CALICE TCMT beam test status report

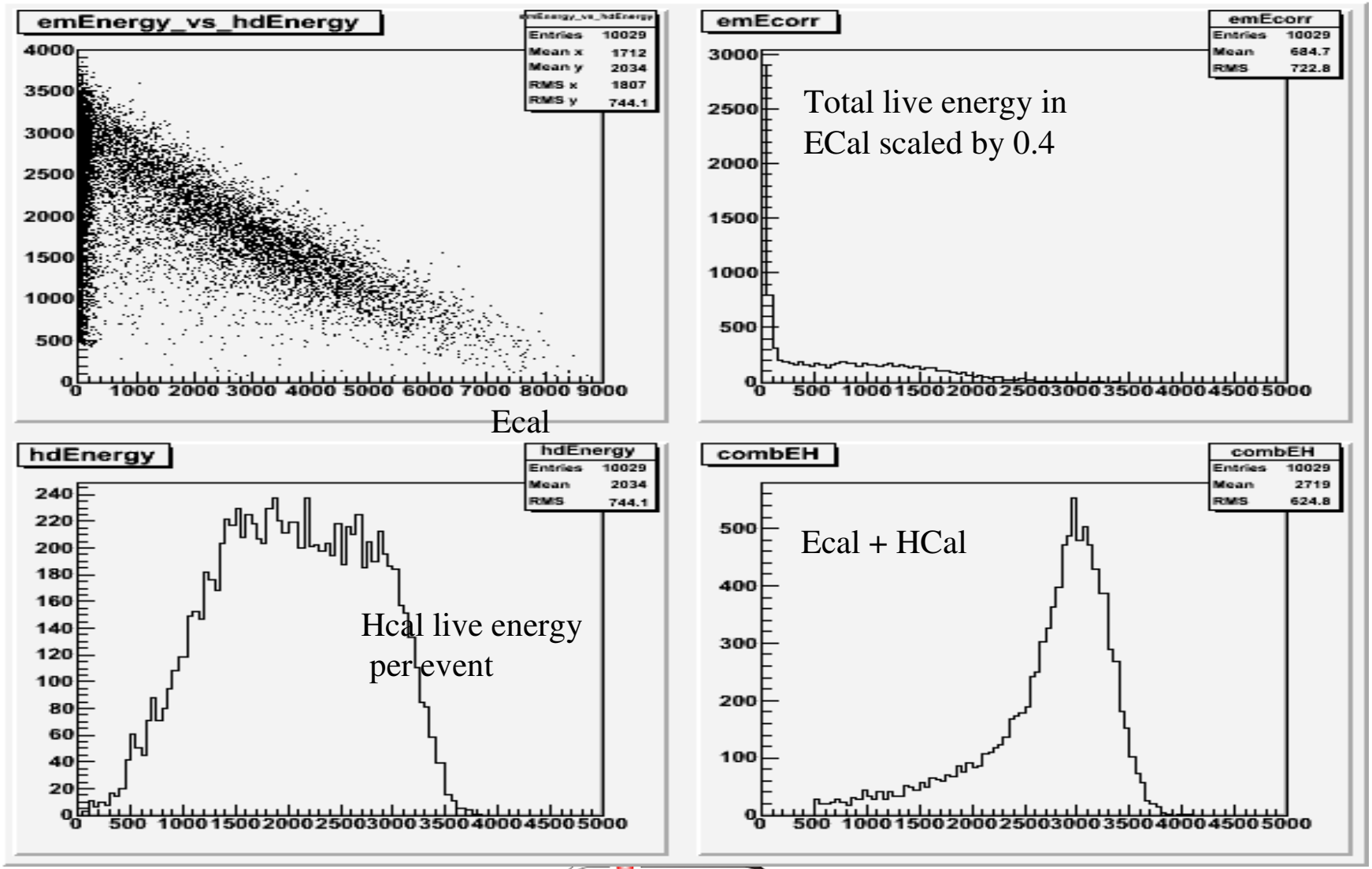
Guilherme Lima

SiD - Calorimetry meeting
November 16, 2006

News since last presentation

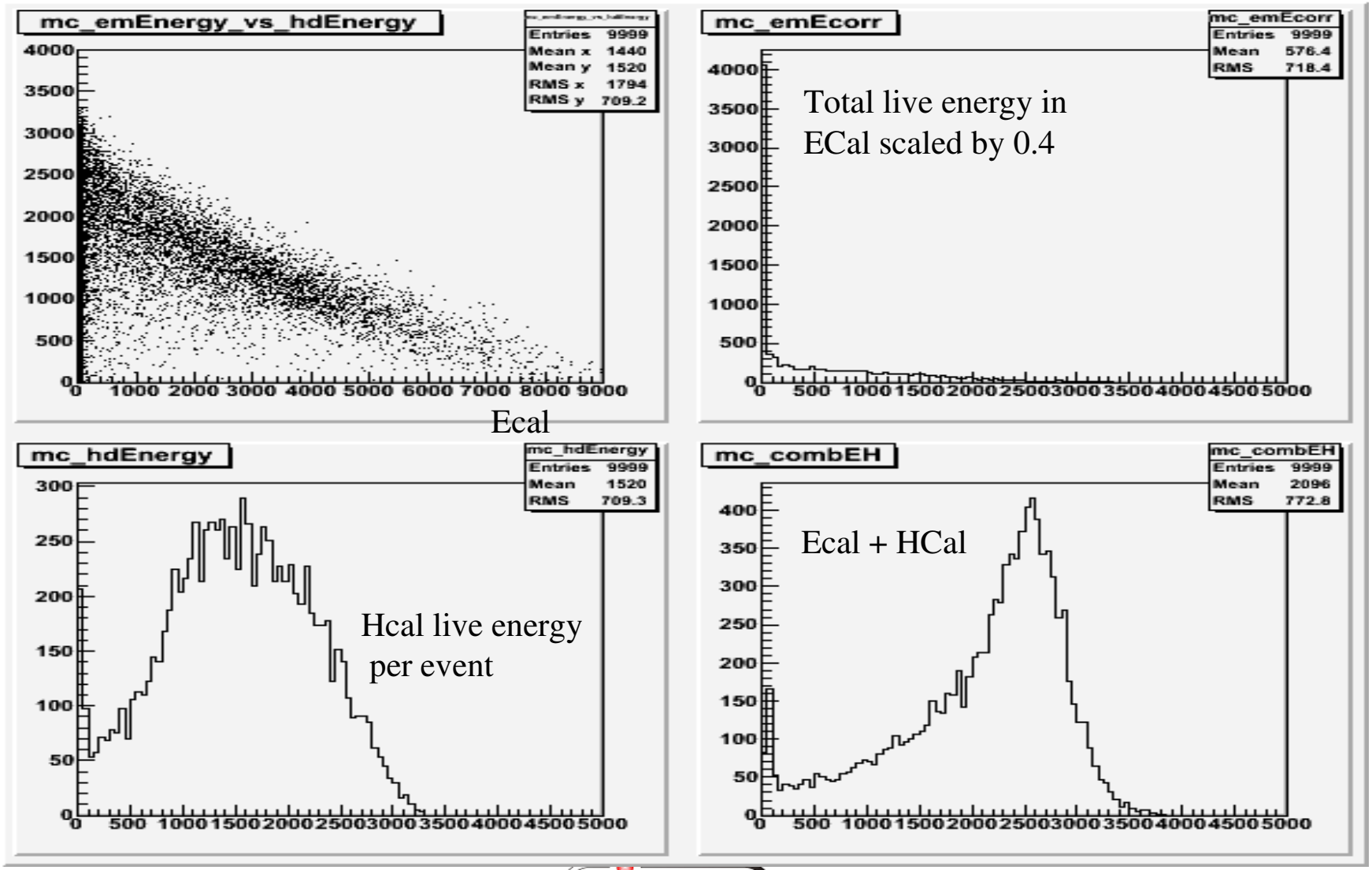
- Monte Carlo
  - Updated version of Mokka with Cern TB geometries
  - Generated 10GeV muons and 80GeV pions
  - Used DigiSim + muon samples for “calibrations”
- Data
  - Update on the analysis using more complete prototype
  - Comparing data vs. MC (proof of concept)
- **All plots shown here are still very preliminary, and cannot be interpreted as a rigorous MC-data comparison, rather as a test of the machinery, to identify important missing pieces**

