

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

- Comparison with reconstruction:  
Reconstructed Mass

# PRESELECTION

- ✓ No hits in Anticoincidence counter
- ✓ At least one reconstructed track
- ✓ At least one charge measurement
- ✓ At least one  $\beta$  measurement
- ✓ One reconstructed particle
- ✓  $\text{ChargeTOF} == \text{ChargeTRACKER}$
- ✓ Only downward going particles

Electron candidates:  $\text{charge} * \text{sign}(\text{Pmom}) = -1$

Proton candidates:  $\text{charge} * \text{sign}(\text{Pmom}) = +1$

Helium candidates:  $\text{charge} * \text{sign}(\text{Pmom}) = +2$

## SELECTION CUTS :

Preselection

Downward going

$\text{sign}(R)$

$\text{ABS}(R \text{ asymmetry}) < 0.5$

$\text{ABS}(\Delta R/R) < 0.4$

True K Clusters  $\geq 3$

Number of TOF Planes  $\geq 3$

# First sample for Kinetic energy spectrum

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

340 000 triggered events

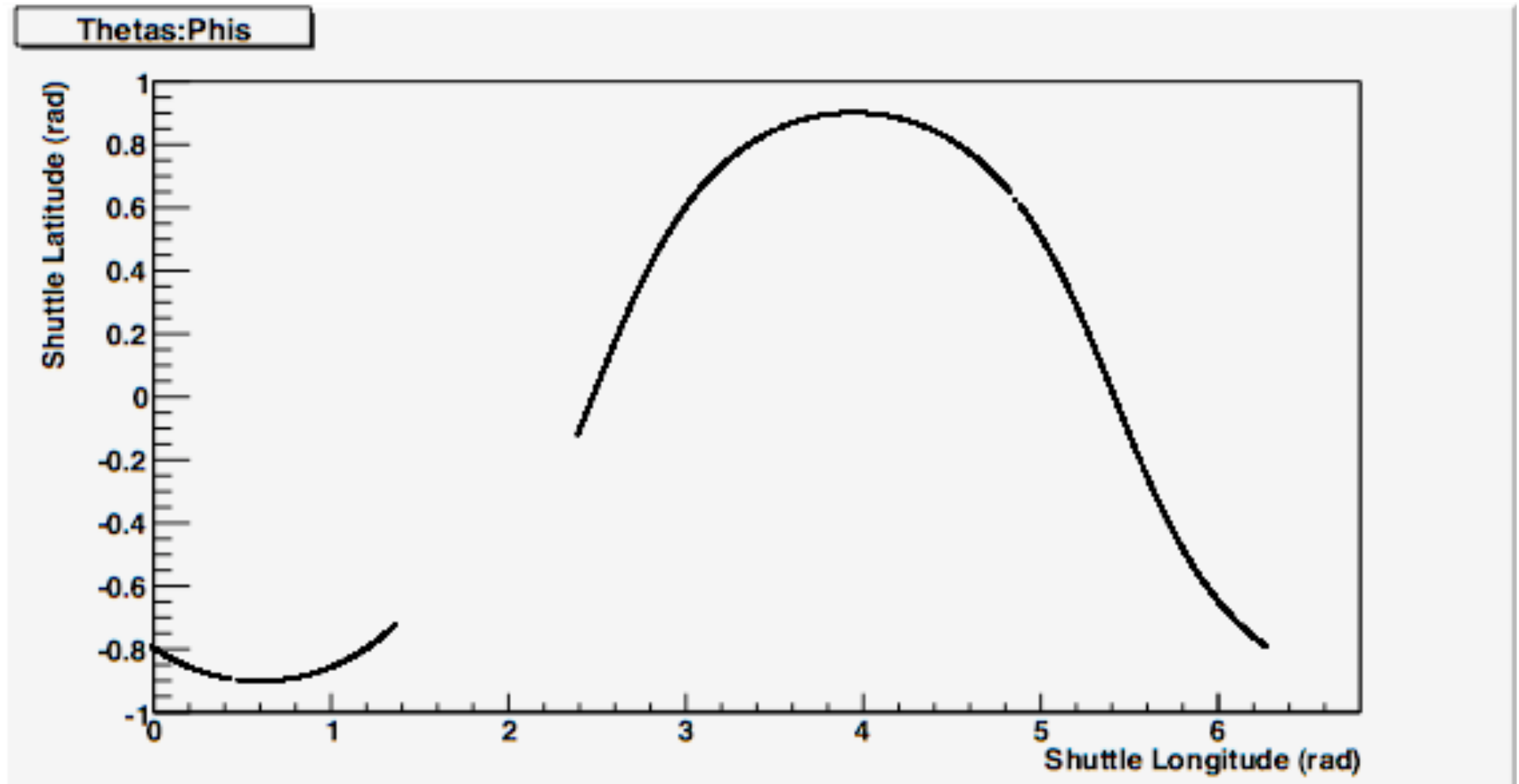
start: June 3, 1998 5h32:39 AM GMT

end: June 3, 1998 6h51:11 AM GMT

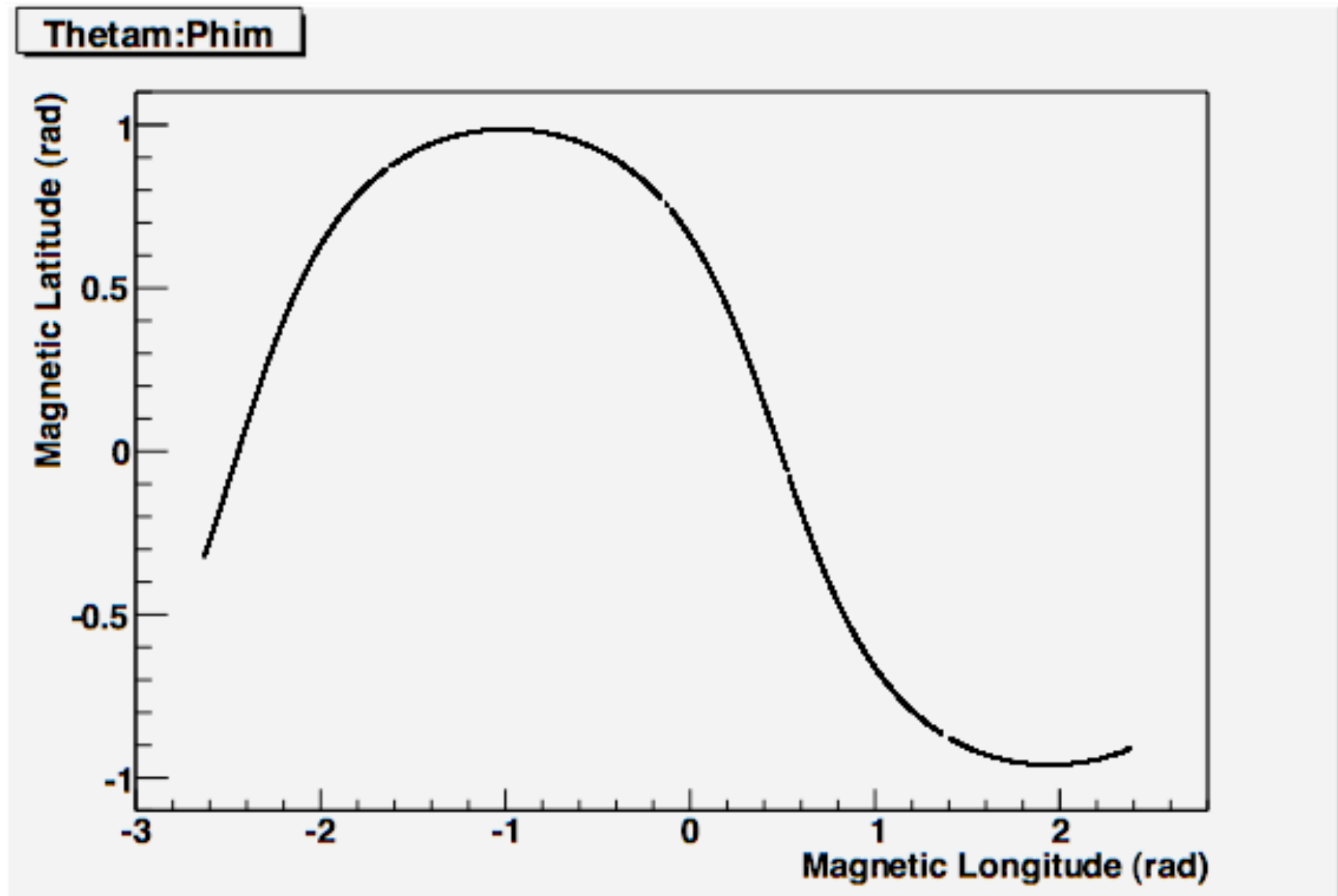
AMS pointing 45 deg to Zenith

Shuttle altitude: 340 Km

# Shuttle Geodetic coordinates



# Shuttle Geomagnetic coordinates



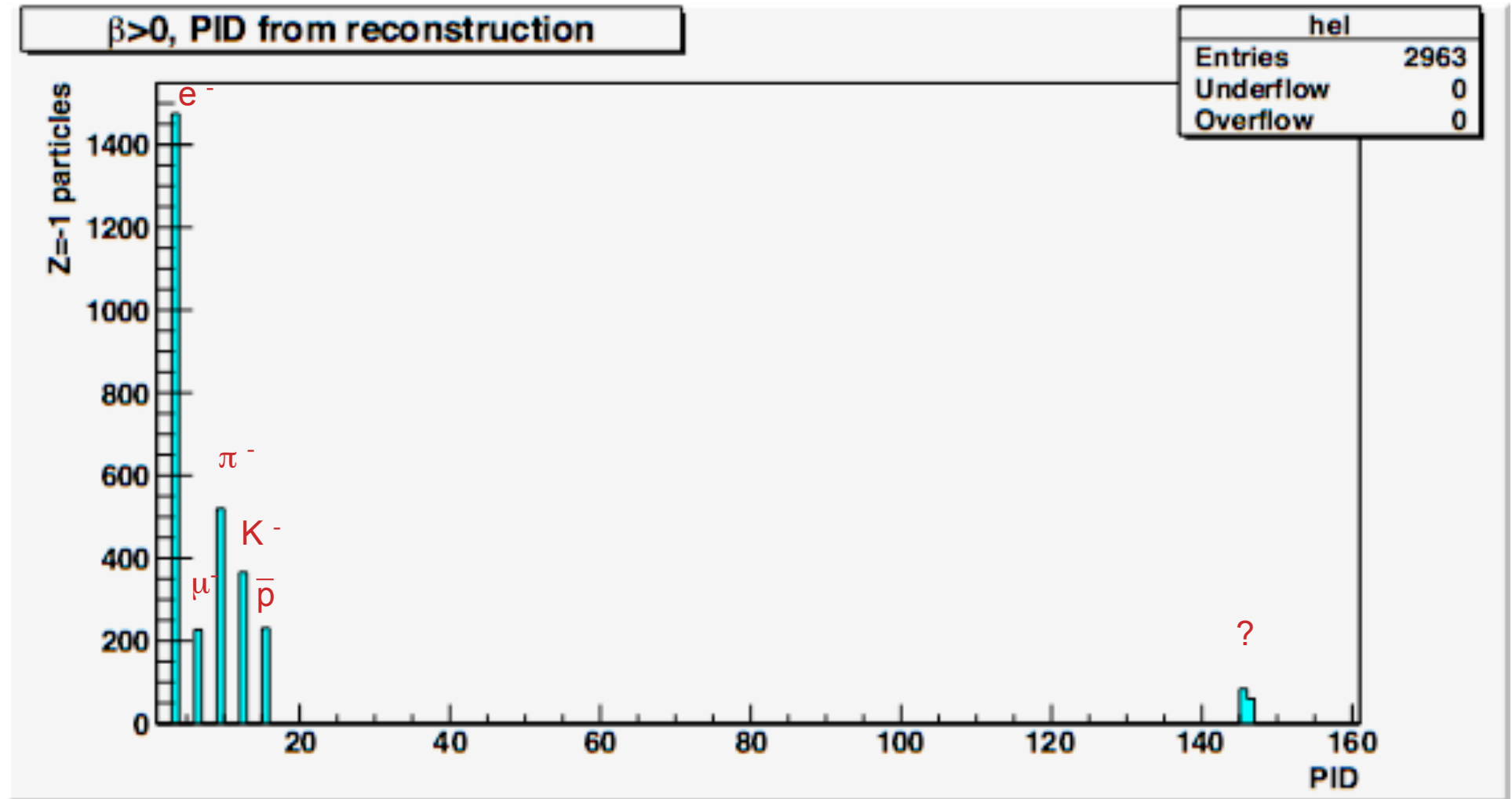
# After selection cuts:

Candidates e- 2963

Candidates p 41304

Candidates He 16696

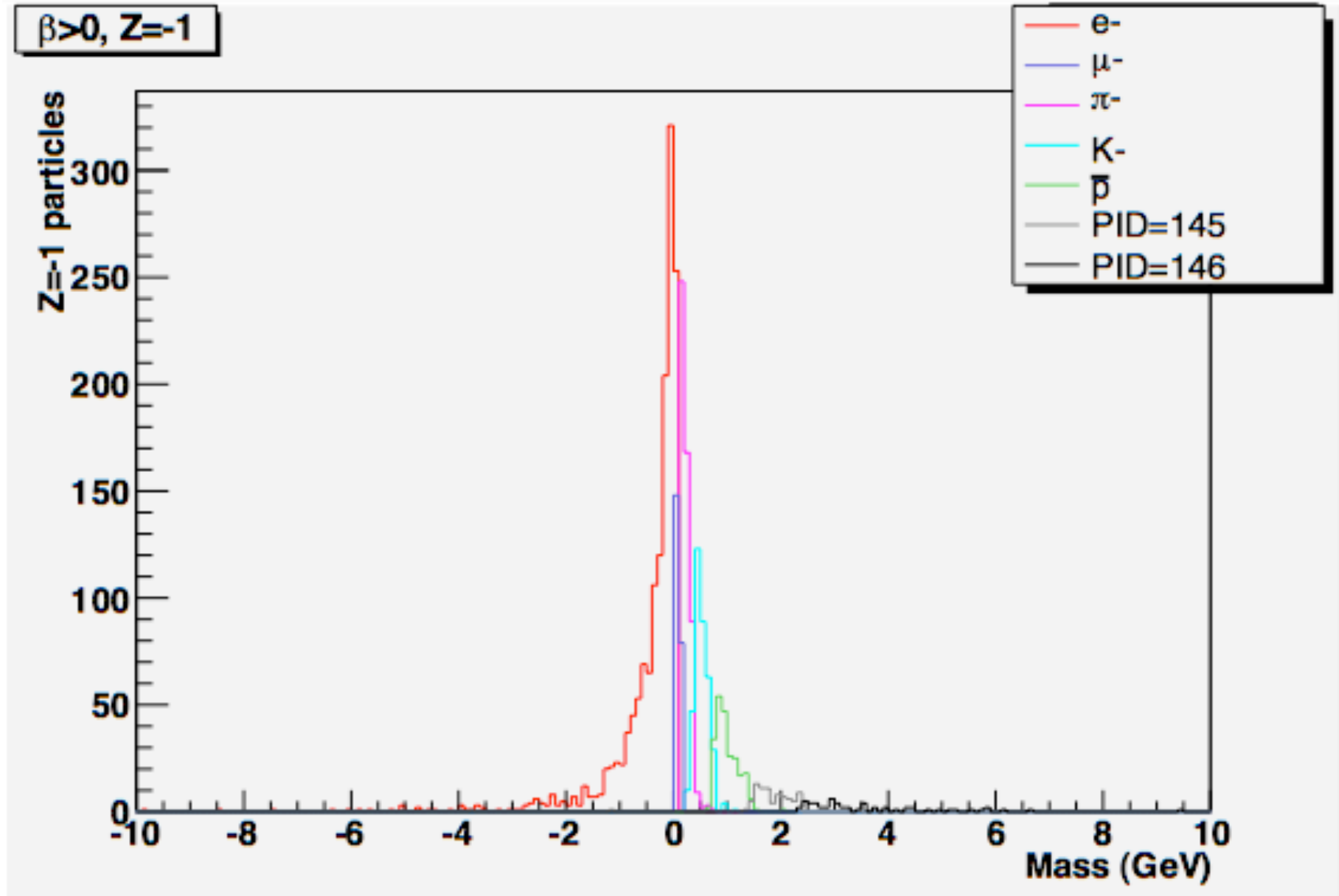
# Z=-1 particles, Particle ID from reconstruction



