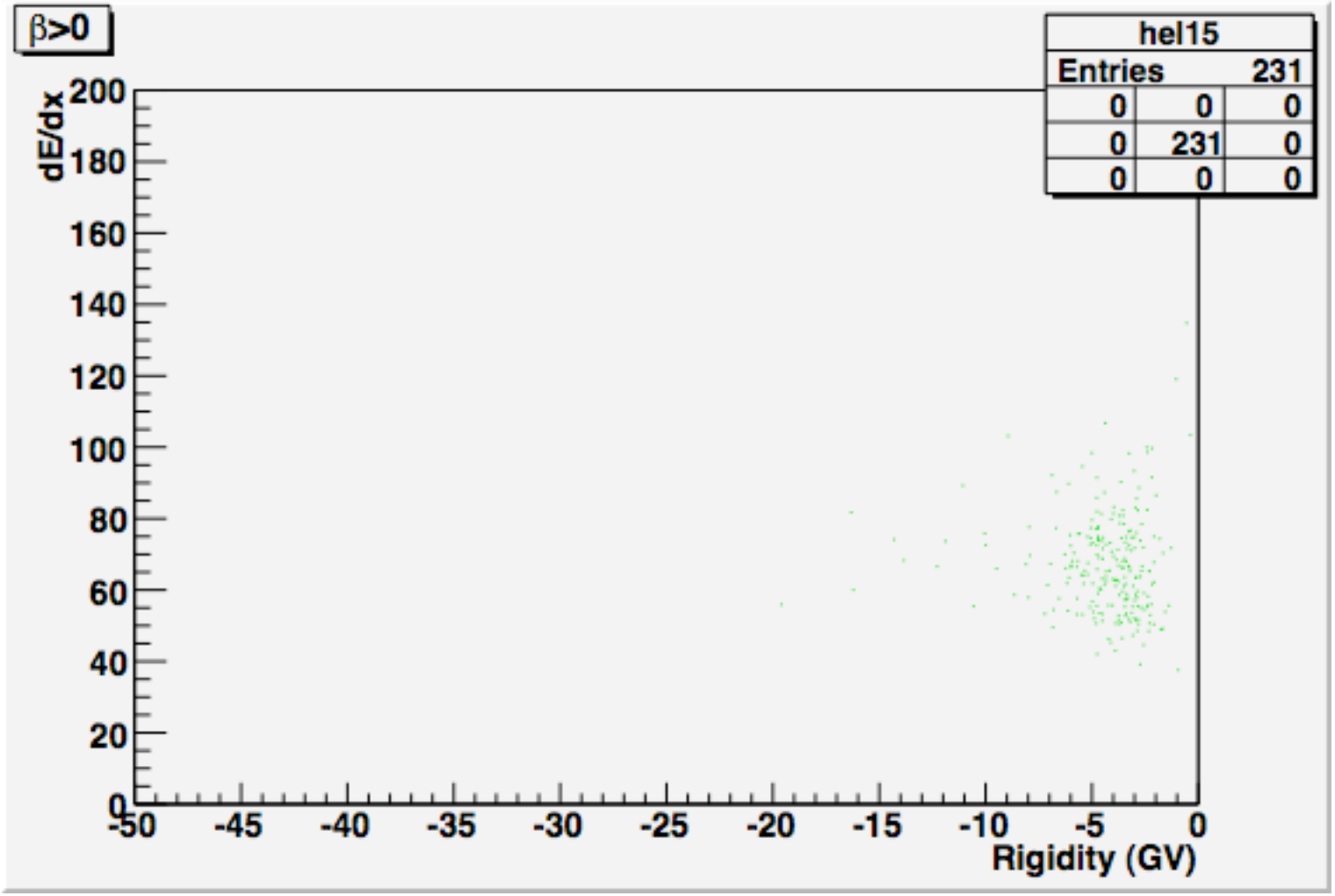
Z=-1 particles, dE/dx vs Rigidity
PID 9 (pion)



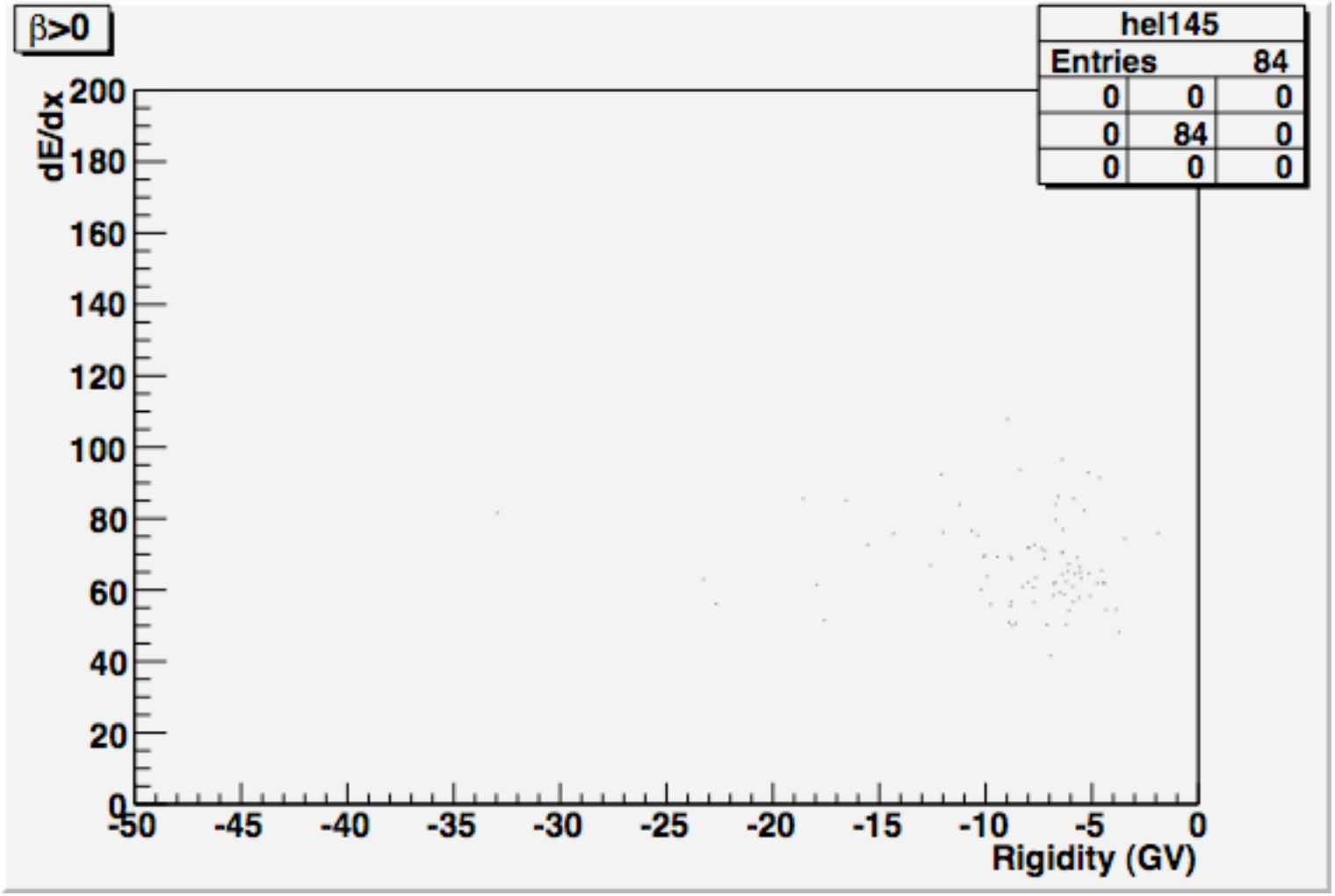