Combining Ecal and Hcal – TB data

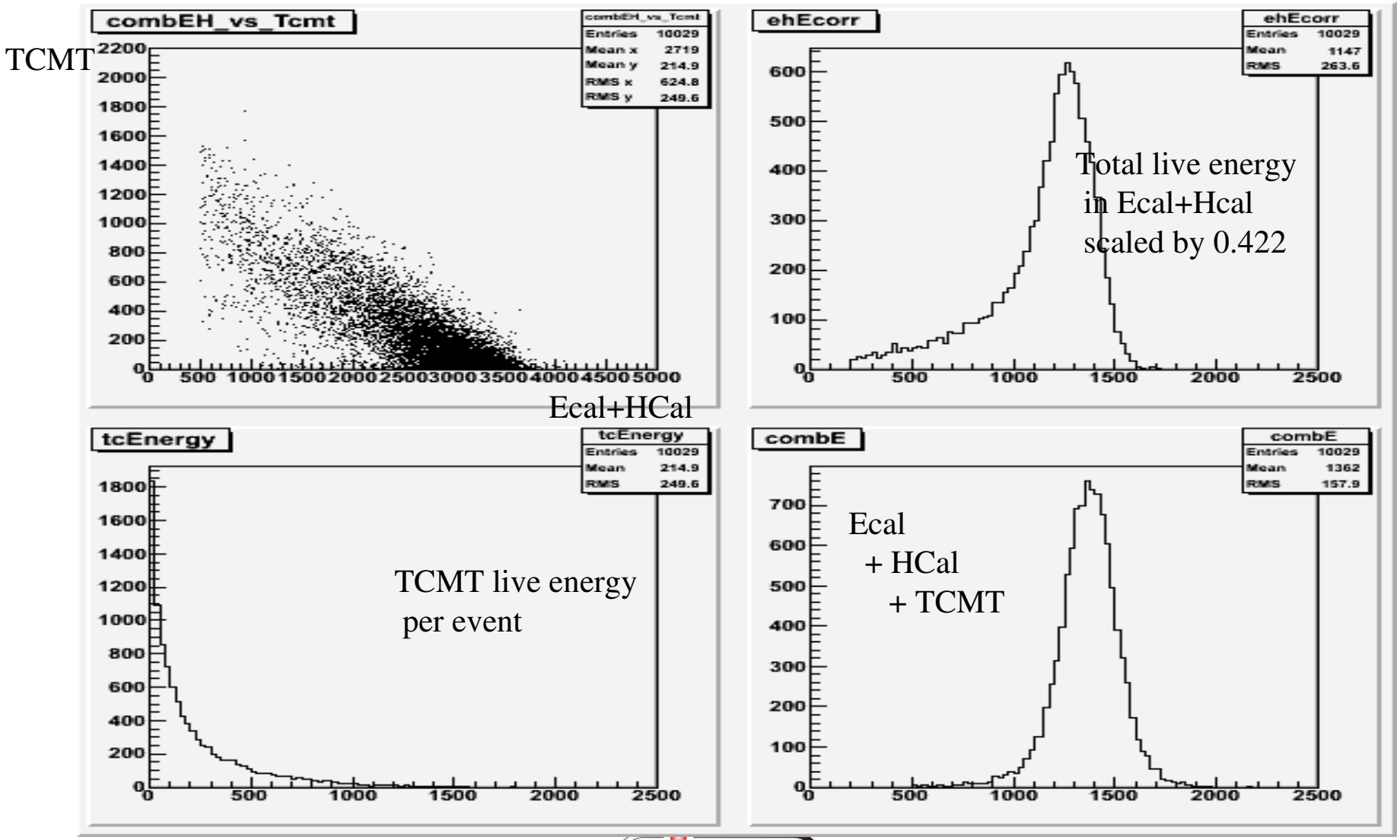


Combining Ecal and Hcal - MC

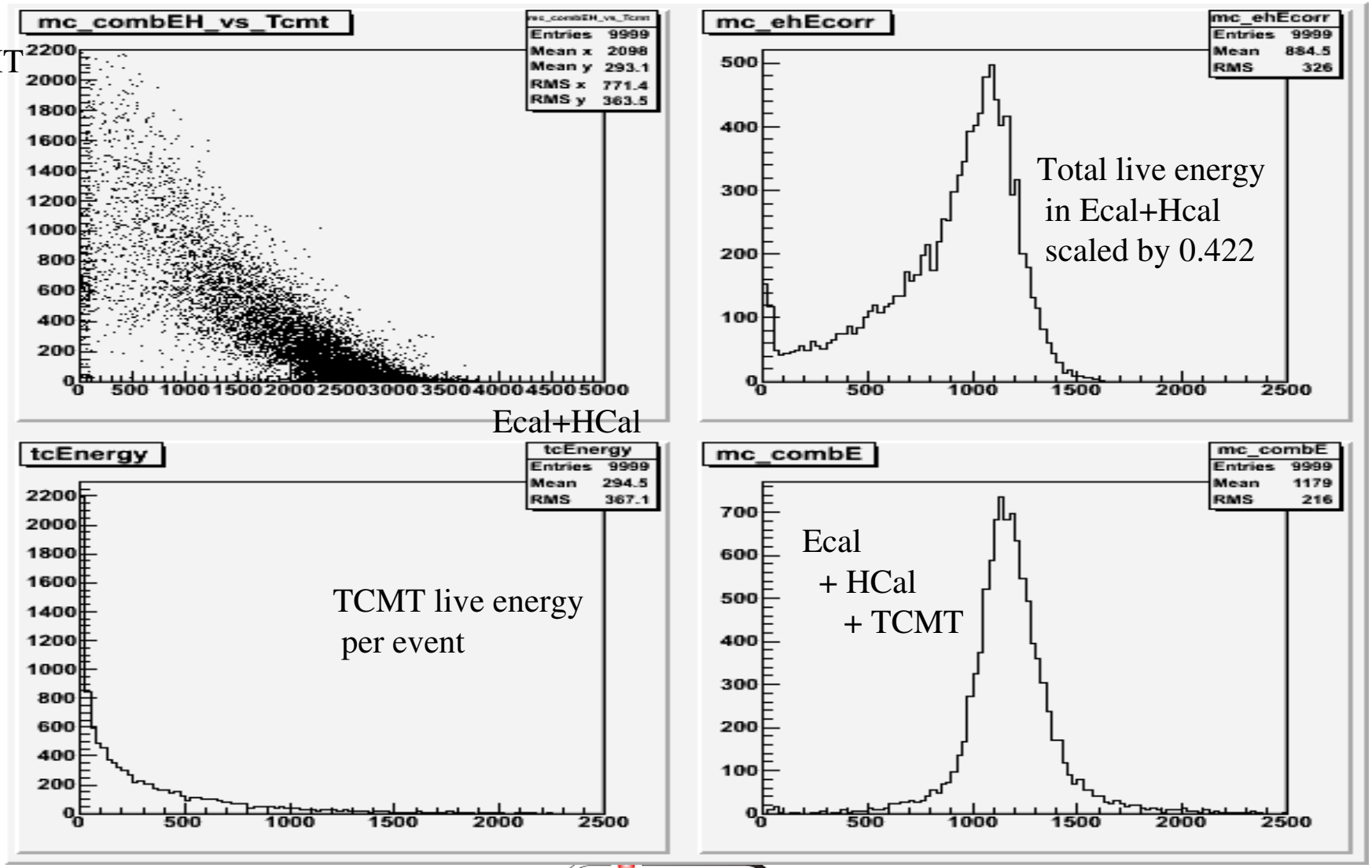
Hcal



Combining Ecal+Hcal and TCMT – TB data

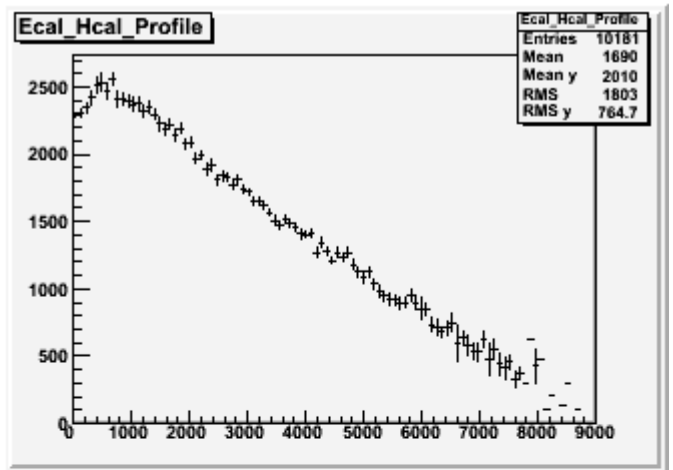