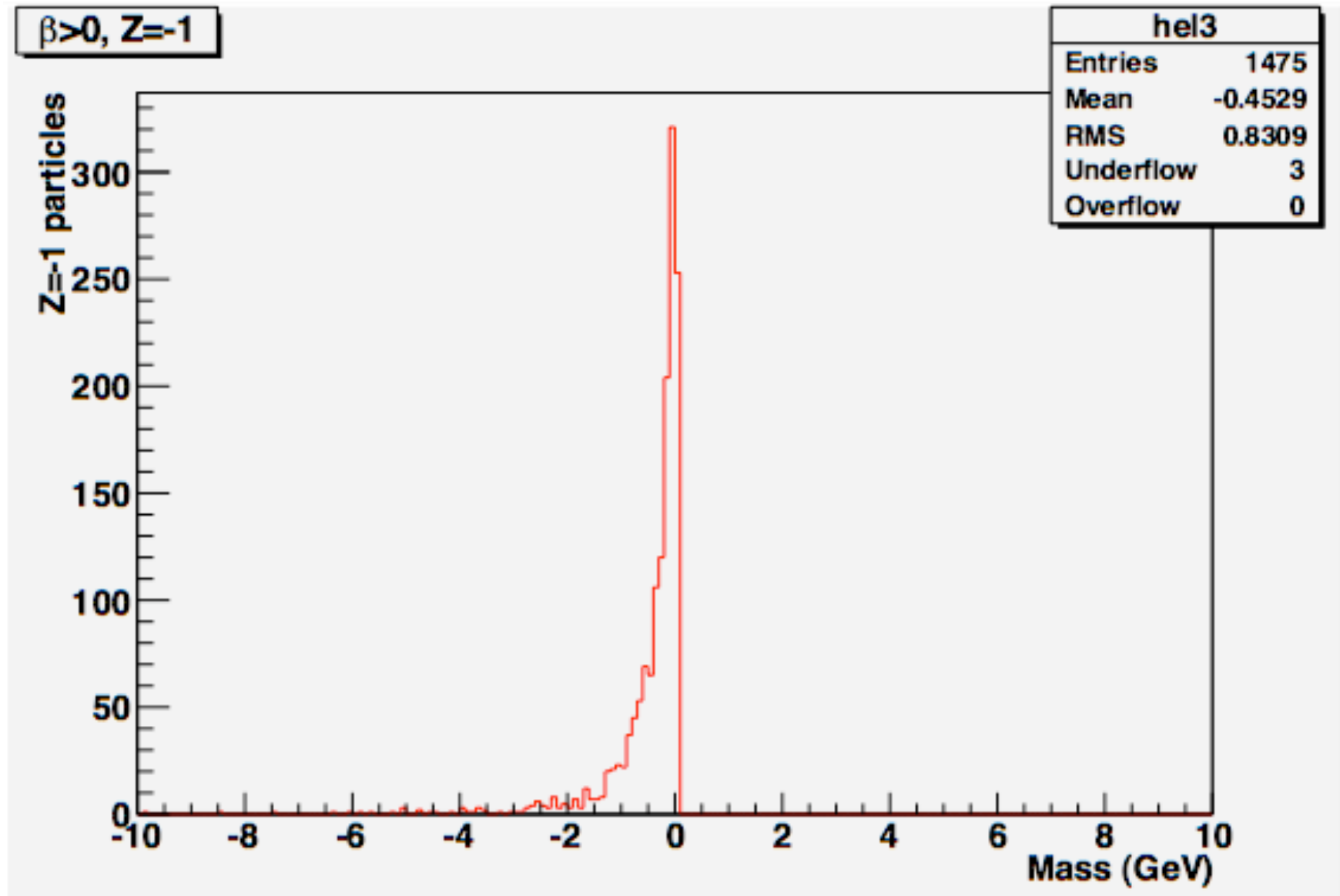


# Z=-1 particles, Reconstructed Mass

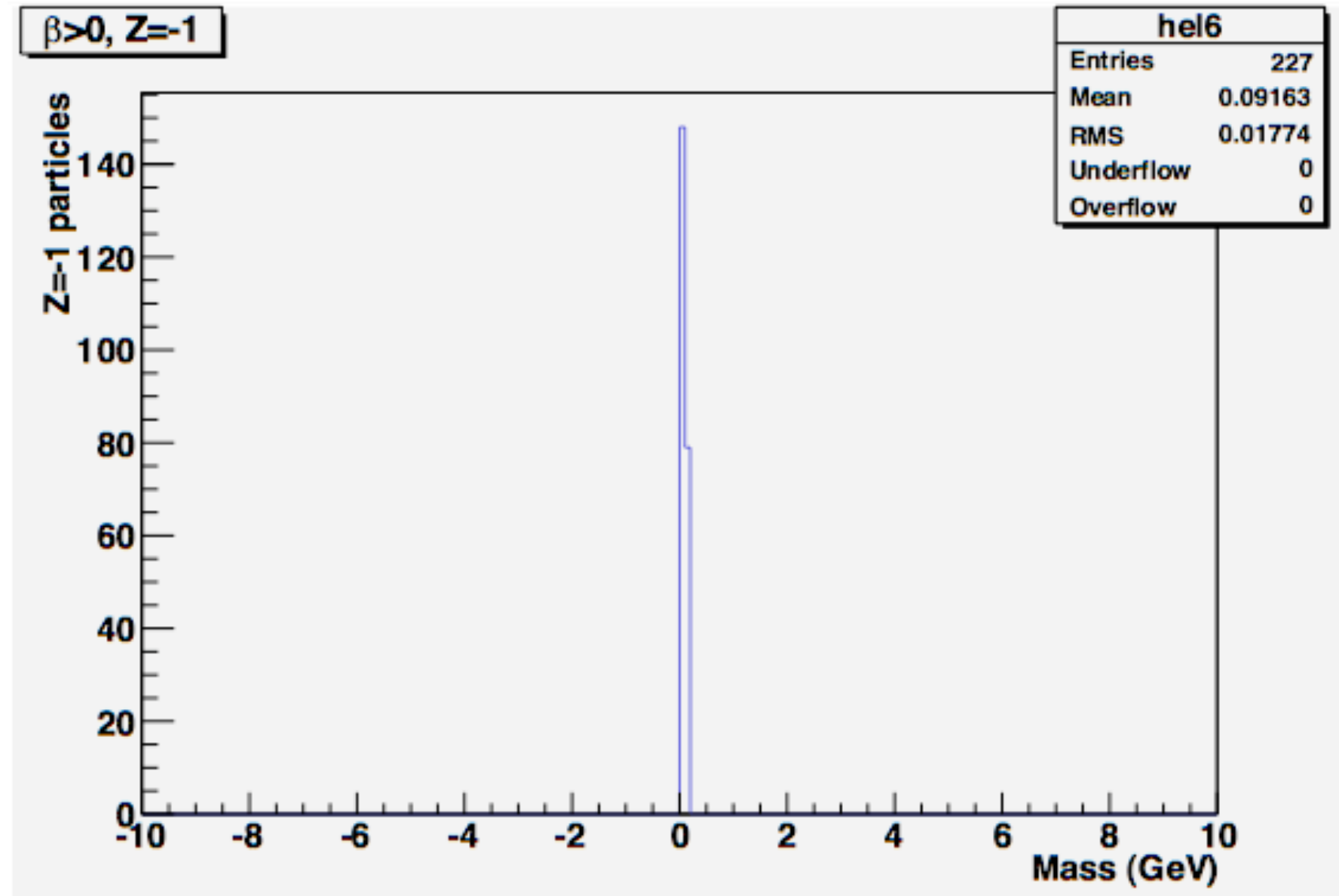
(N.B.: *mass<0* flag for *measured  $\beta>1$* )



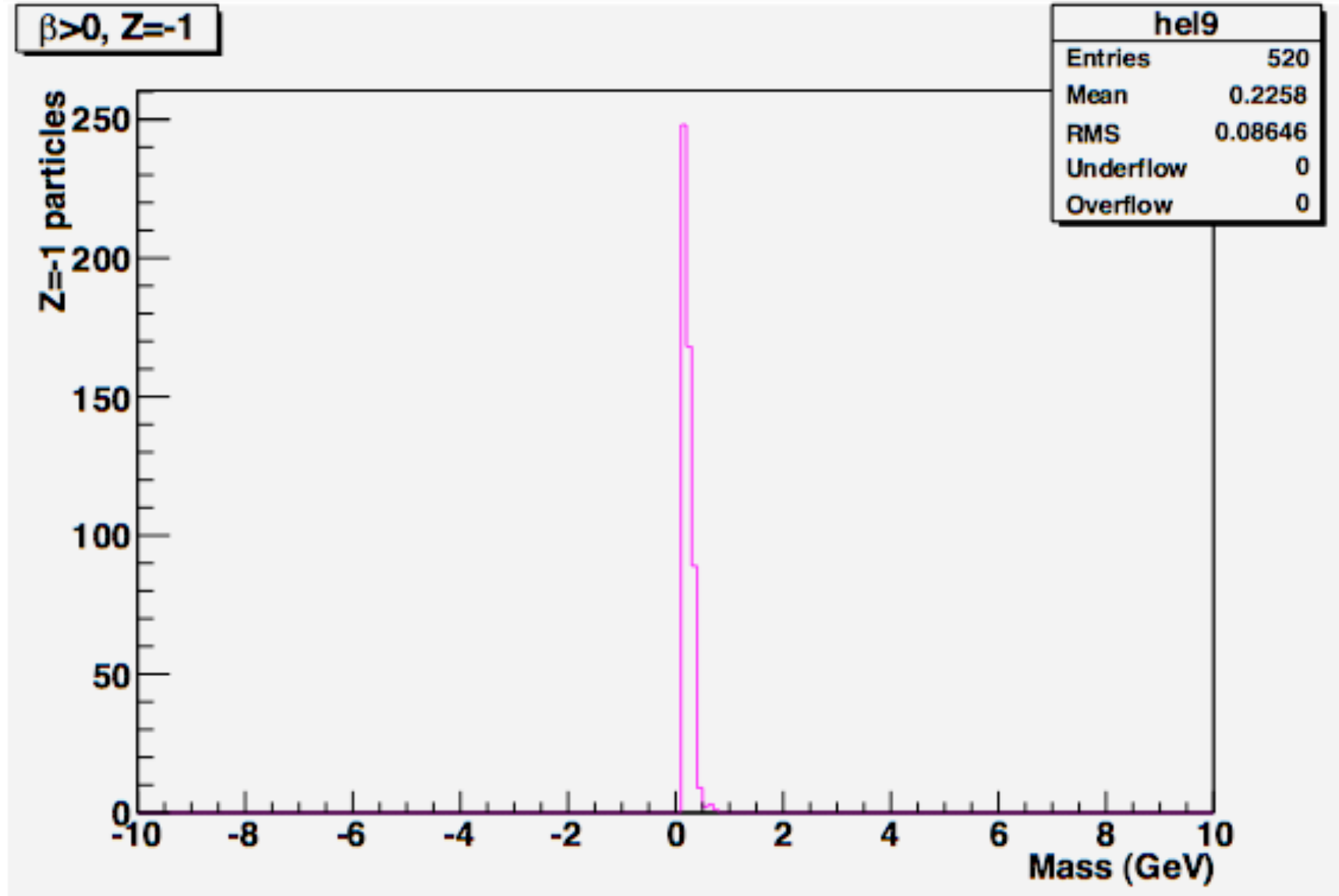
# Z=-1 particles, Reconstructed Mass PID 3 (e-)



