TCMT data analysis status report

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Calice software meeting

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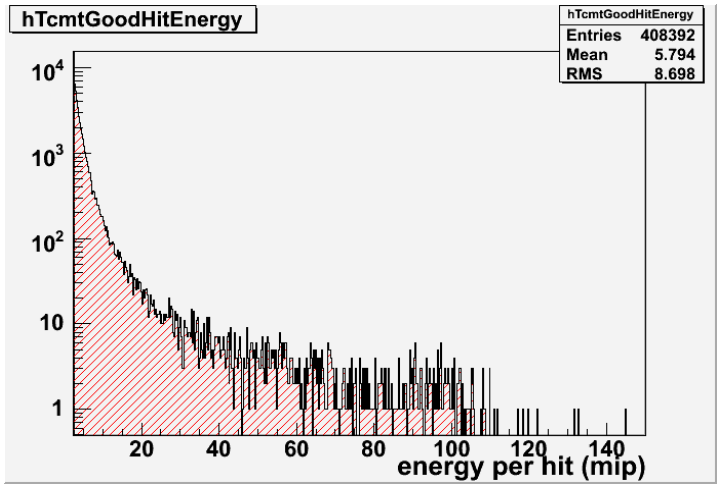
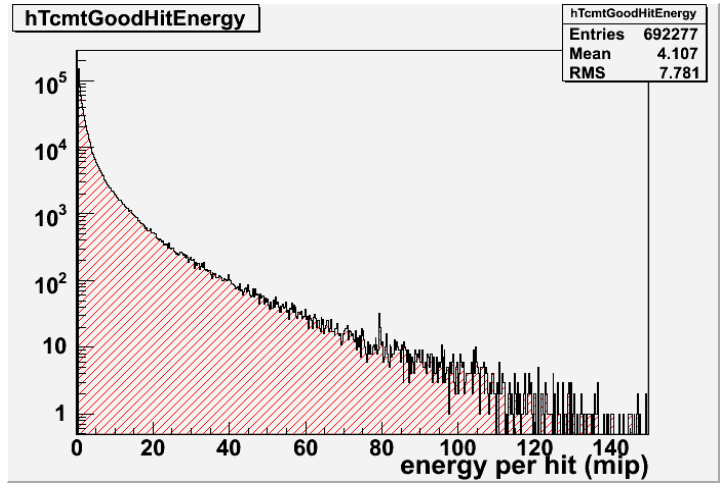
Current TCMT analysis status at NIU

- Monte Carlo
  - Generated 10GeV muons and 80GeV pions using latest version of Mokka with TBCern1006 geometry model
  - Used DigiSim + muon samples for “MIP calibrations”
- Data
  - Analysis of data from the complete TCMT (Oct/06)
  - Comparing data vs. MC (proof of concept)
- **All plots shown here are still very preliminary, and cannot be interpreted as a rigorous MC-data comparisons, rather as a test of the machinery, to identify important missing pieces**

Comparing hit energies

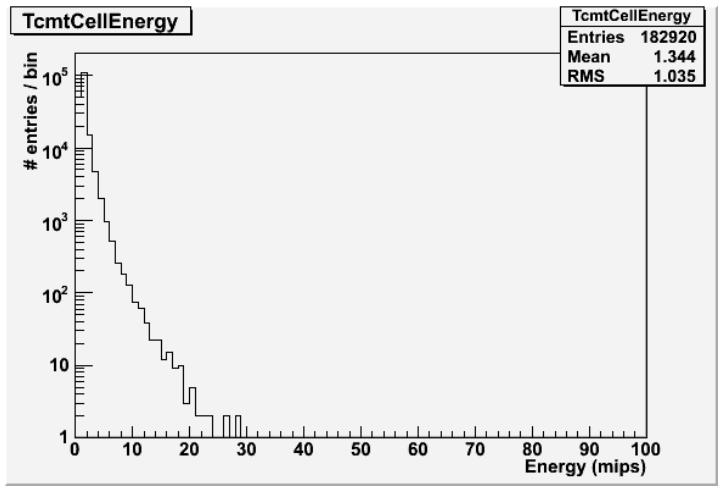
muons (data)