Z=-1 particles, dE/dx vs Rigidity
PID 12 (kaon)



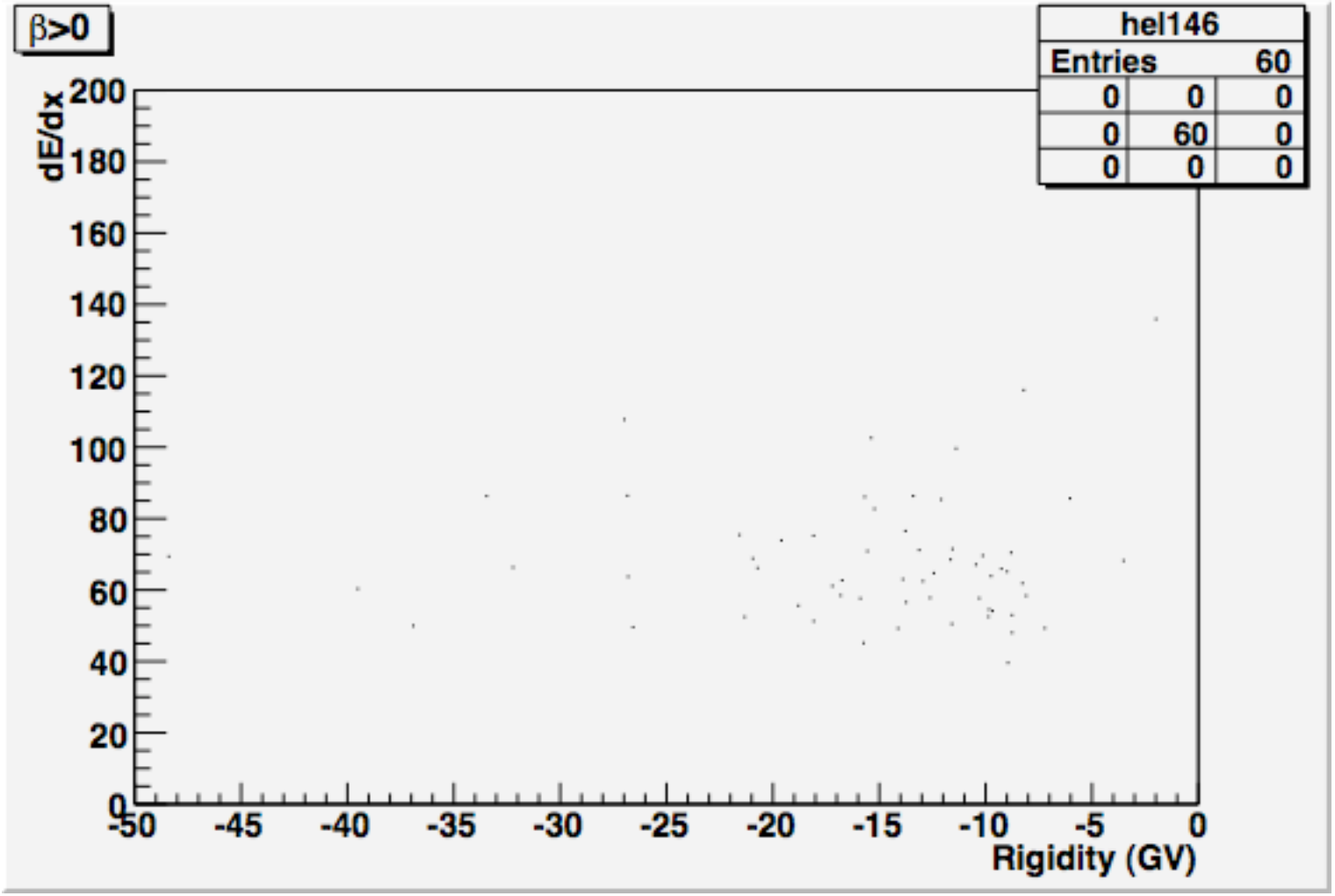
Z=-1 particles, dE/dx vs Rigidity
