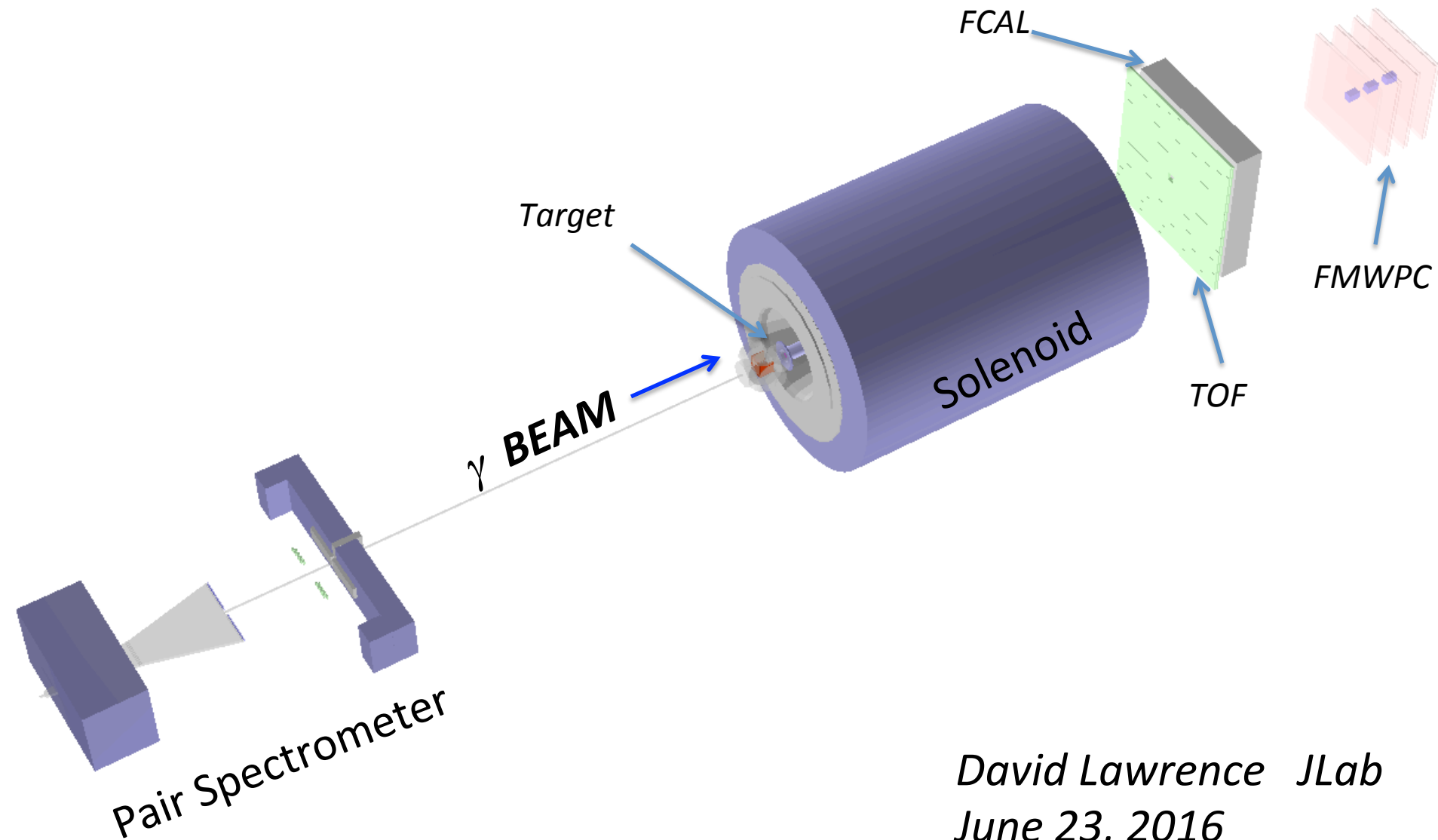


# CPPsim = GEANT 4 simulation

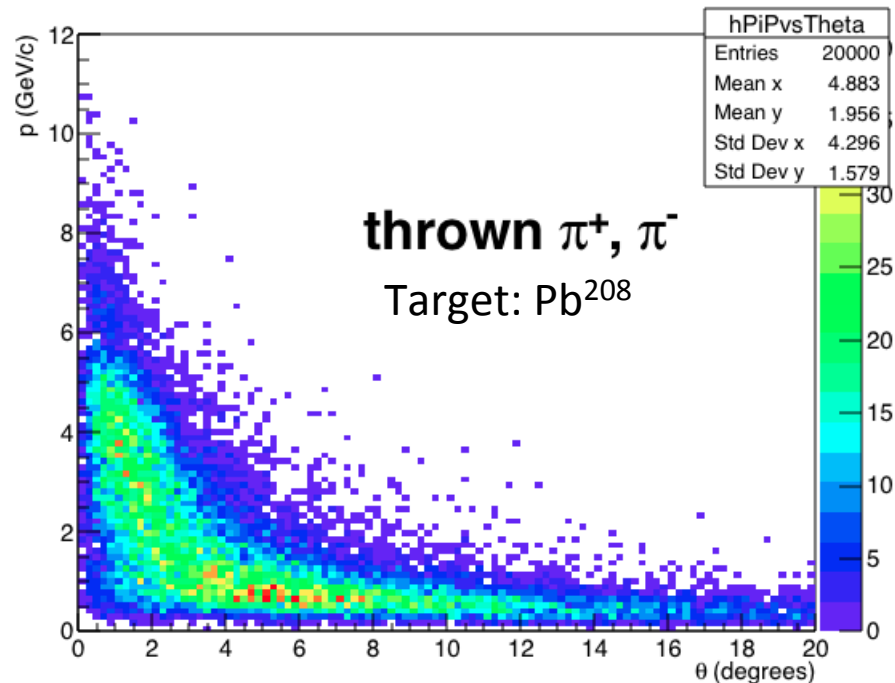
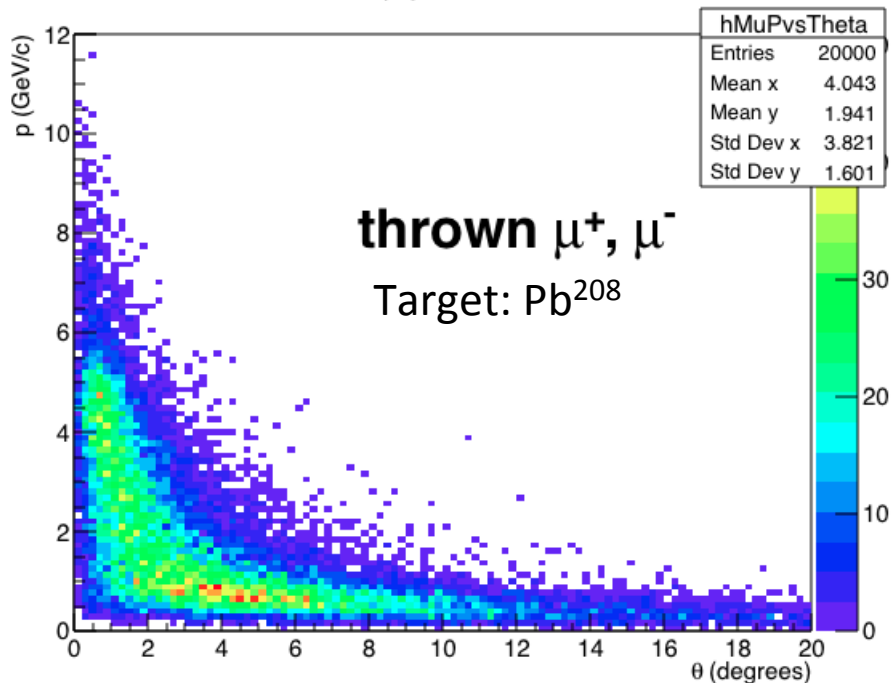