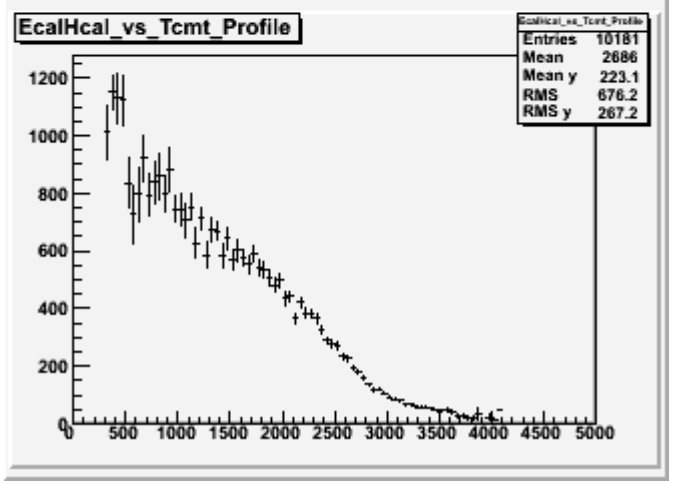
Combining Ecal+Hcal and TCMT - MC

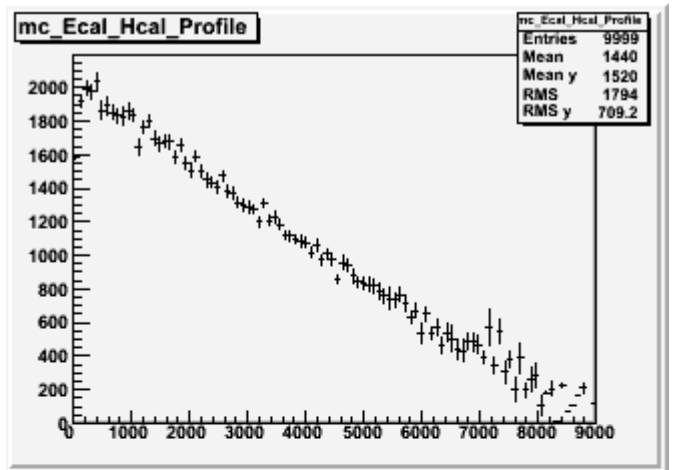


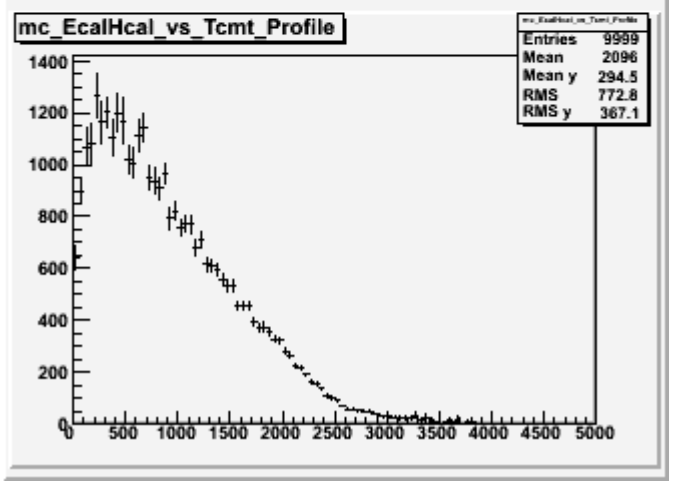
Ecal+Hcal vs. Tcmt profiles

TB data





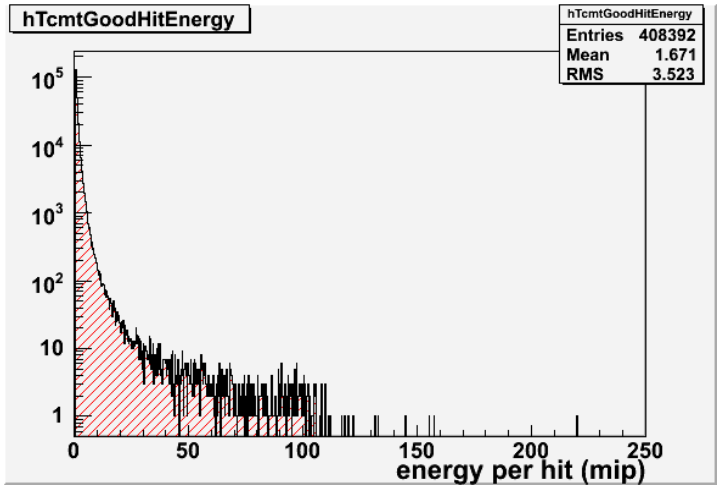