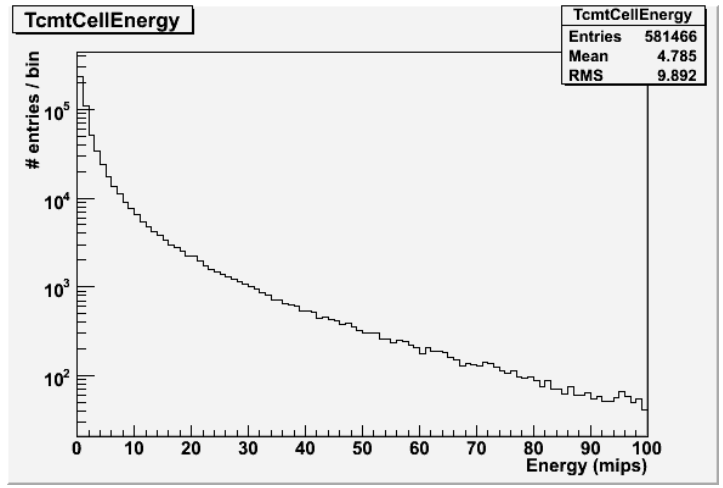




80 GeV pions (data)

10GeV muons (MC)

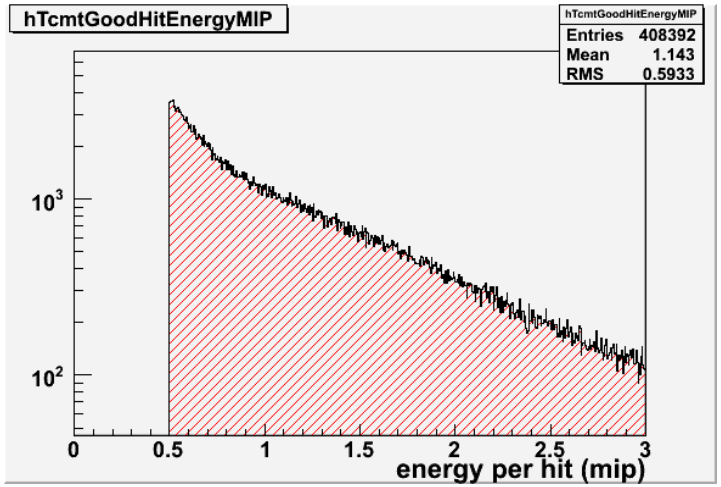


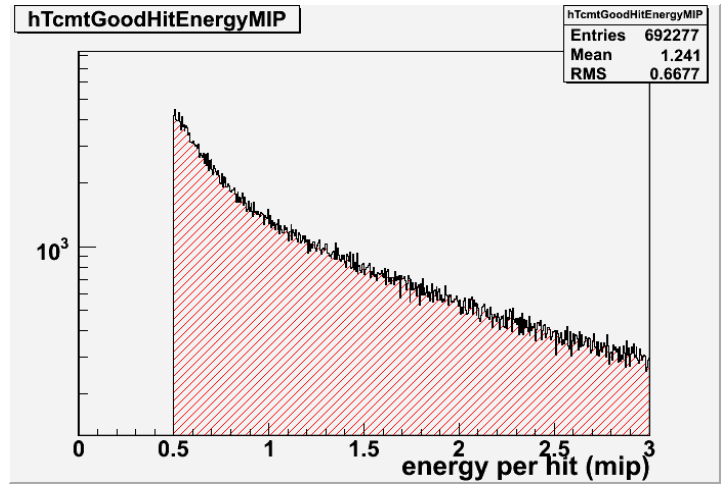


80 GeV pions (MC)

Comparing hit energies around MIP peak

muons (data)