David Lawrence JLab  
June 23, 2016

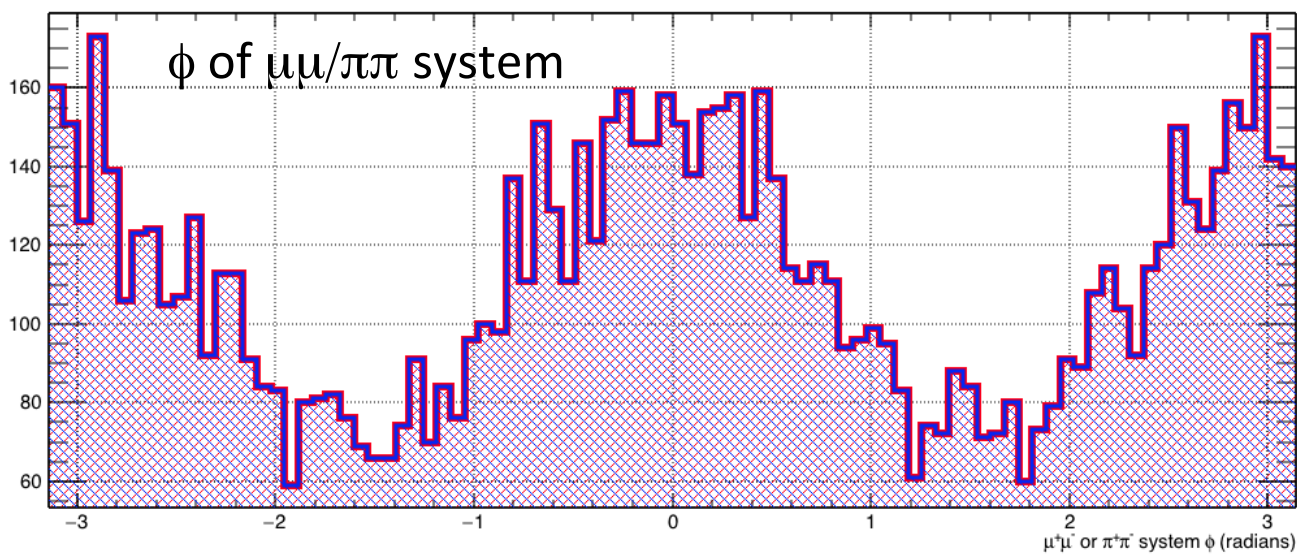
# Generated Particles (*gen\_2mu*)