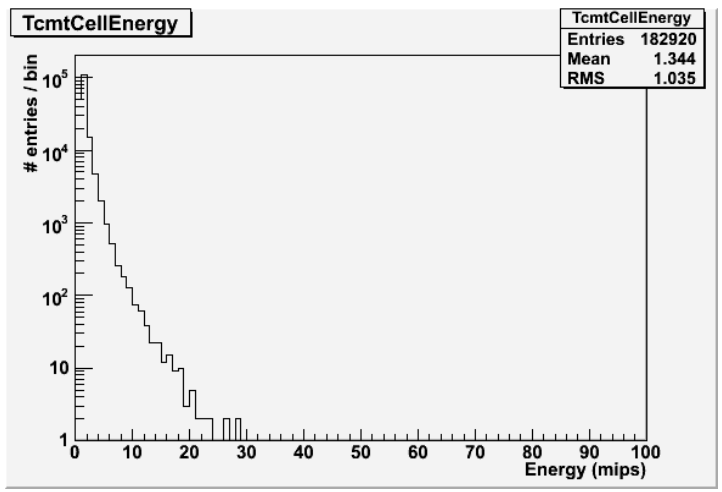
Monte Carlo

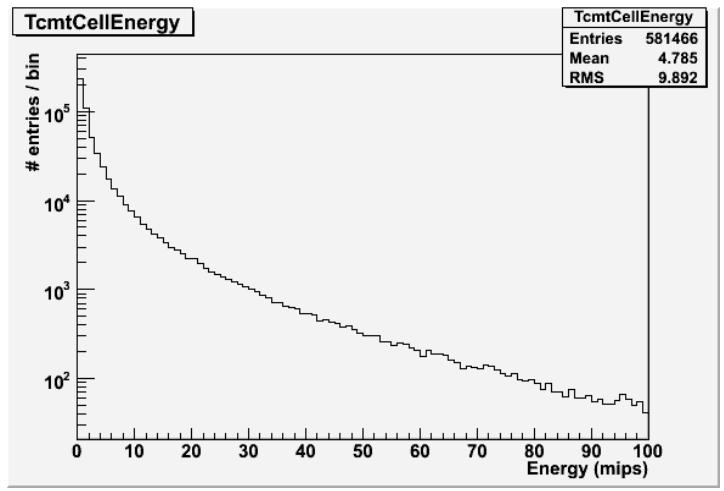
Comparing hit energies

muons (data)



10GeV muons (MC)

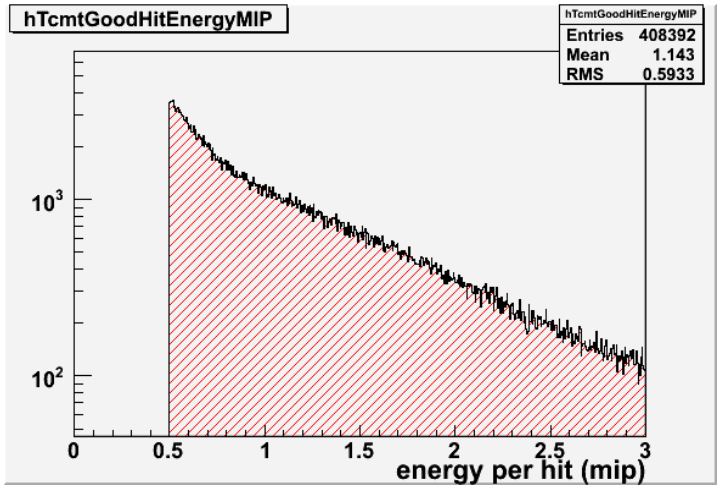




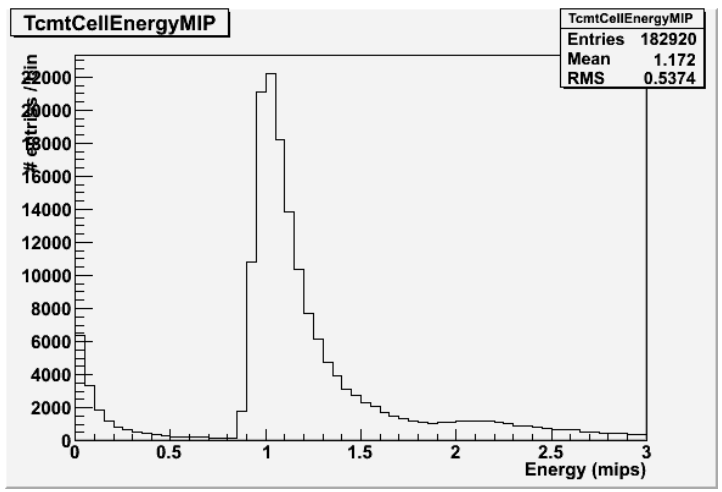
80 GeV pions (MC)