PID 15 (anti-proton)



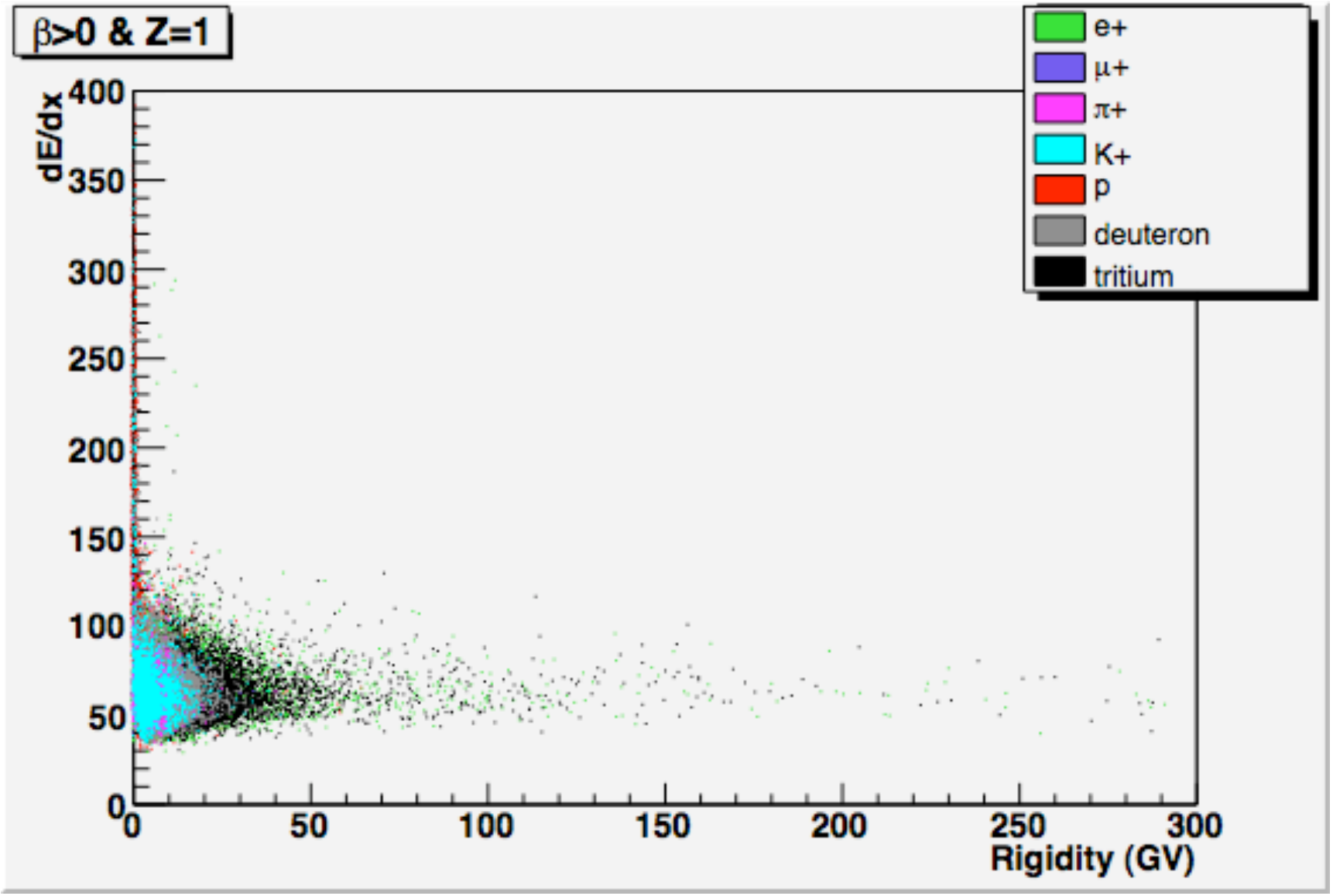
Z=-1 particles, dE/dx vs Rigidity
PID 145



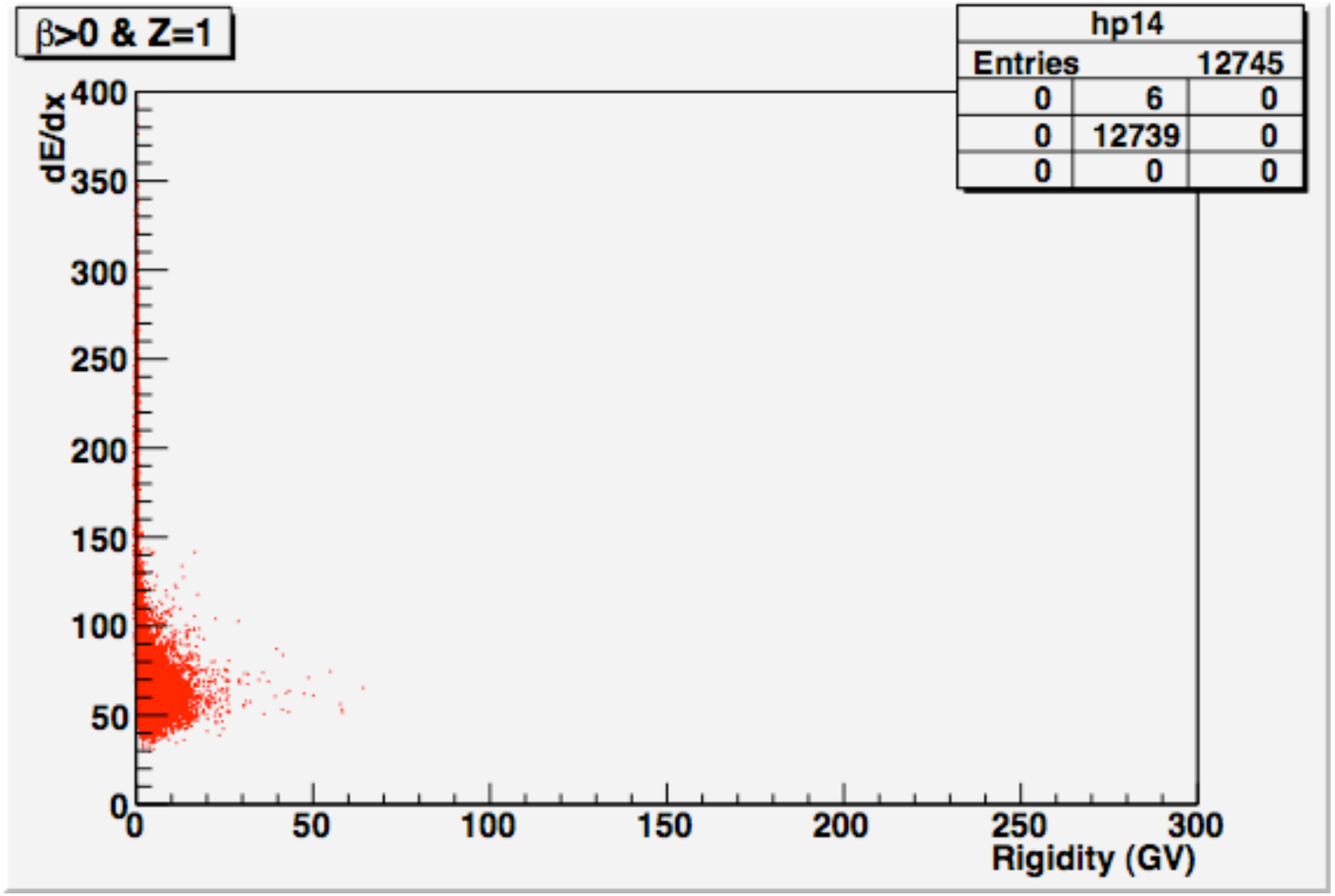