$\mu$  p vs.  $\theta$

$\pi$  p vs.  $\theta$

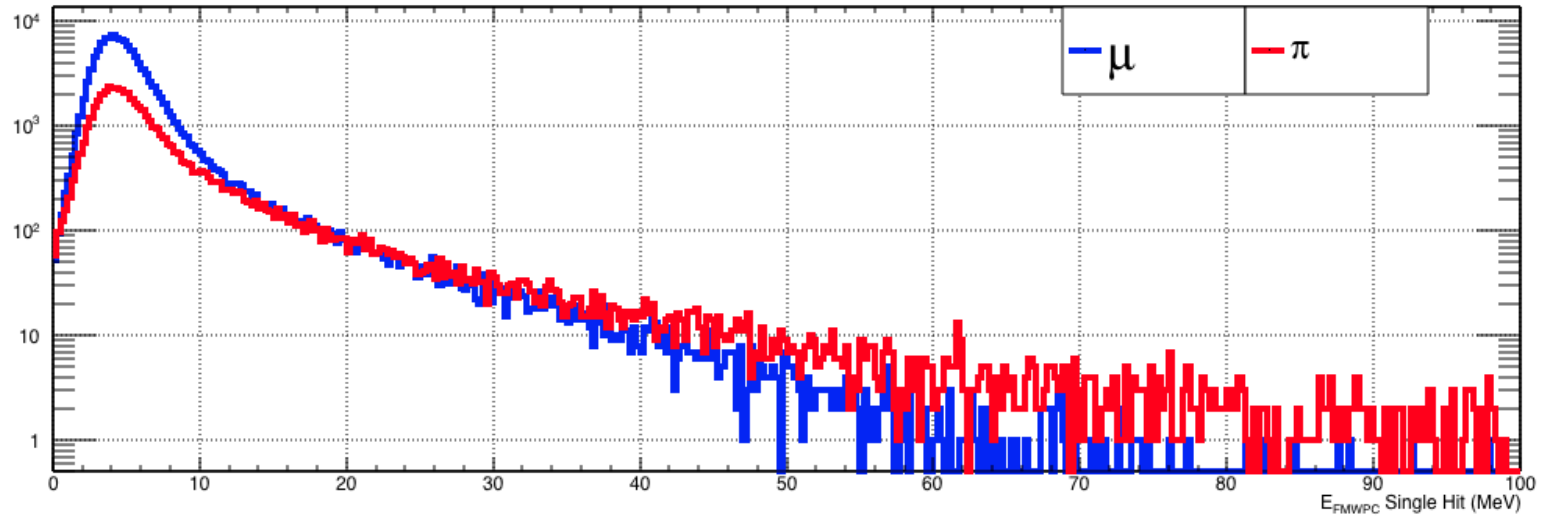


$\mu^+\mu^-$  azimuth wrt polarization