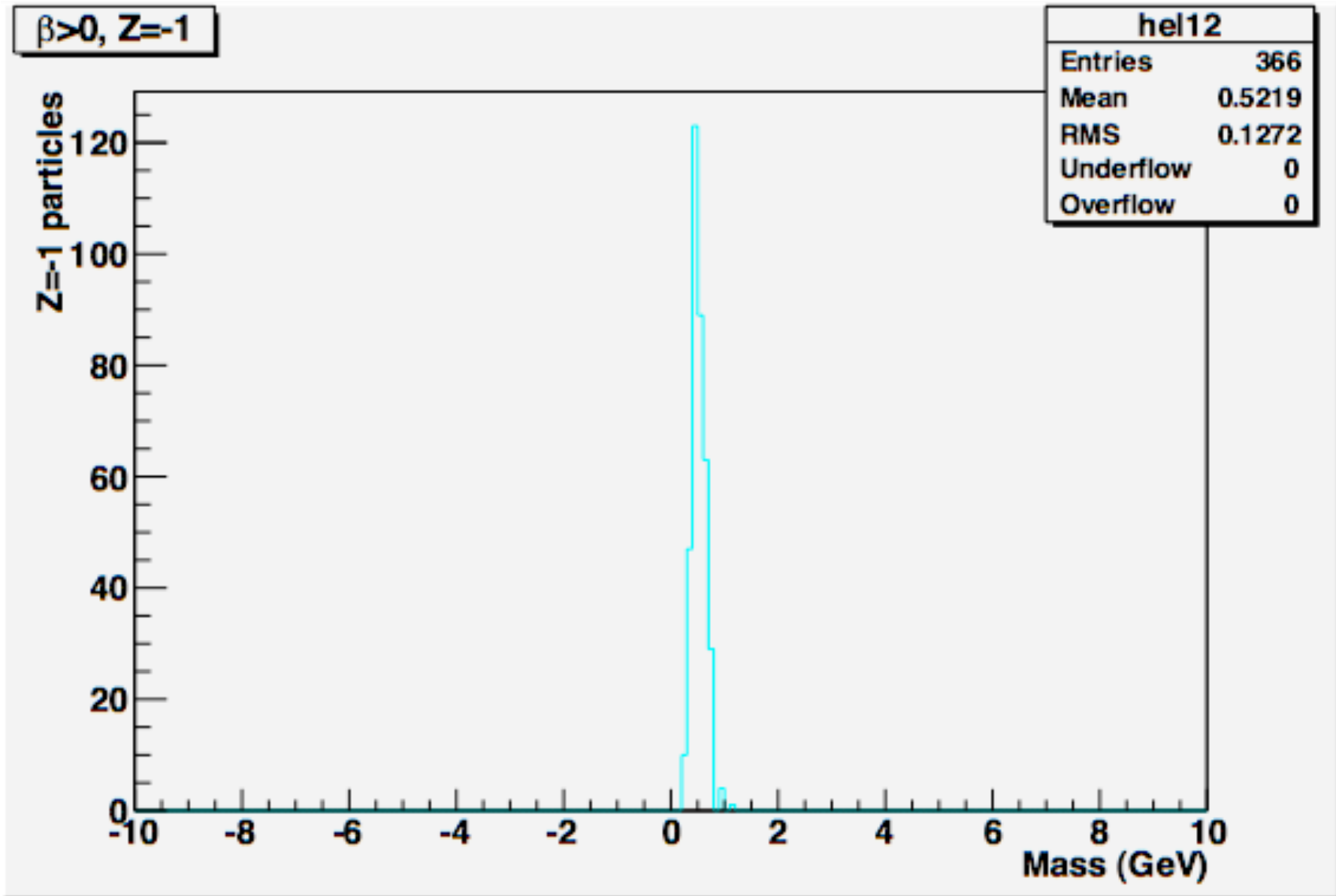
# Z=-1 particles, Reconstructed Mass PID 6 ( $\mu^-$ )



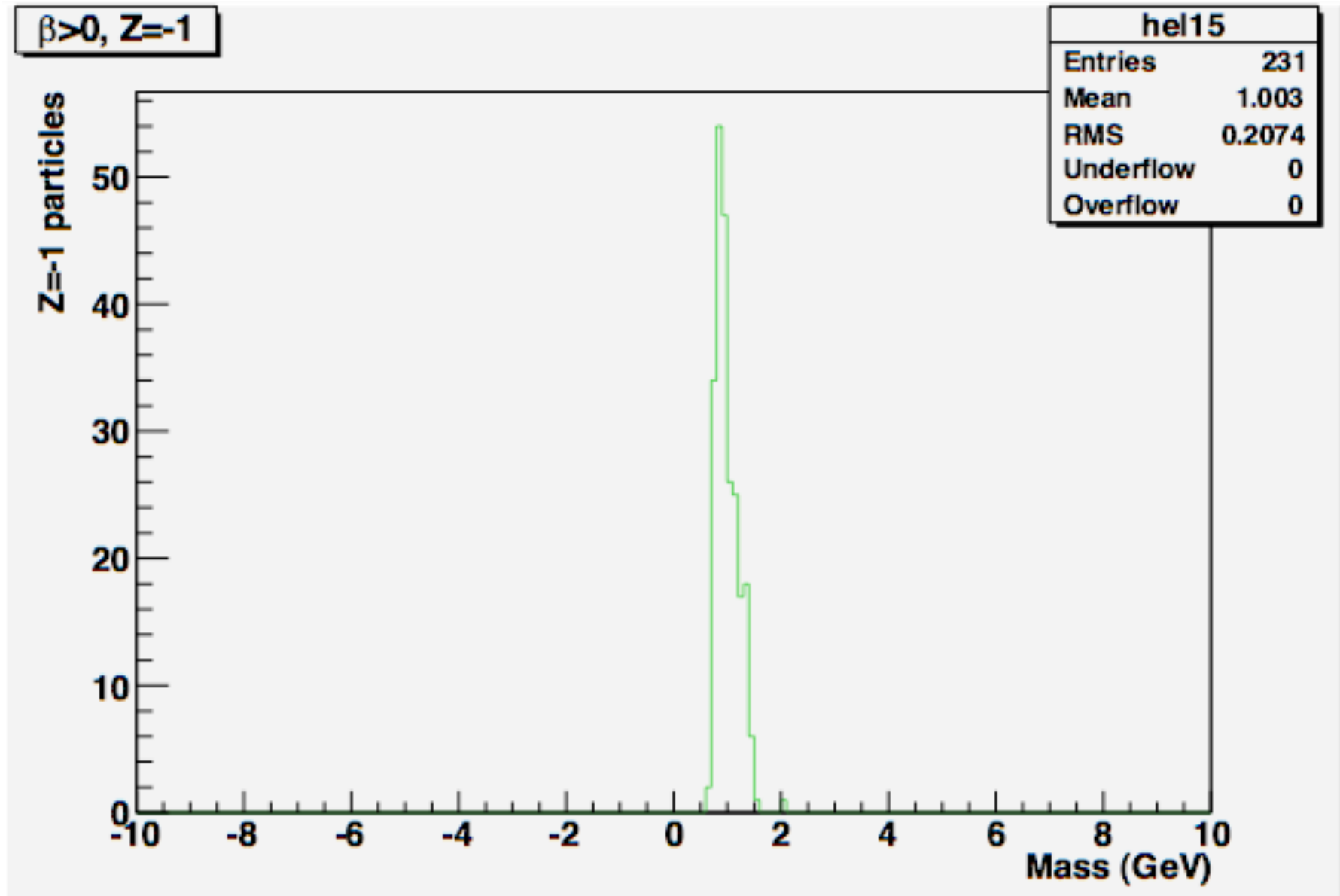
# Z=-1 particles, Reconstructed Mass PID 9 ( $\pi^-$ )