Z=-1 particles, dE/dx vs Rigidity
PID146



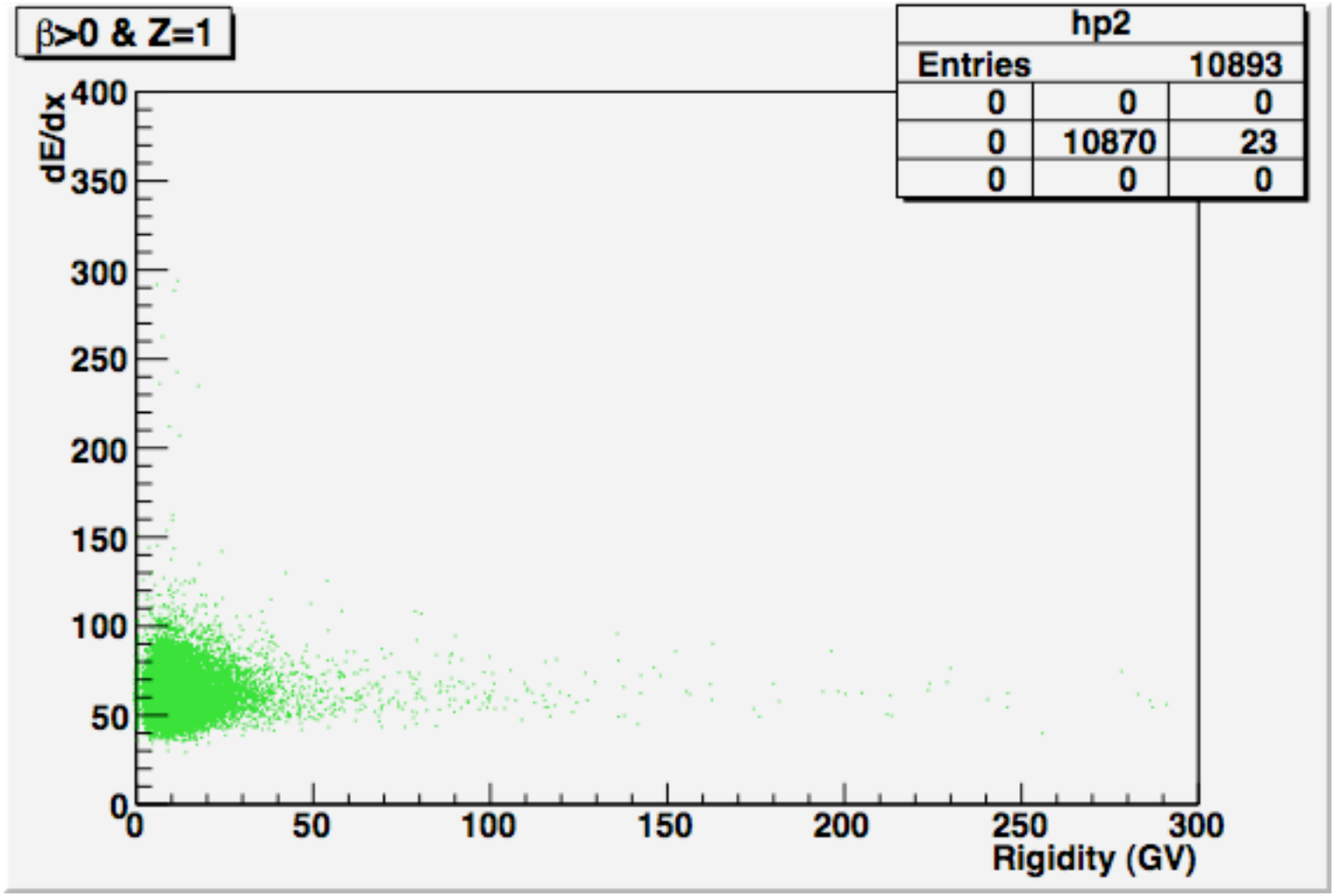
Z=1 particles, dE/dx vs Rigidity