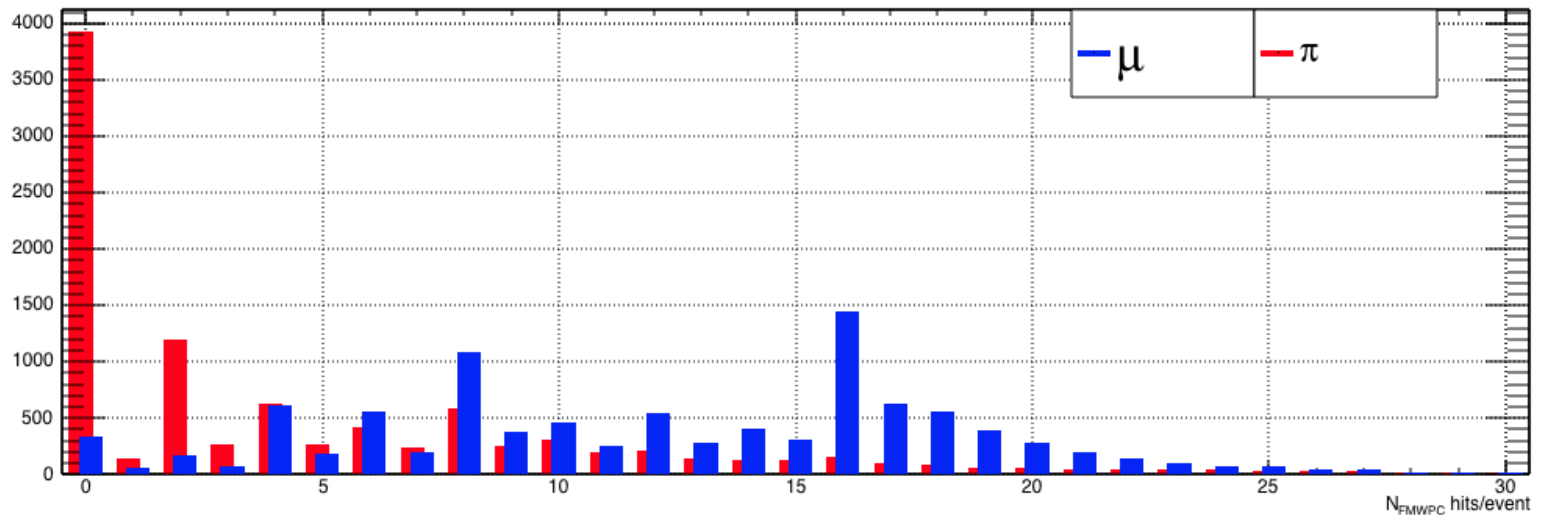


# FMWPC – GEANT 4

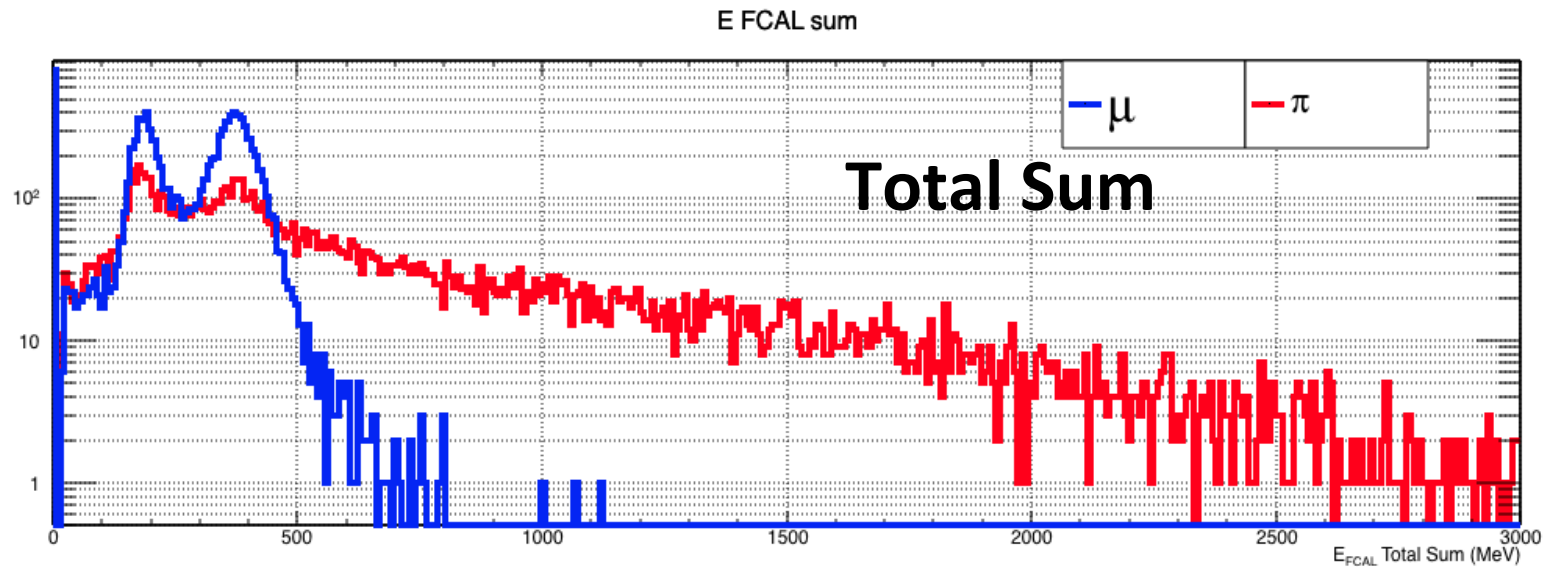
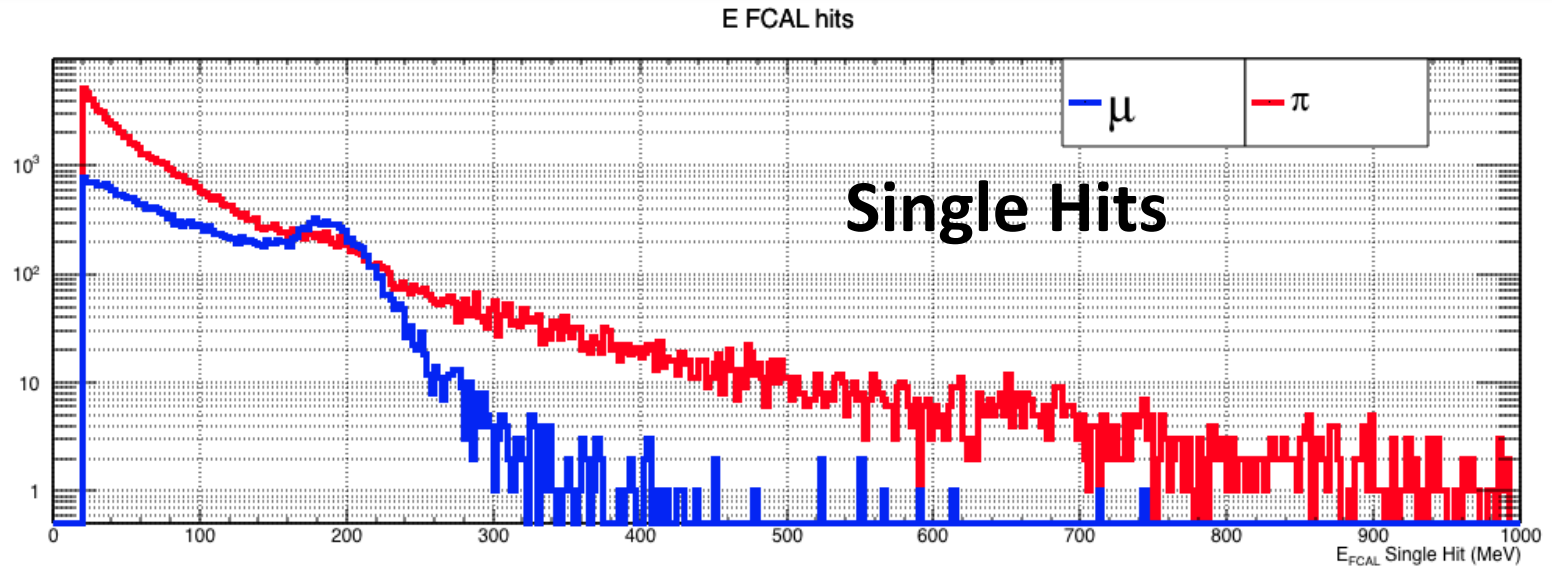
E FMWPC hits