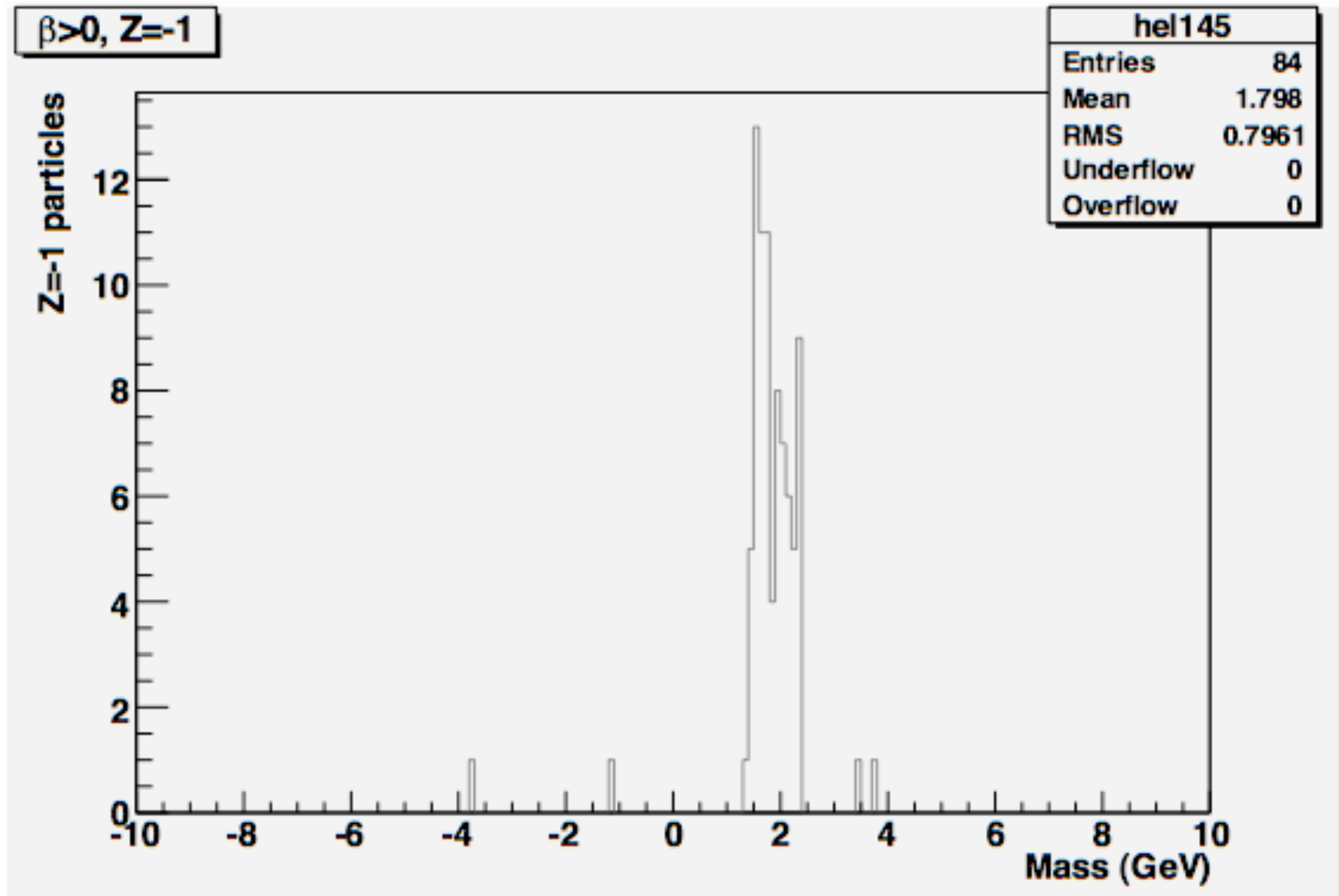
# Z=-1 particles, Reconstructed Mass PID 12 (K-)



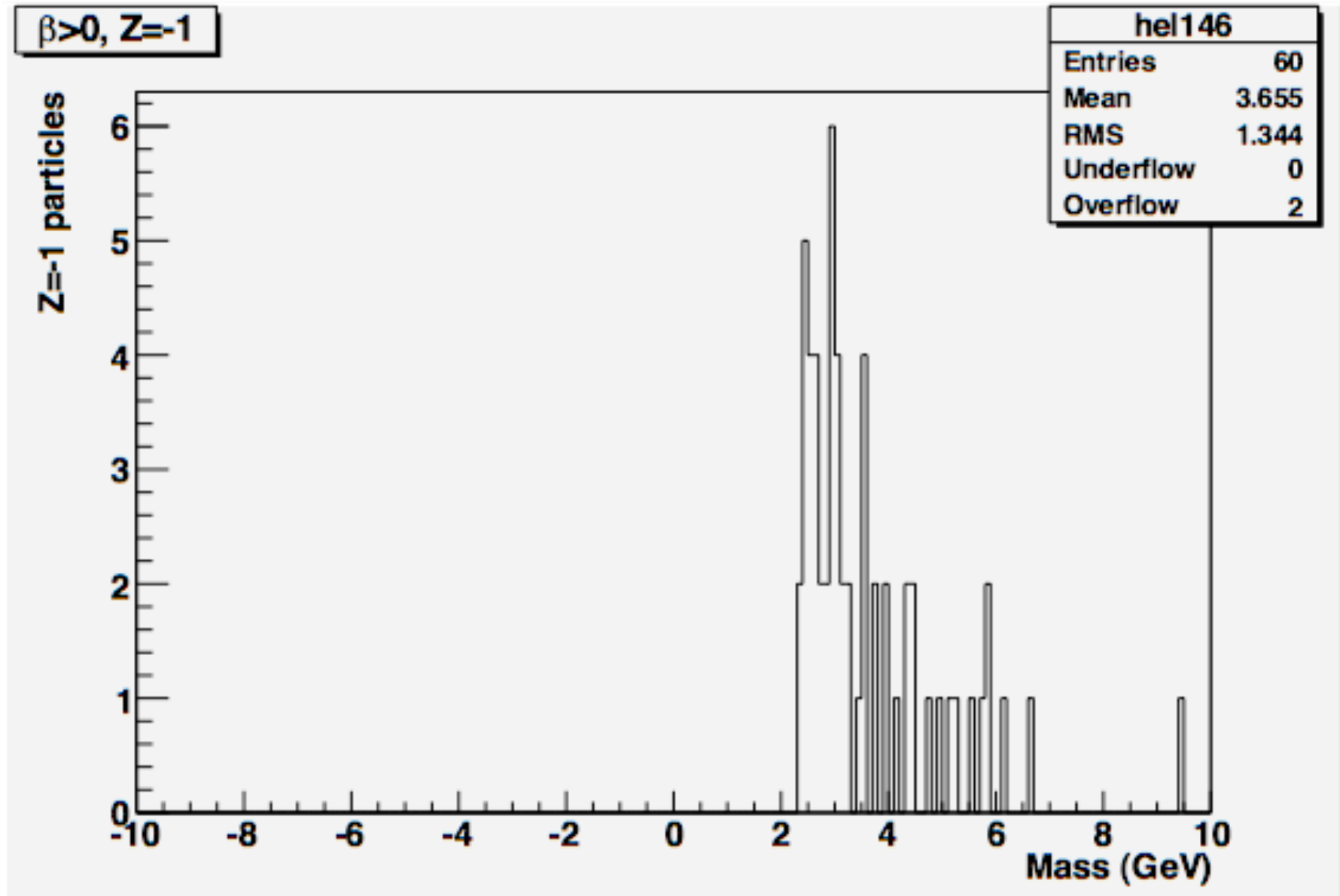
# Z=-1 particles, Reconstructed Mass PID 15 ( $\bar{p}$ )