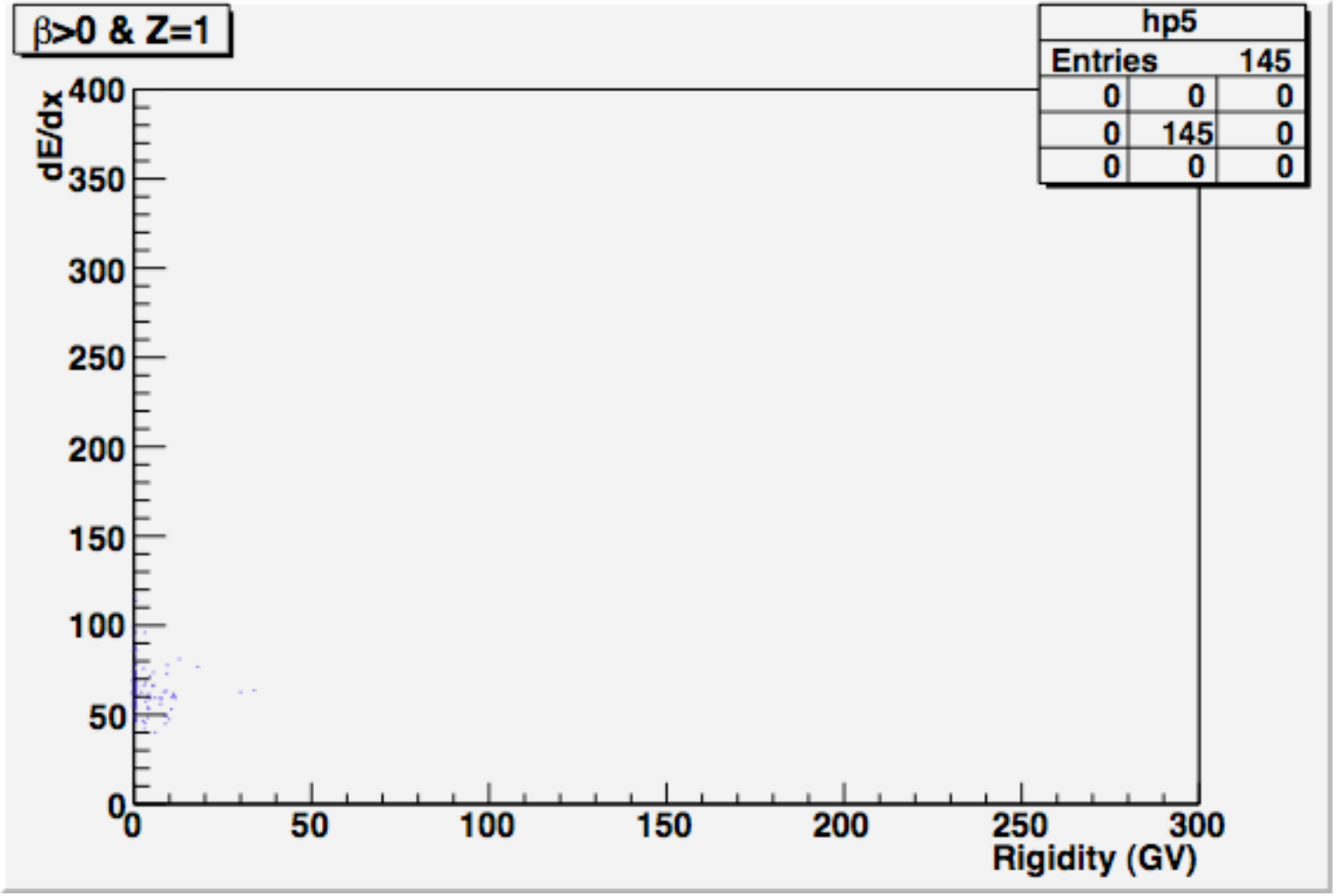
Z=1 particles, dE/dx vs Rigidity
PID 14 (proton)



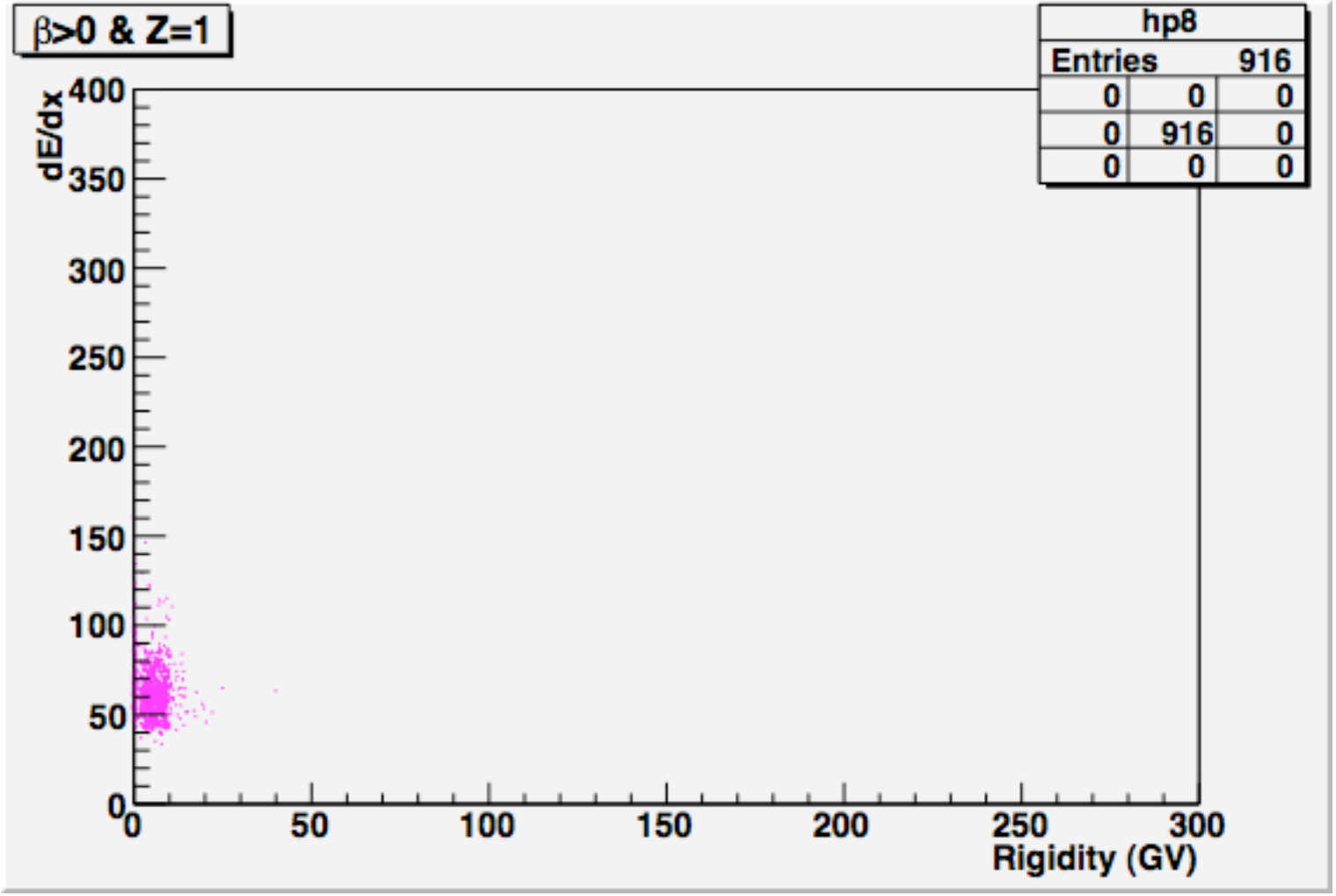