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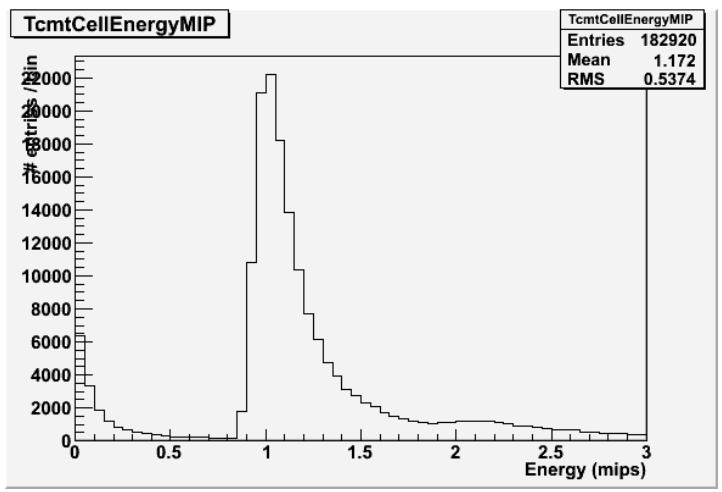
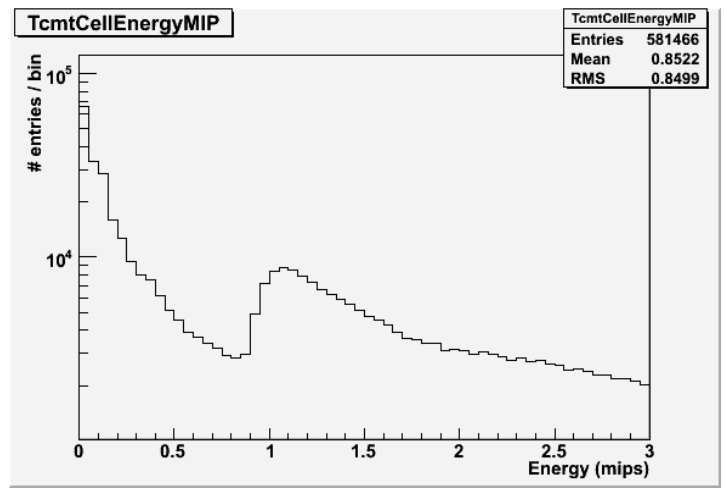
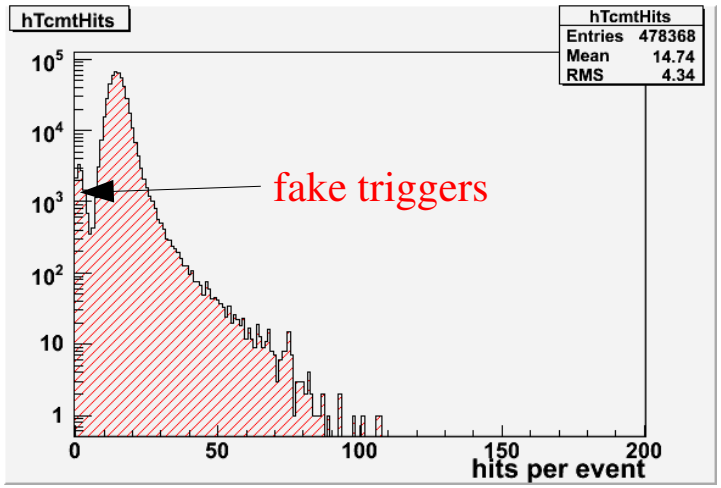