Num. FMWPC hits

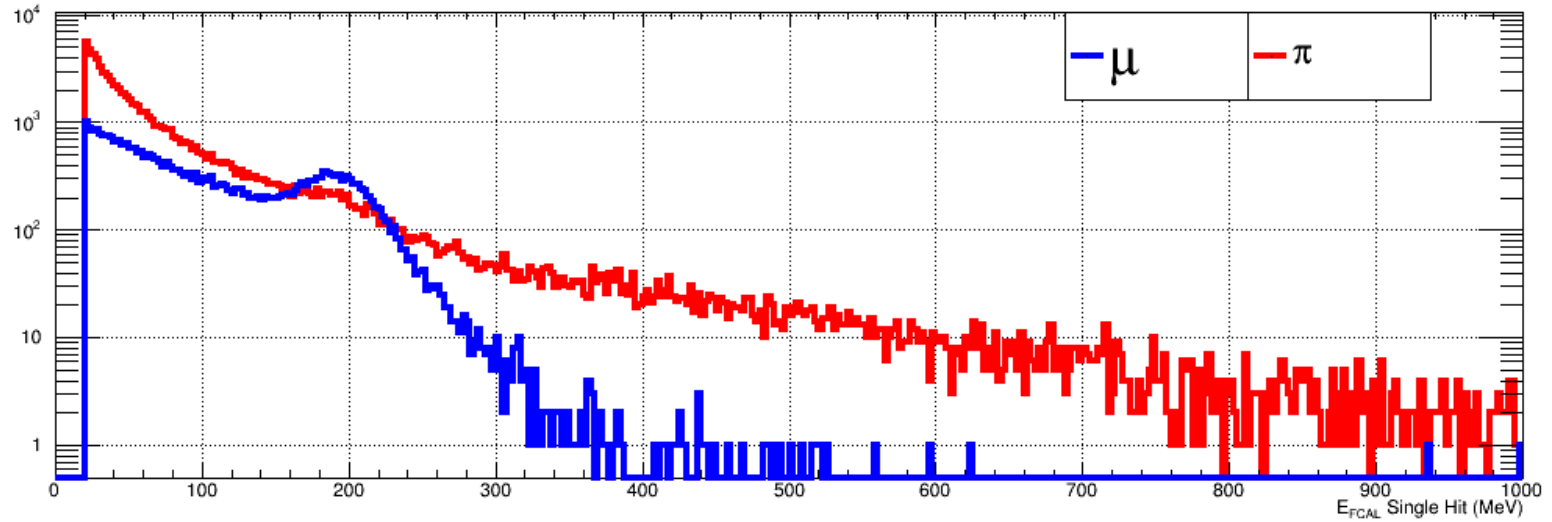


# FCAL – GEANT 4

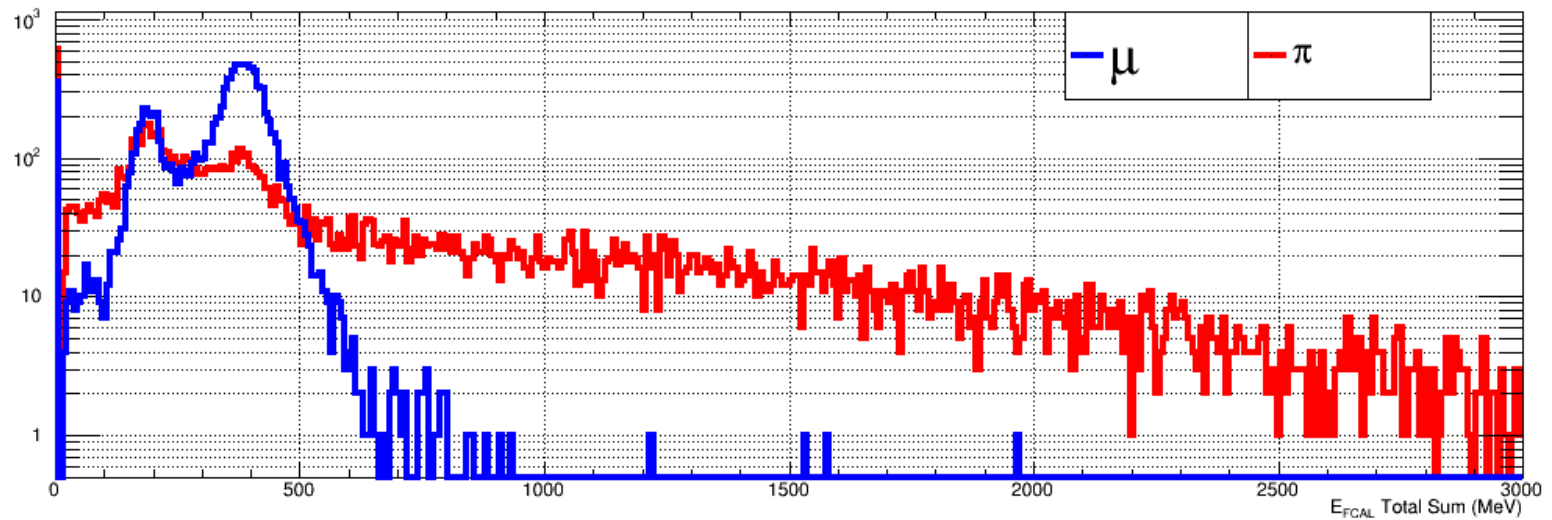


# FCAL – GEANT 3

E FCAL hits

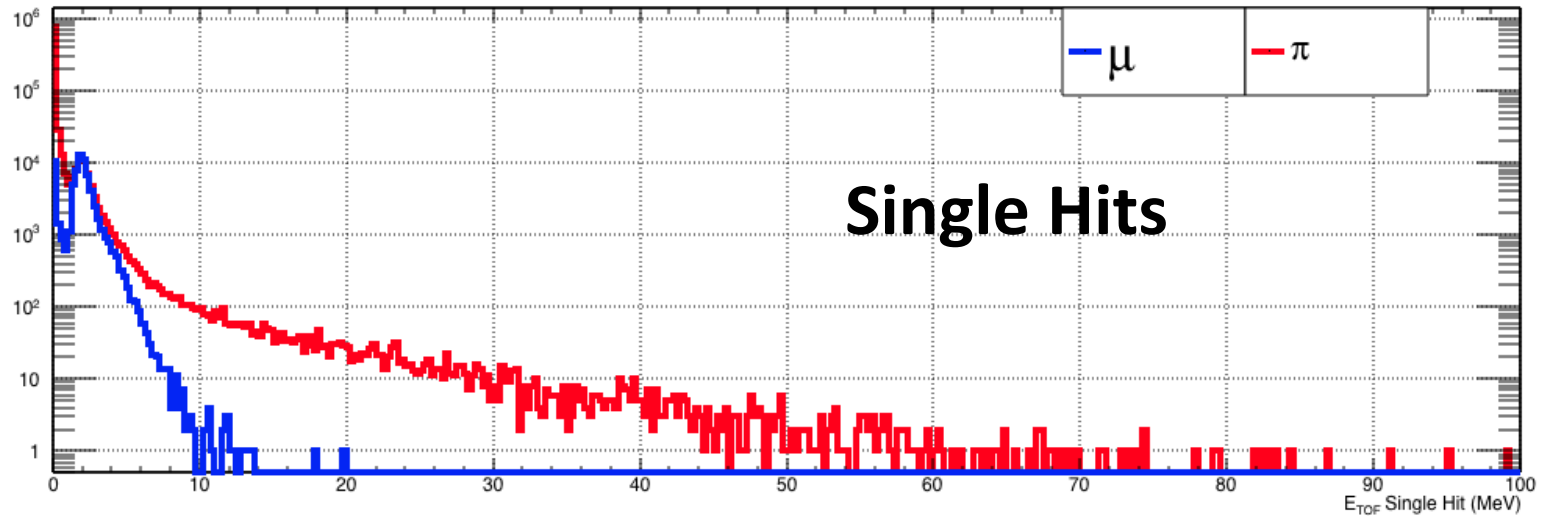


E FCAL sum