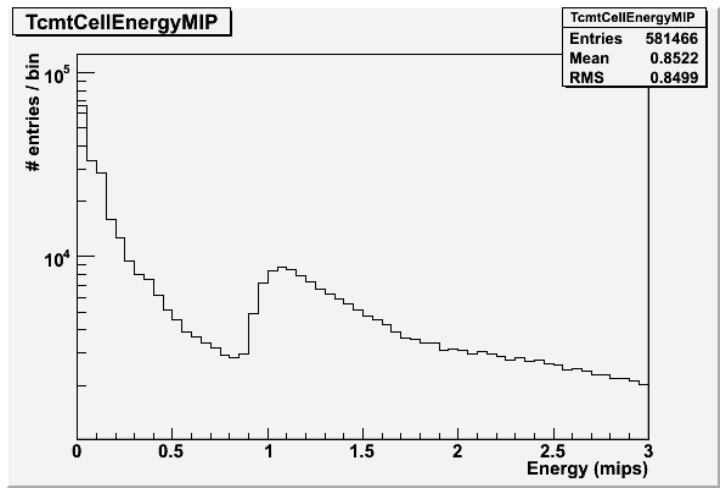
Comparing hit energies around MIP peak

muons (data)



10GeV muons (MC)

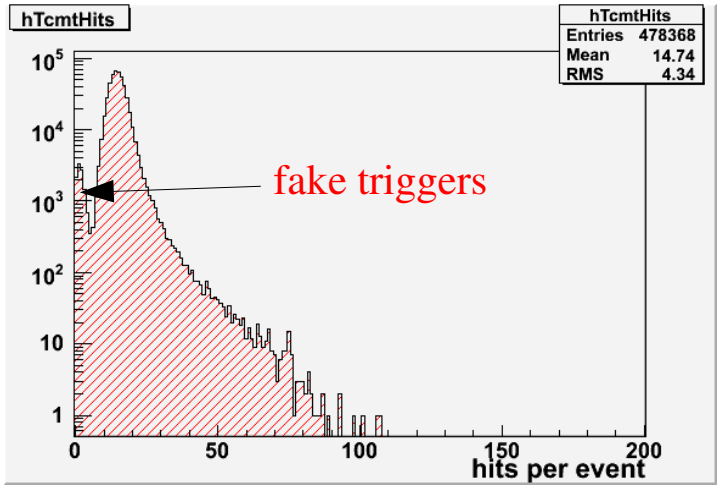


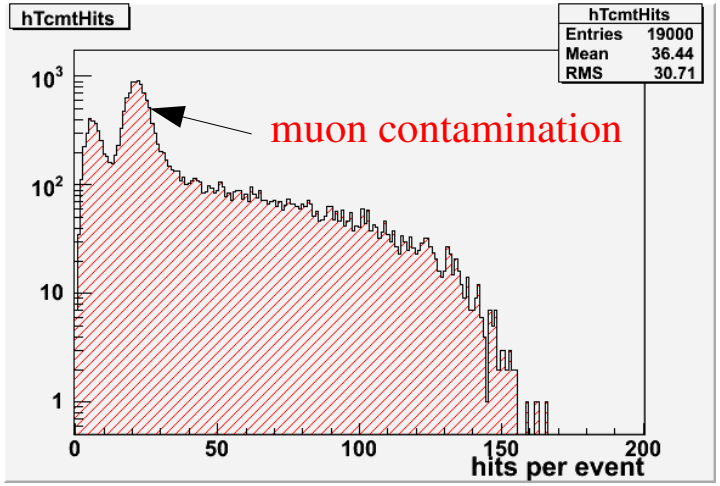


80 GeV pions (MC)

Comparing number of hits per event

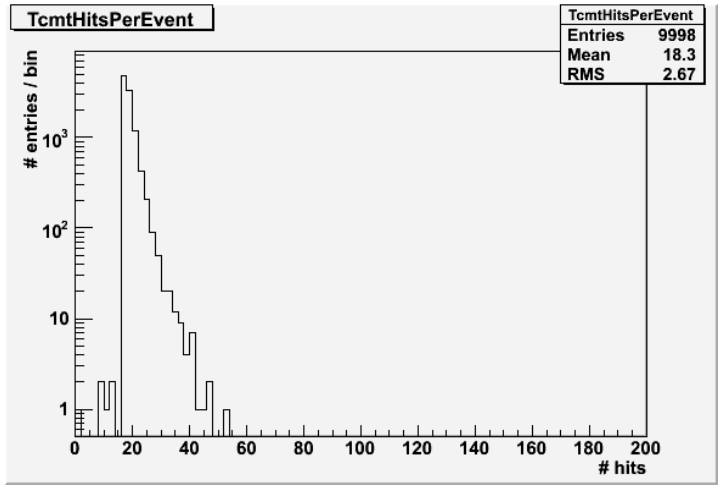
muons (data)