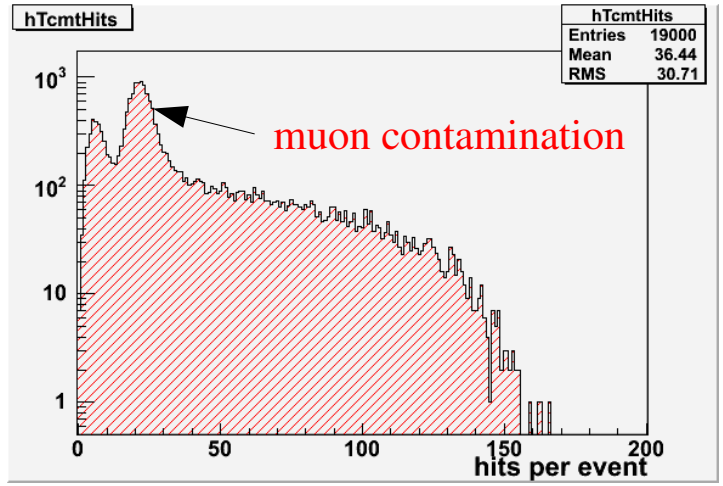


80 GeV pions (MC)

Comparing number of hits per event

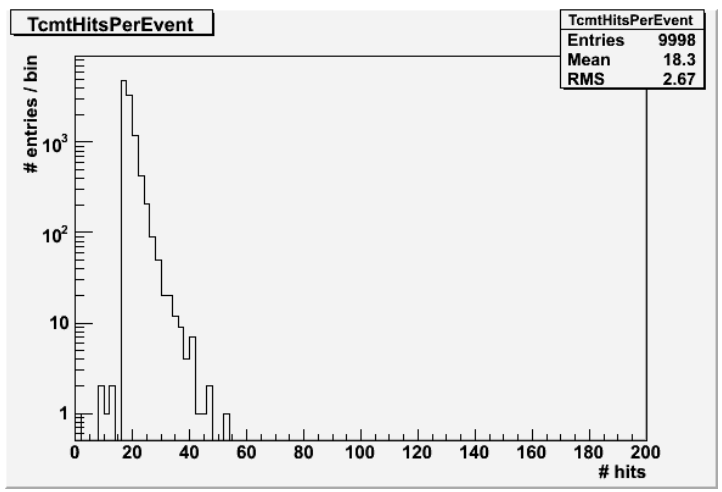
muons (data)

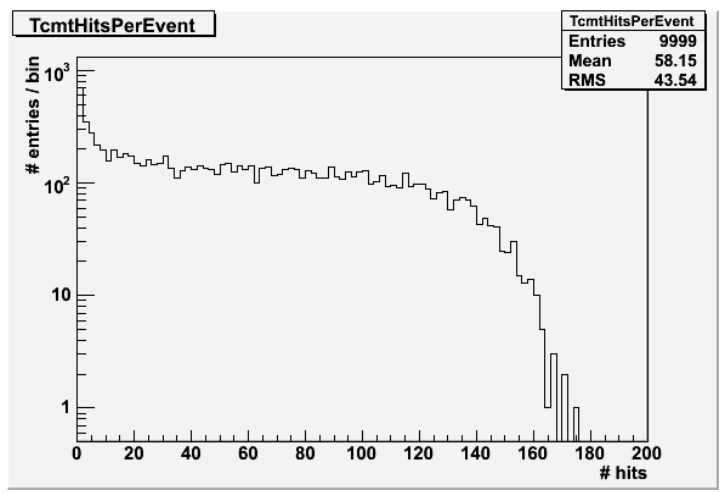




80GeV pions (data)

10GeV muons (MC)