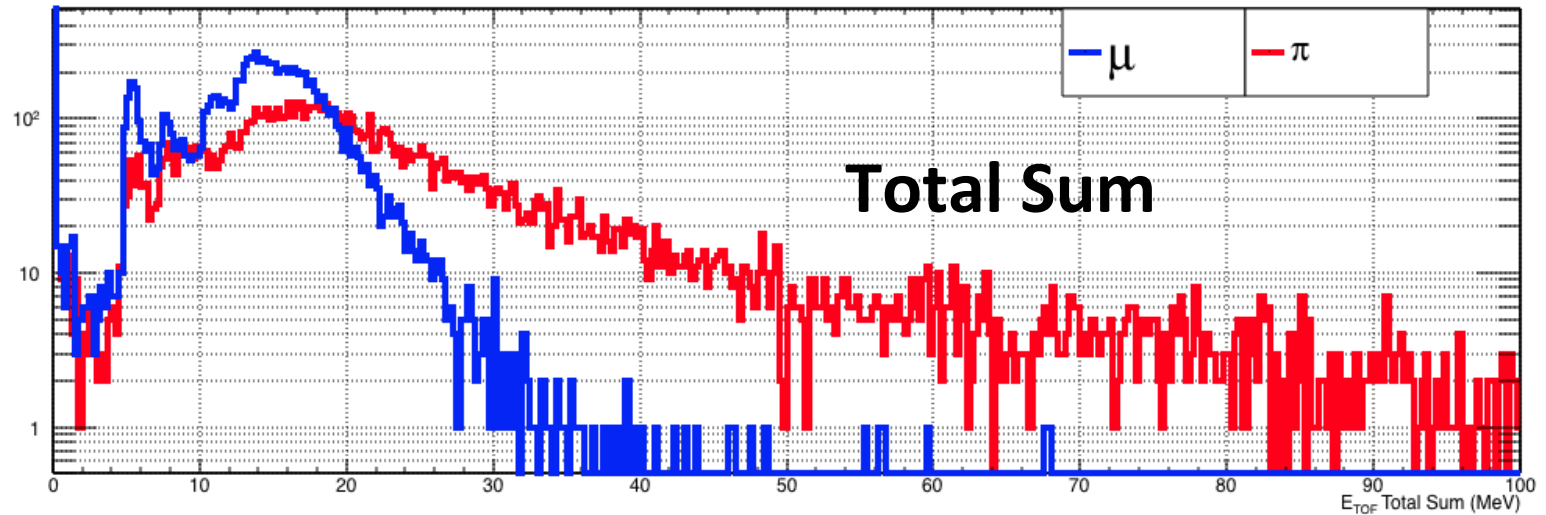


# TOF - GEANT 4

E TOF hits

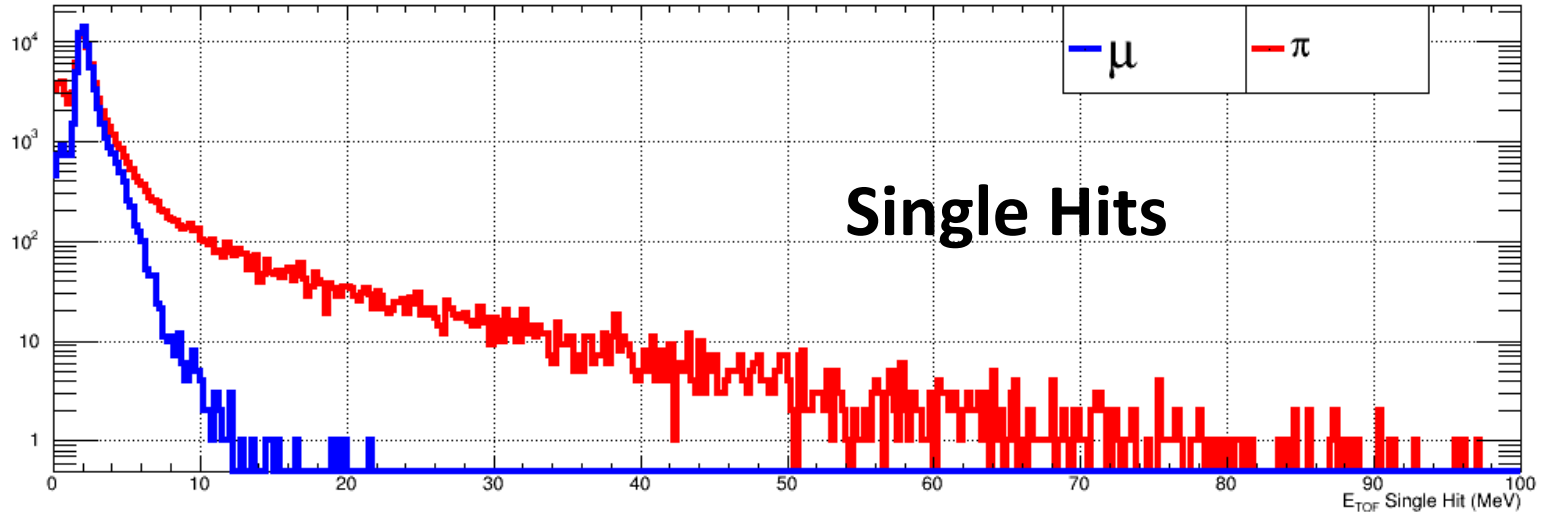


E TOF sum

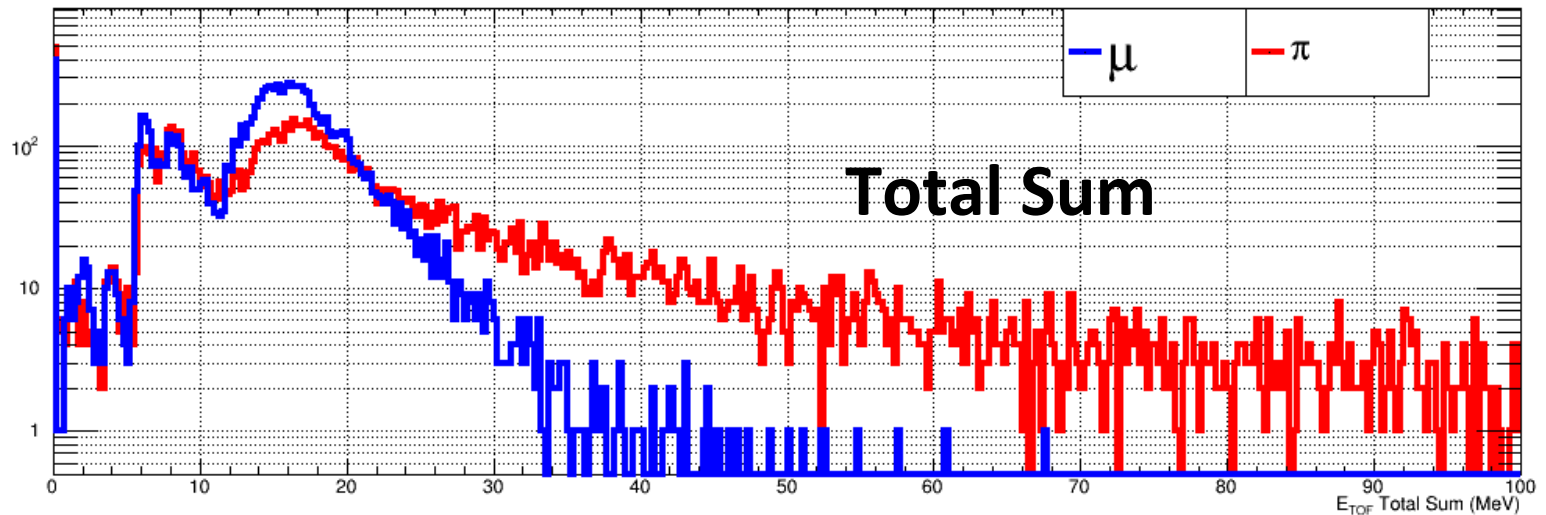


# TOF - GEANT 3

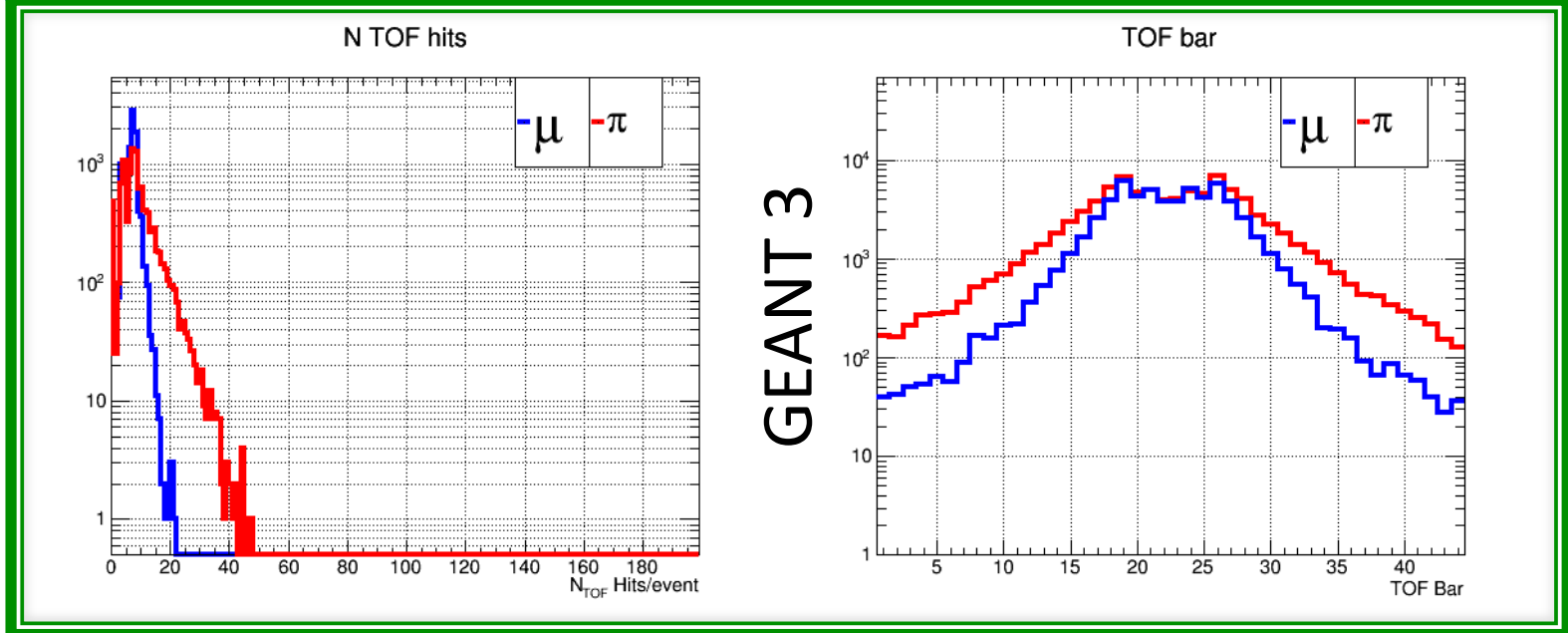