# Z=-1 particles, Reconstructed Mass PID 145

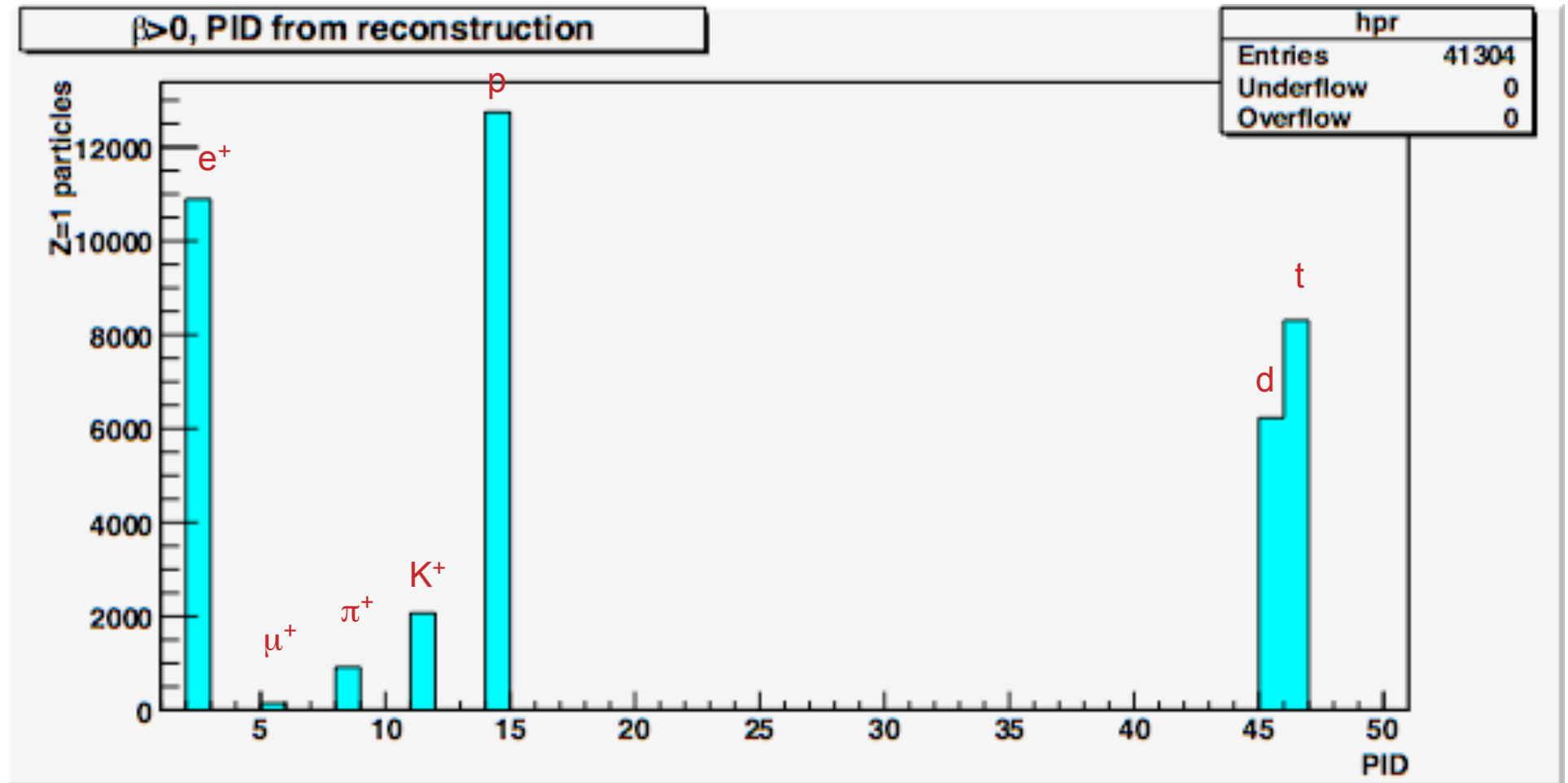


# Z=-1 particles, Reconstructed Mass PID146





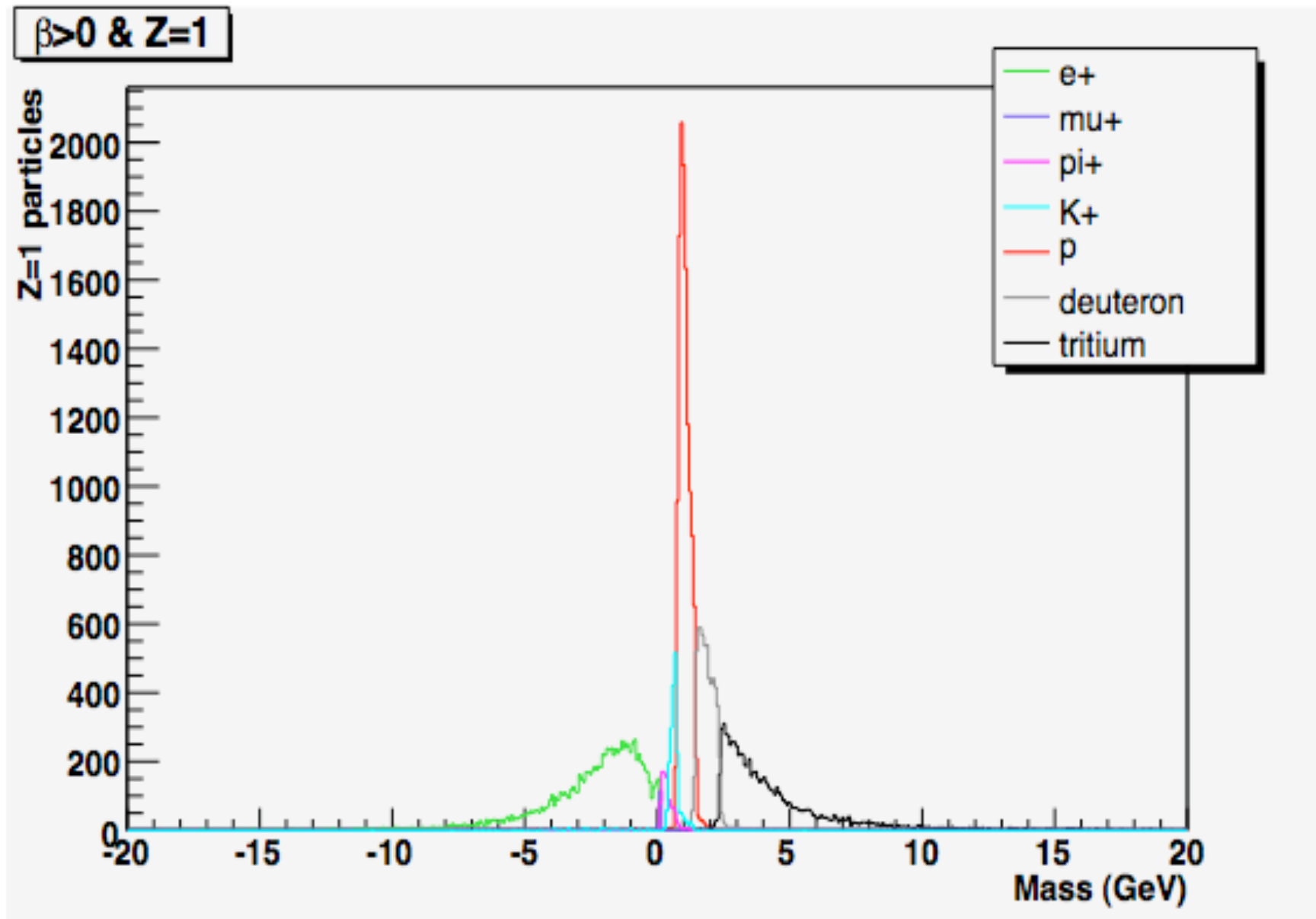
# Z=1 particles, Particle ID from reconstruction