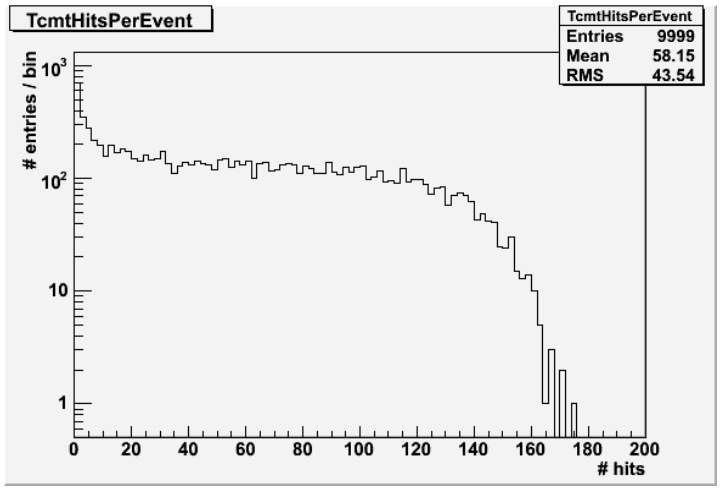




80GeV pions (data)

10GeV muons (MC)

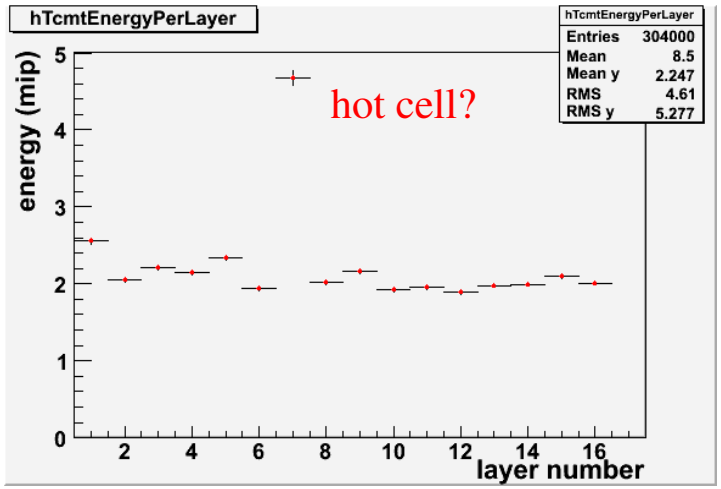


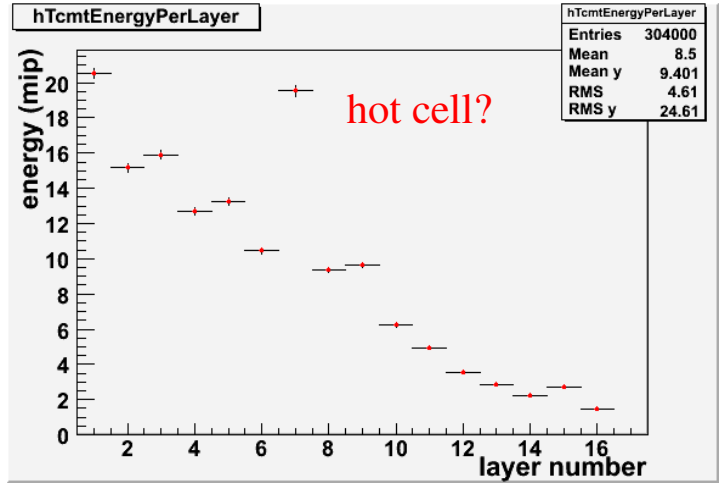


80 GeV pions (MC)

Comparing live energy per layer

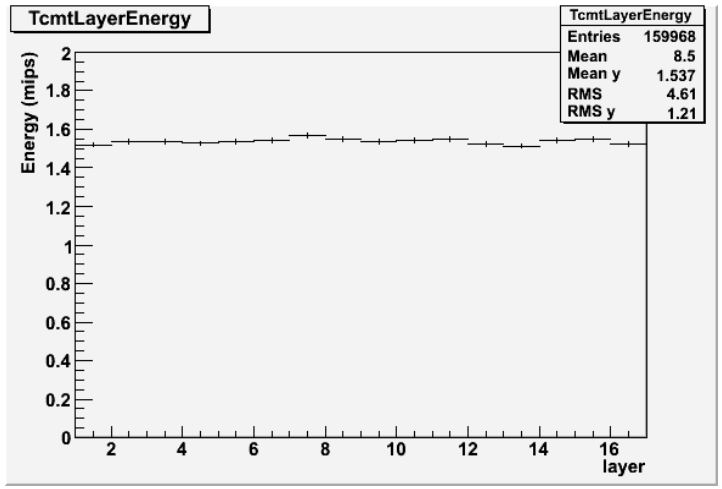
muons (data)

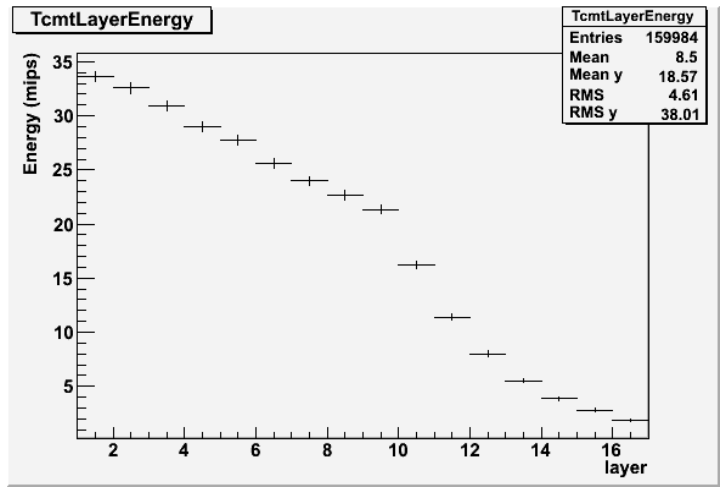




80GeV pions (data)