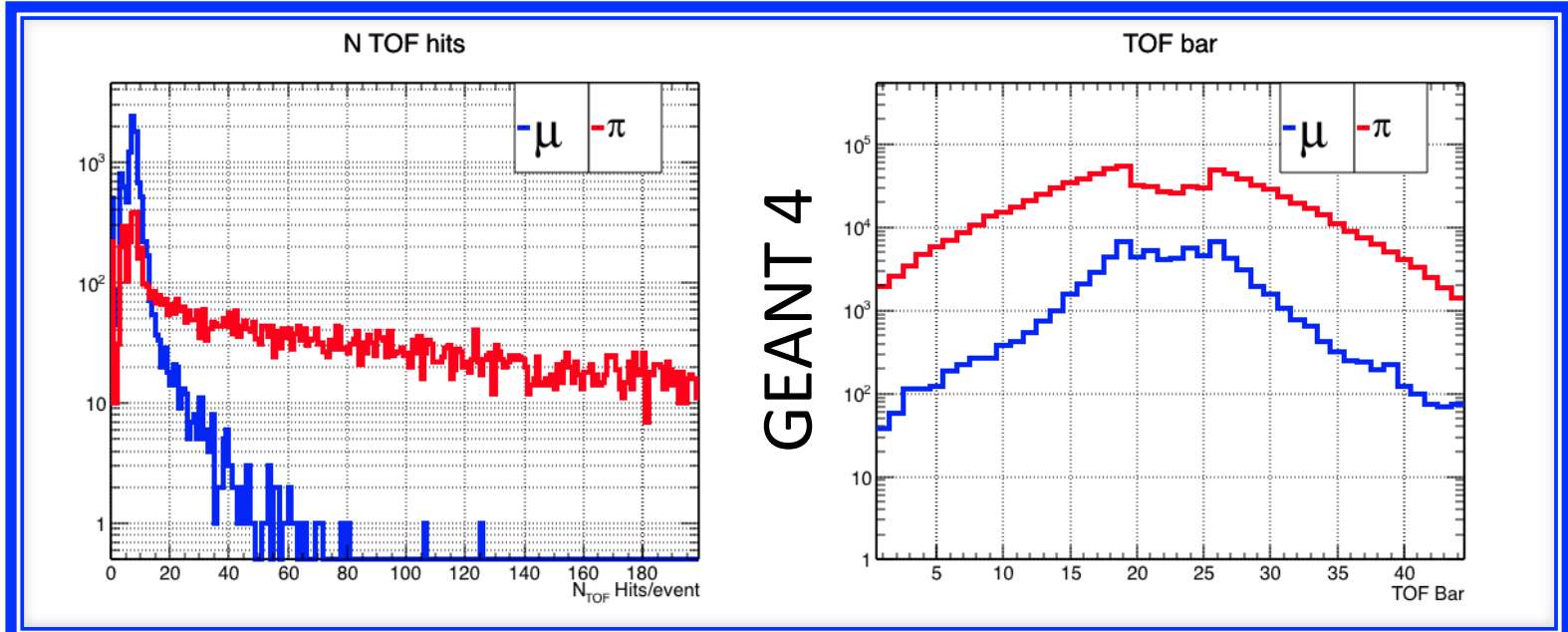
E TOF hits



E TOF sum



# TOF





# Summary

- Several areas of good agreement between G3 and G4 simulations
- Next Steps
  - Change target to  $\text{Sn}^{116}$ (?)
  - Move vertex location back from  $z=65\text{cm}$  to  $z=1\text{cm}$
  - Map locations of hadronic showers
  - Apply threshold for TOF hits
  - Train MVA to classify event as  $\mu$  or  $\pi$