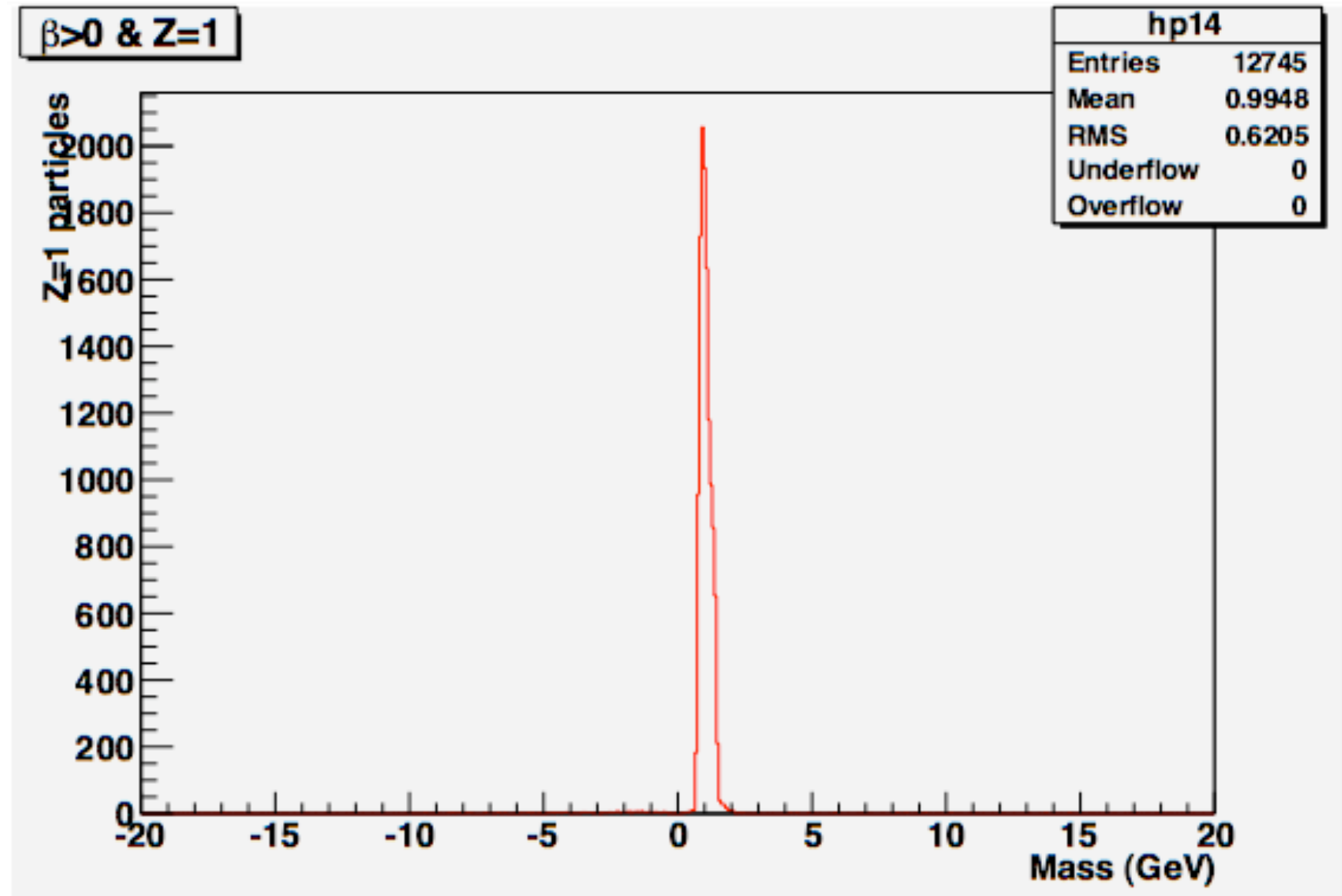
d: deuteron ; t: tritium

Identified as protons: 12745

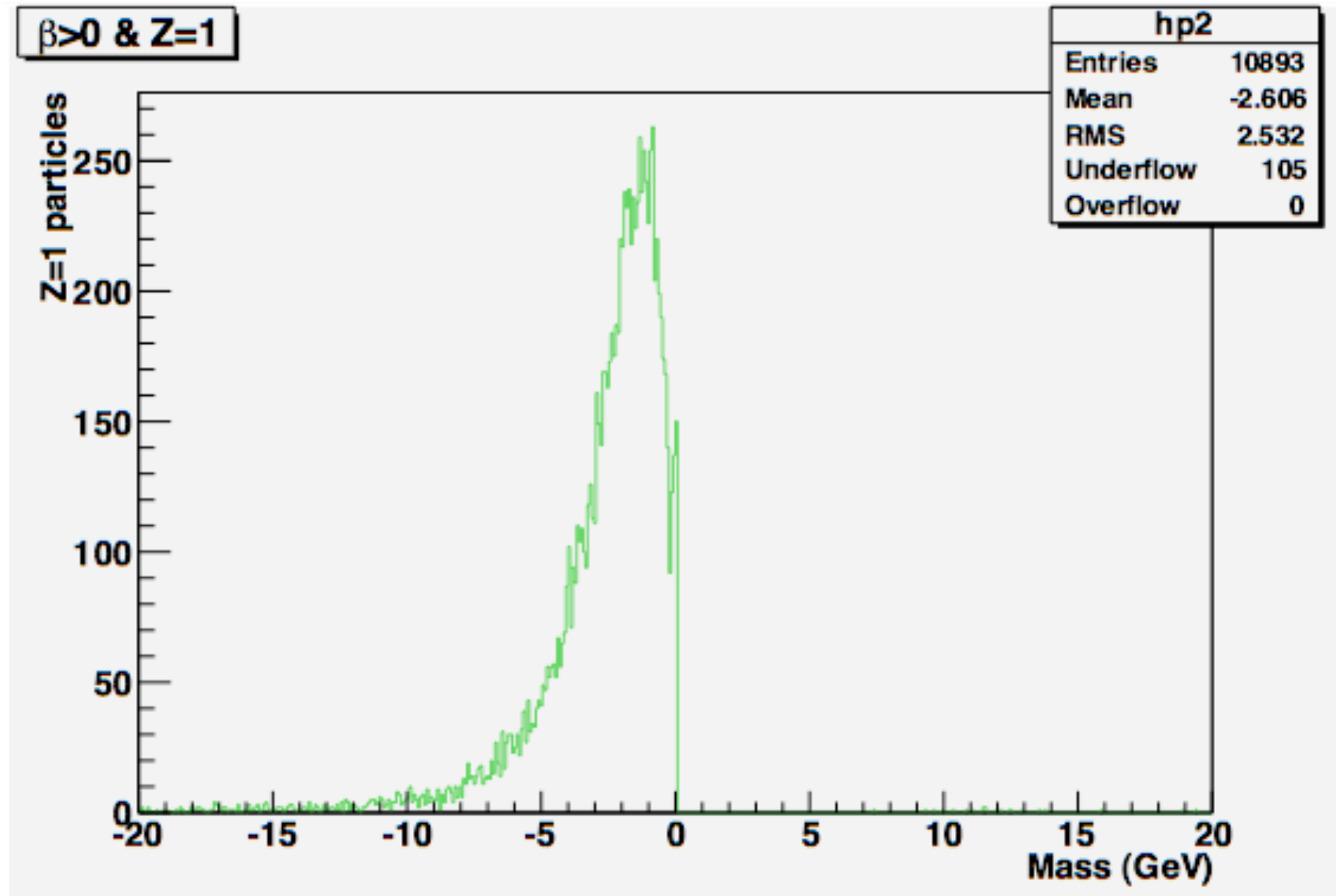
Z=1 particles, Reconstructed Mass  
(N.B.: *mass<0* flag for *measured  $\beta>1$* )



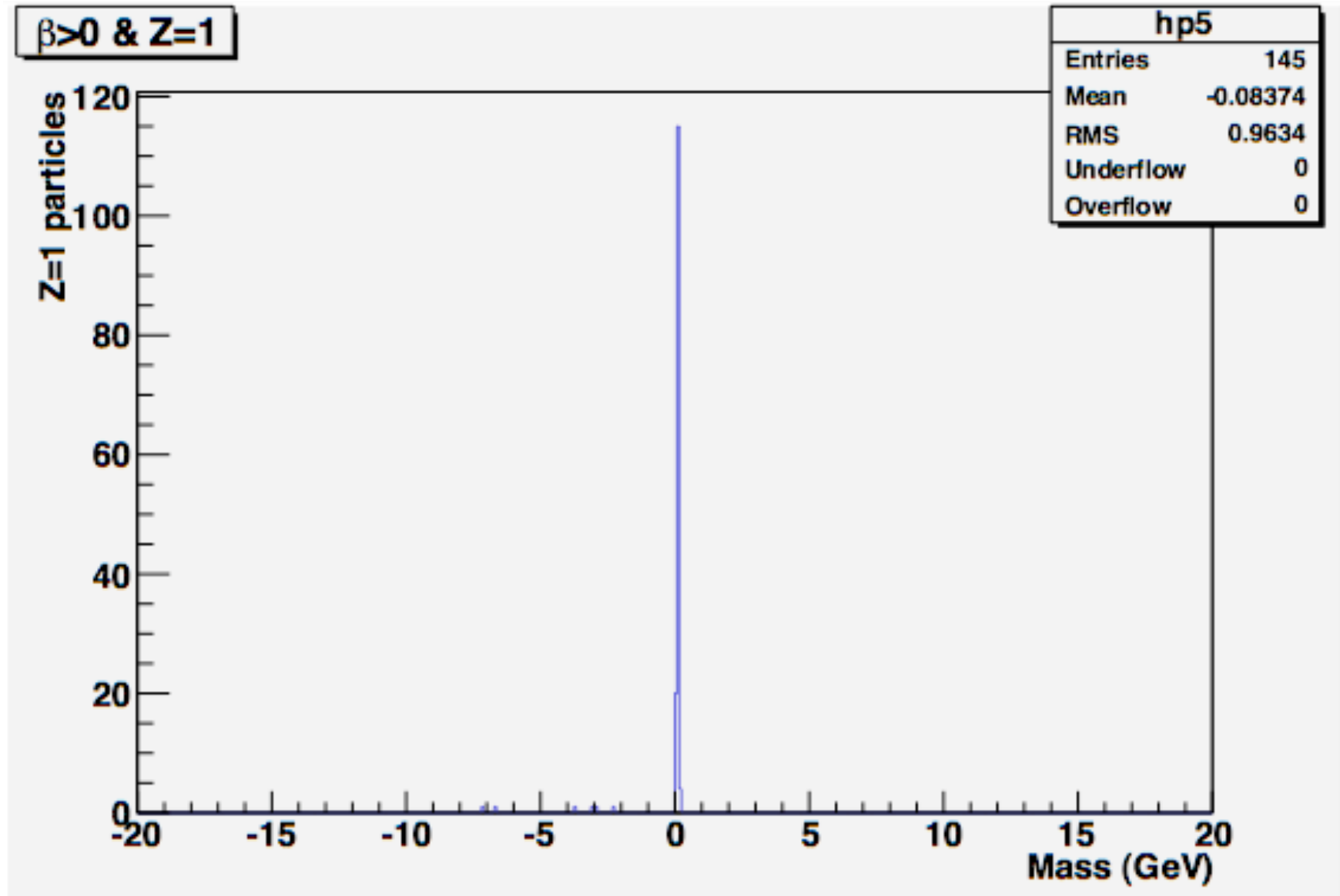
# Z=1 particles, reconstructed Mass PID 14 (proton)



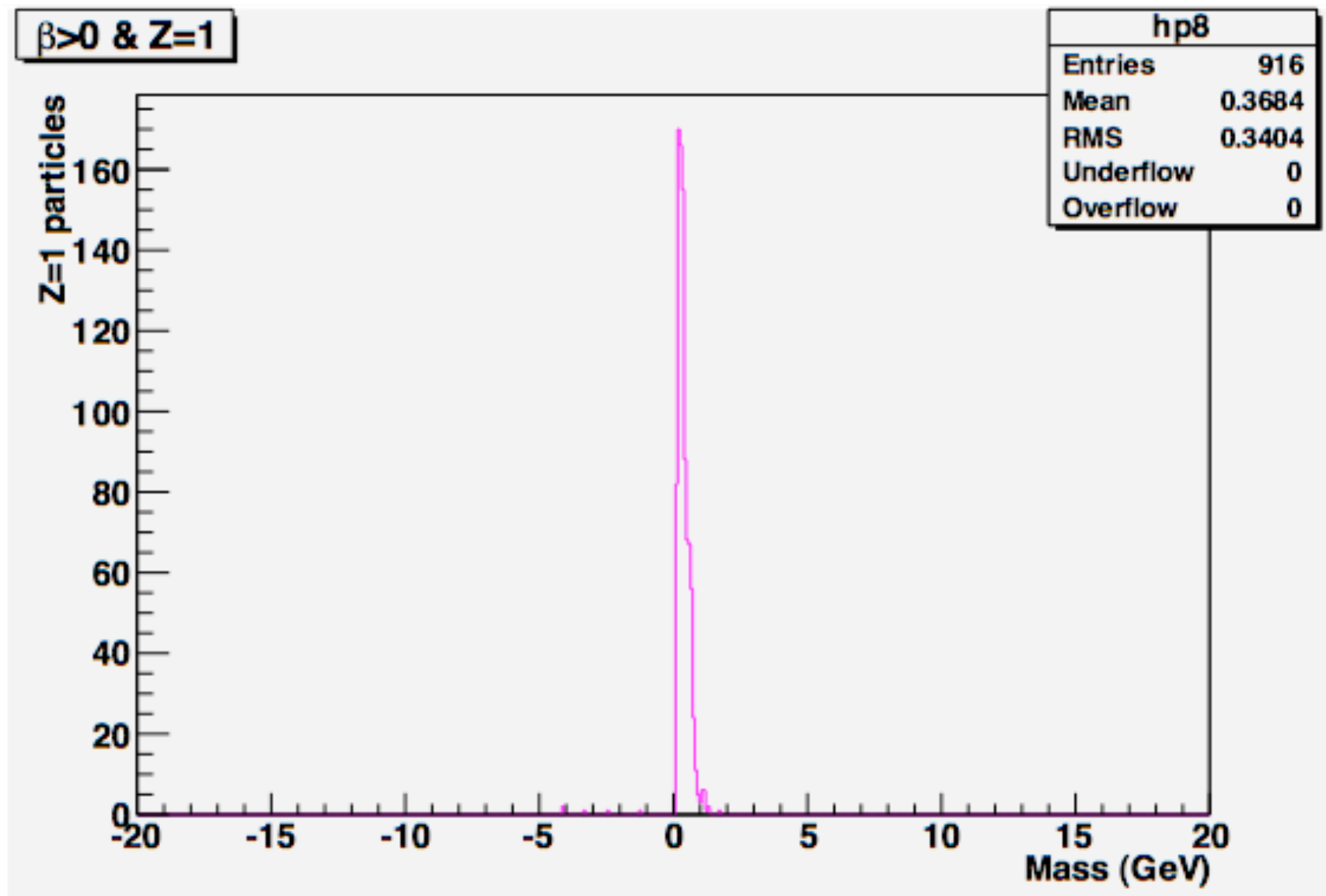
# Z=1 particles, Reconstructed Mass PID 2 (e+)