Z=1 particles, dE/dx vs Rigidity
PID 2 (positron)



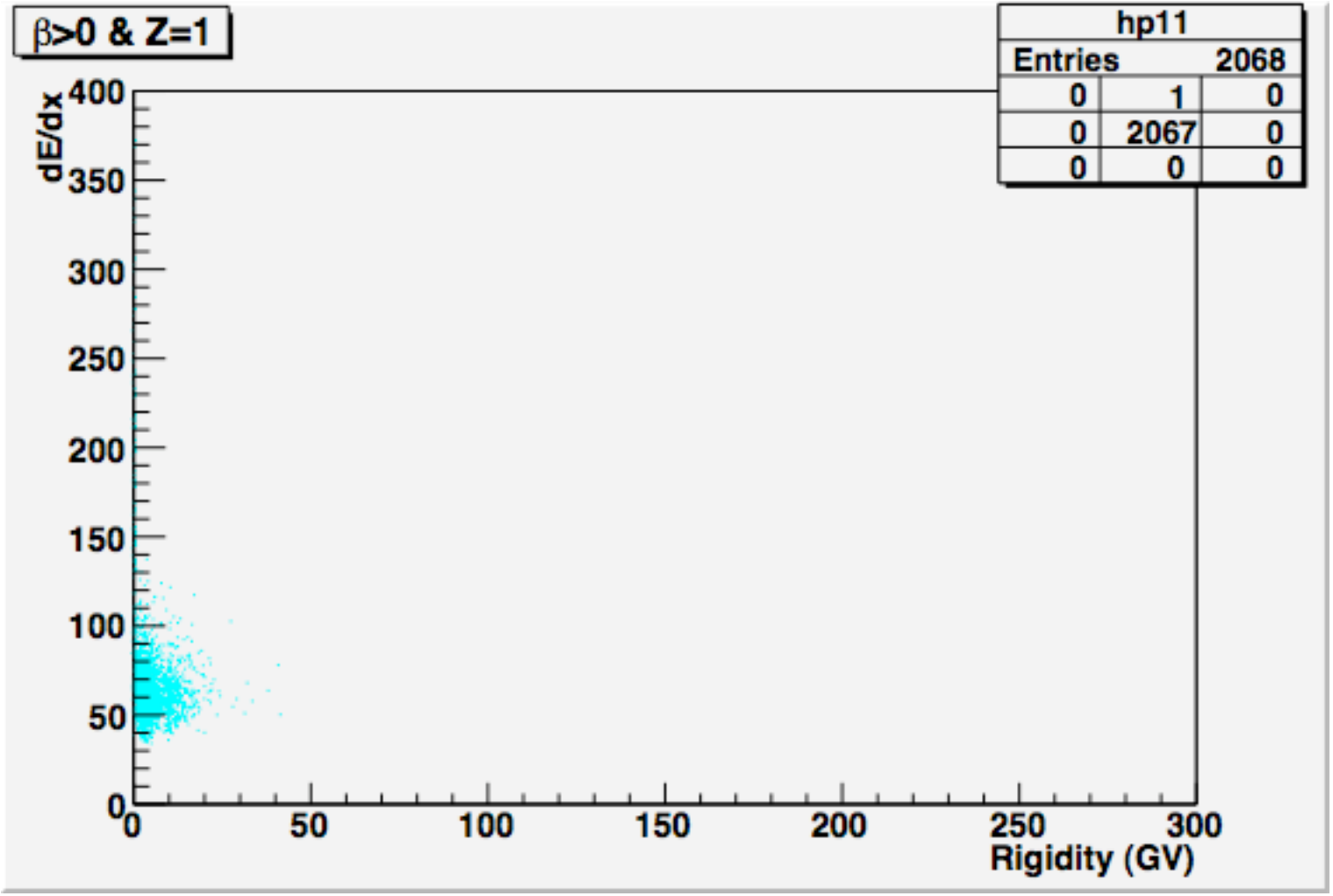
Z=1 particles, dE/dx vs Rigidity