10GeV muons (MC)

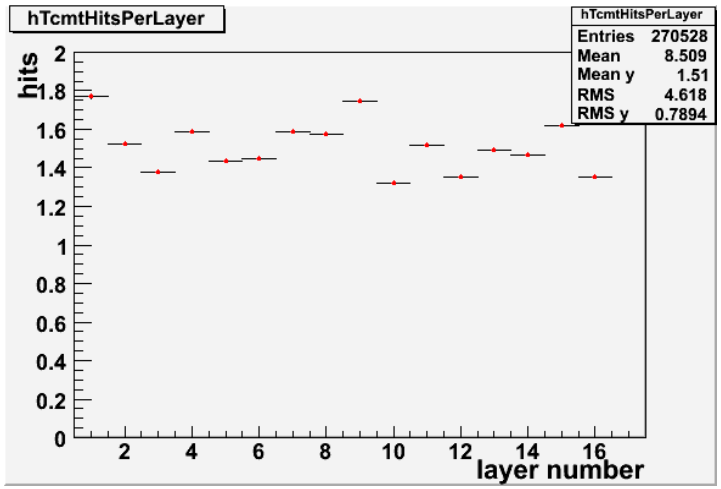


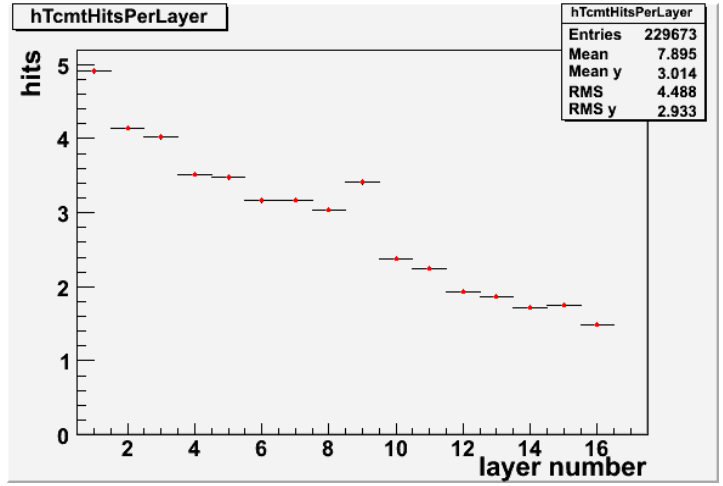


80 GeV pions (MC)

Comparing number of hits per layer

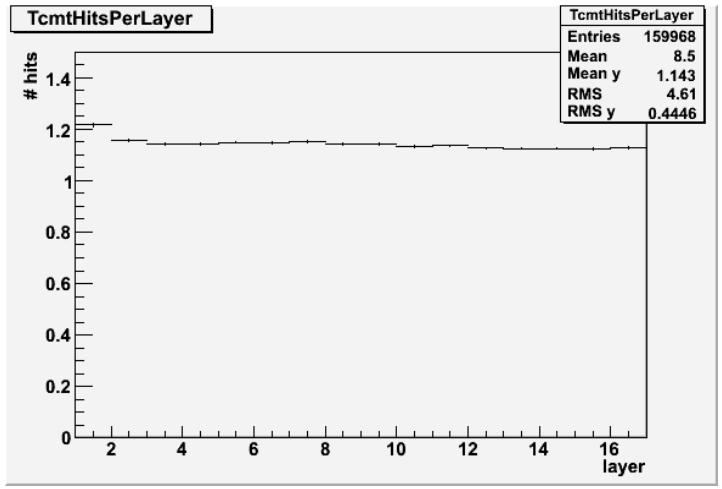
muons (data)

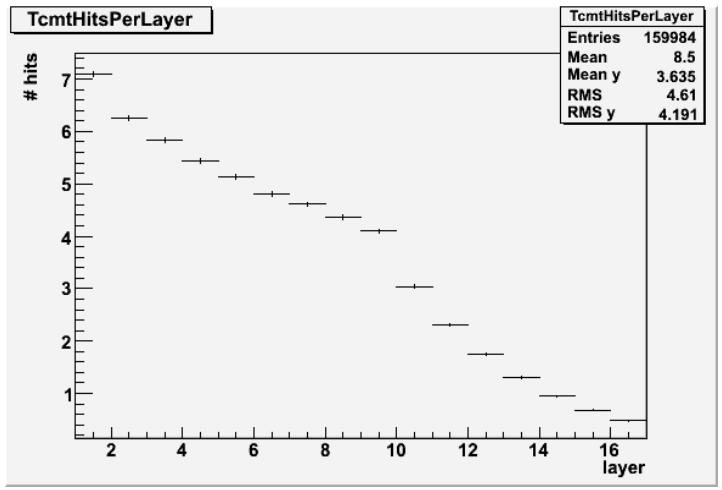




80GeV pions (data)

10GeV muons (MC)





80 GeV pions (MC)

Things to do next

- Agreement to Monte Carlo is far from perfect, but reasonable for a first attempt
- Clear presence of backgrounds (noisy cells, muons in pion runs)
- To do next:
  - Background rejection (noise, also muons in pion runs)
  - TCMT Alignment
  - Corrections for detector effects
  - Look at other pion energies