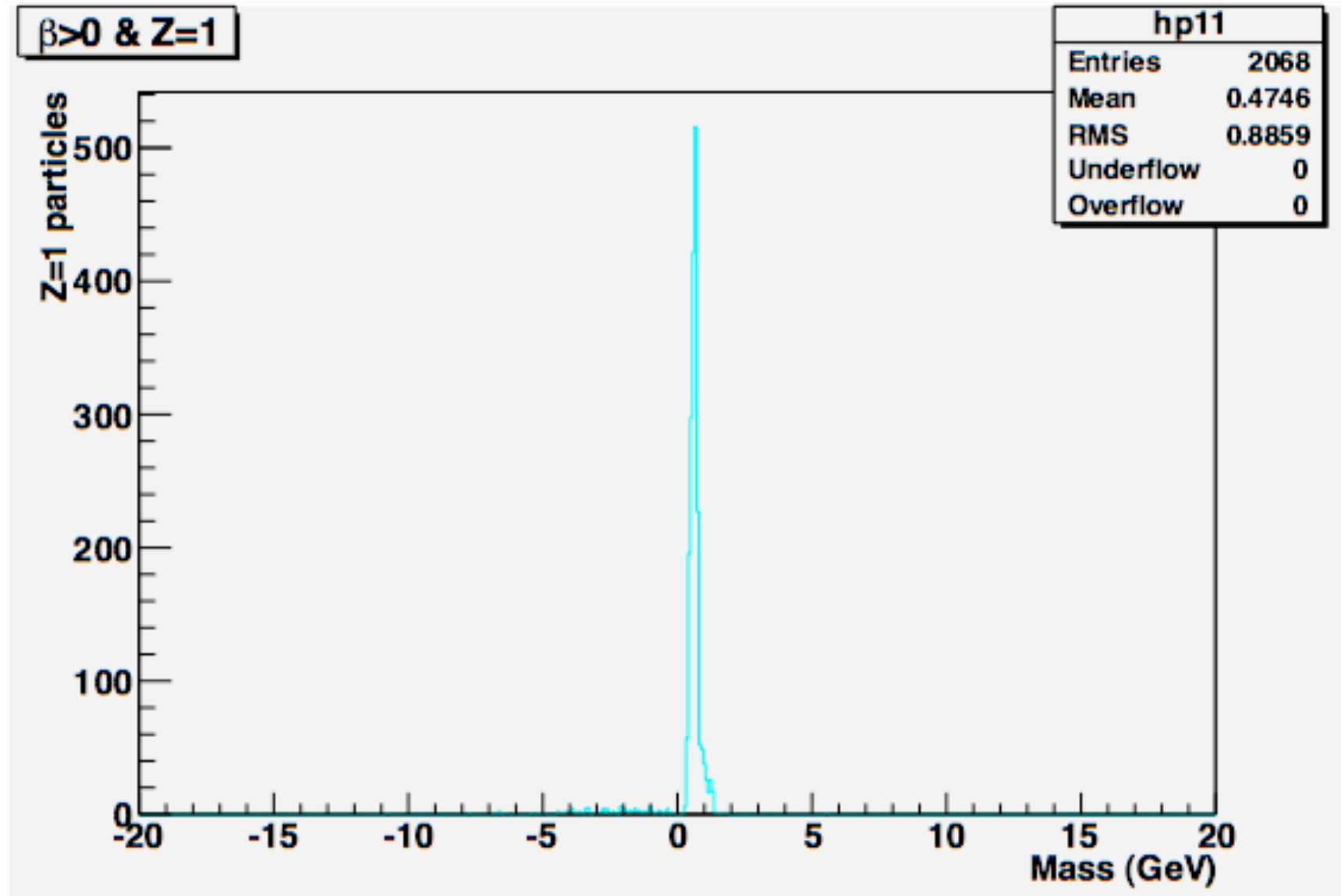
# Z=1 particles, Reconstructed Mass PID 5 ( $\mu^+$ )



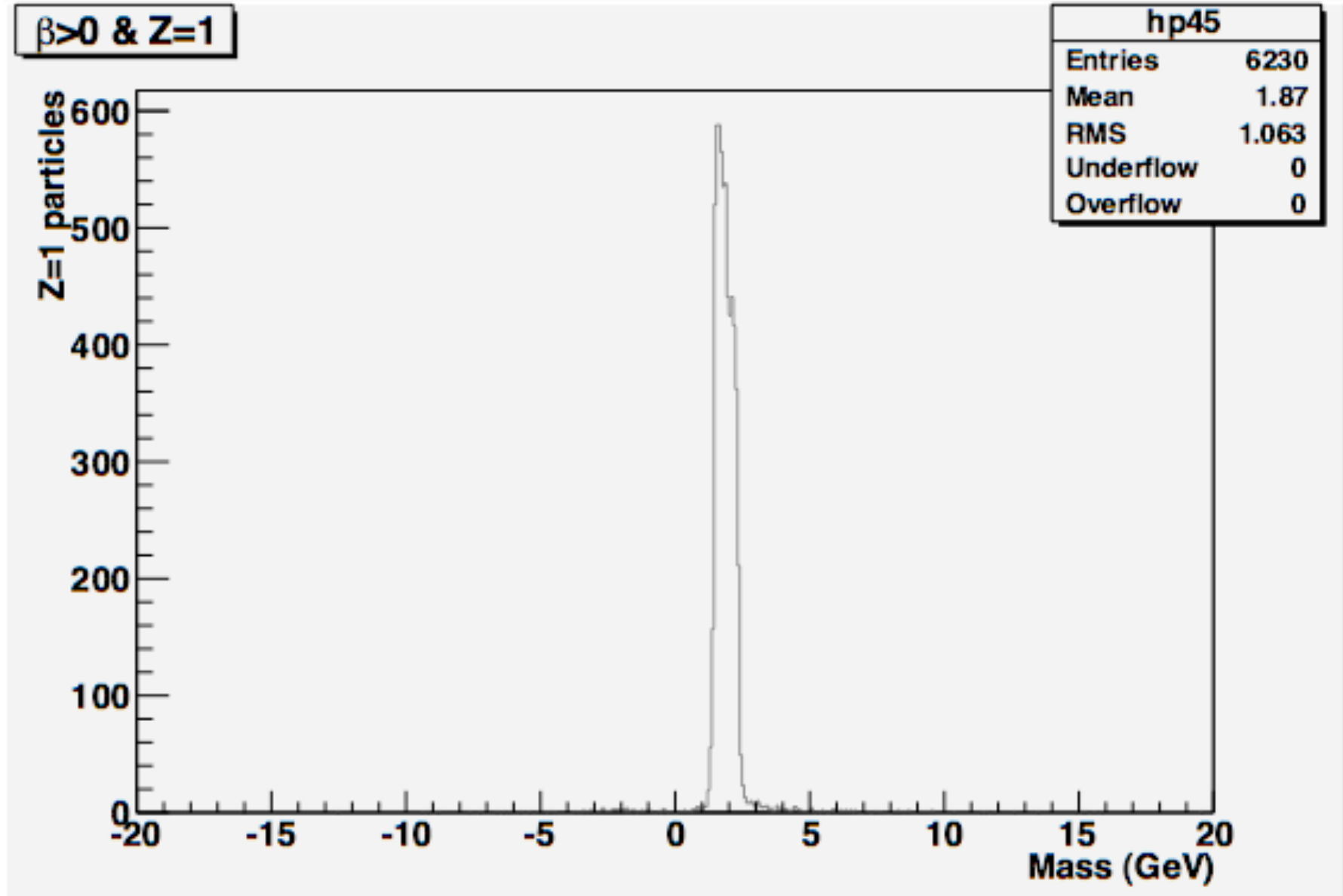
# Z=1 particles, Reconstructed Mass PID 8 ( $\pi^+$ )



# Z=1 particles, Reconstructed Mass PID 11 (K<sup>+</sup>)



# Z=1 particles, Reconstructed Mass PID 45 (deuteron)





# Z=1 particles, Reconstructed Mass PID 46 (tritium)