PID 5 (muon)



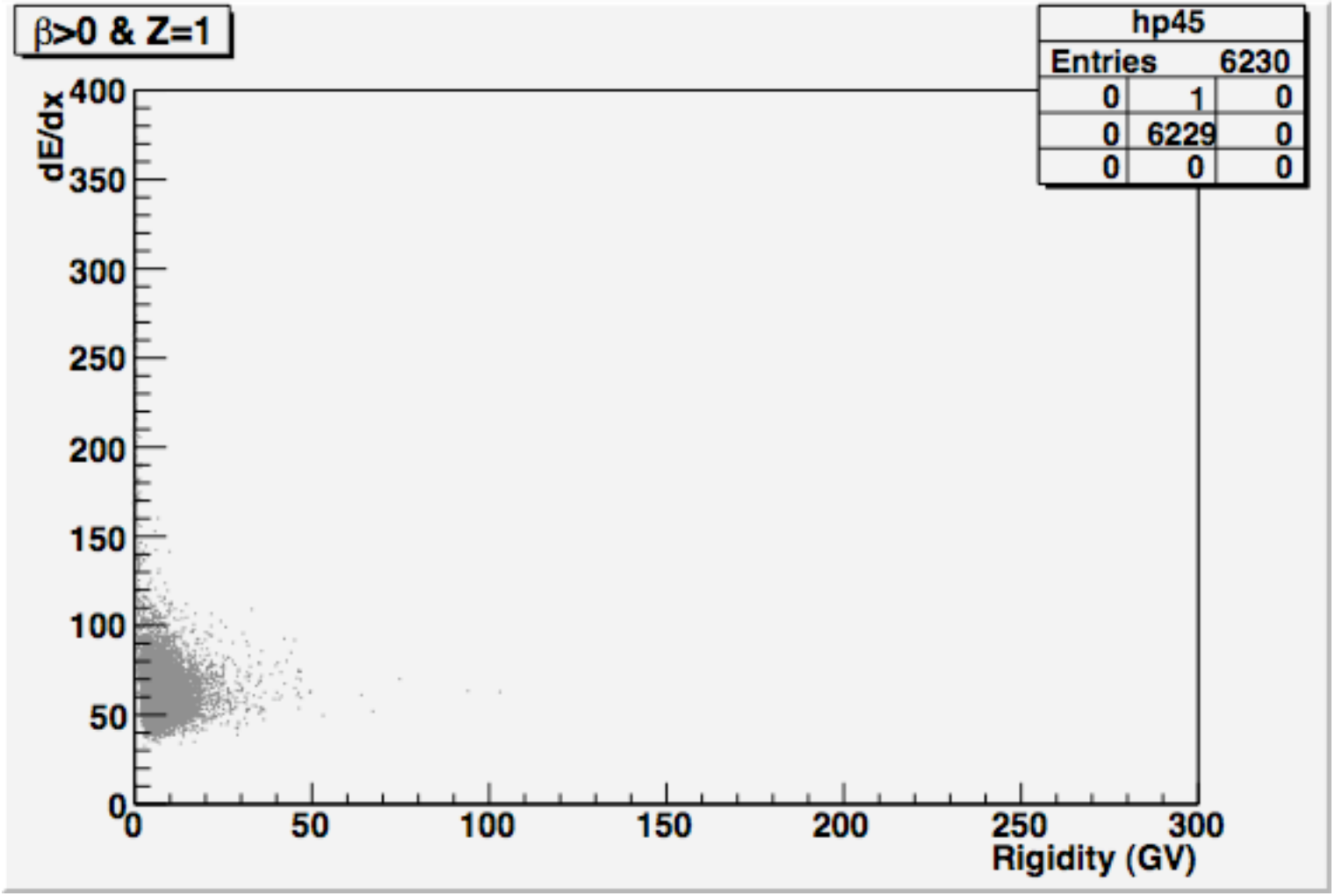
Z=1 particles, dE/dx vs Rigidity
PID 8 (pion)



Z=1 particles, dE/dx vs Rigidity
PID 11 (kaon)



Z=1 particles, dE/dx vs Rigidity
PID 45 (deuteron)



Z=1 particles, dE/dx vs Rigidity
PID 46 (tritium)