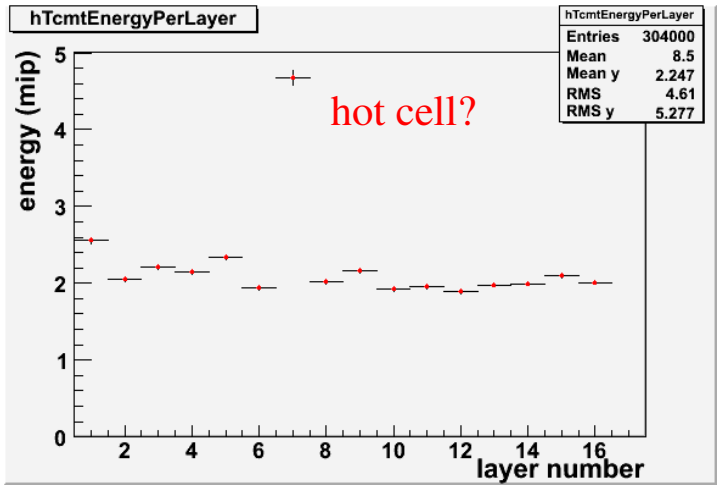


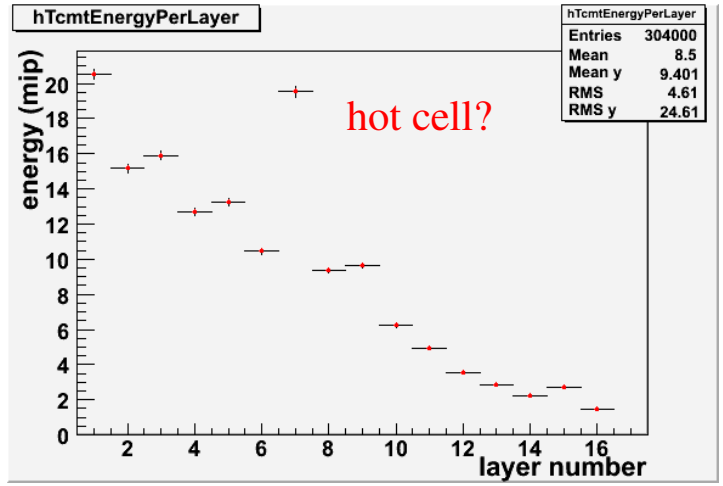


80 GeV pions (MC)

Comparing live energy per layer

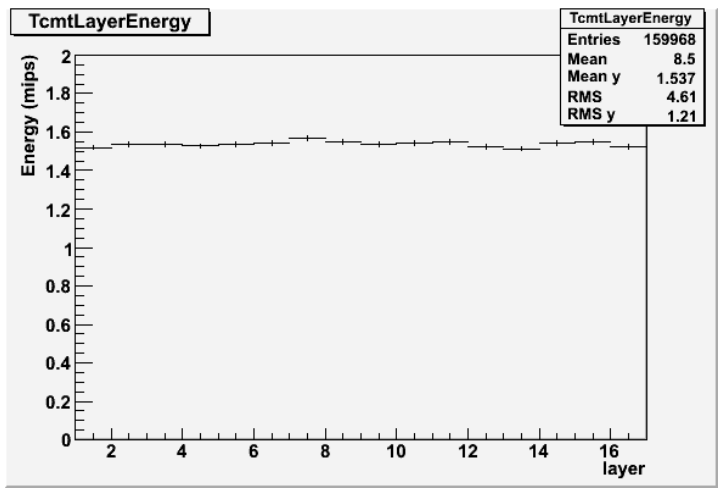
muons (data)

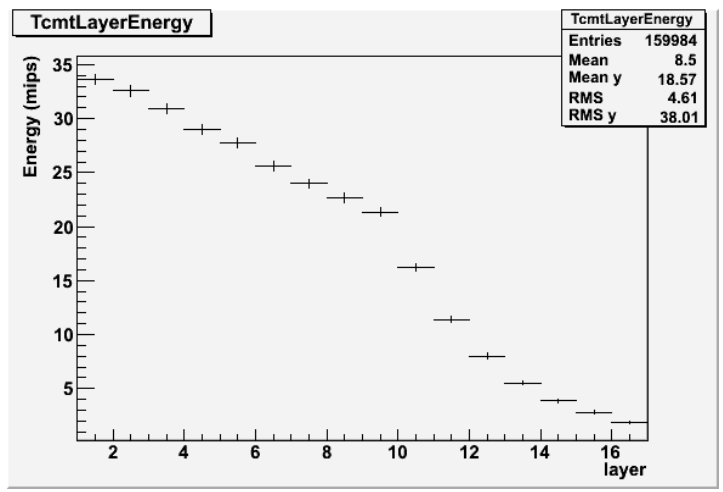




80GeV pions (data)

10GeV muons (MC)

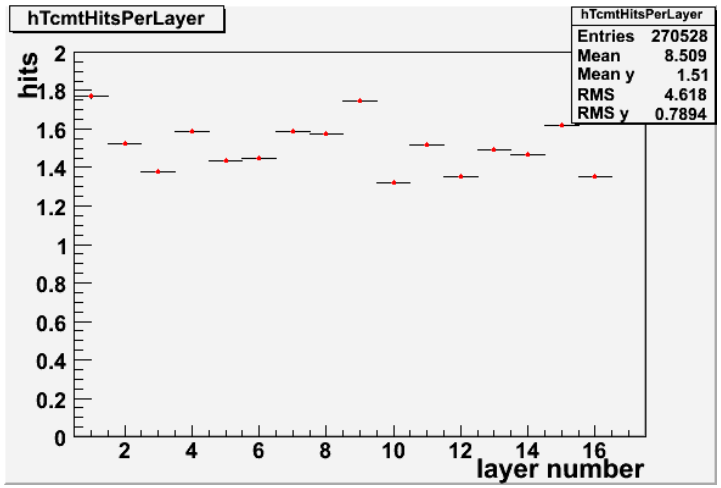


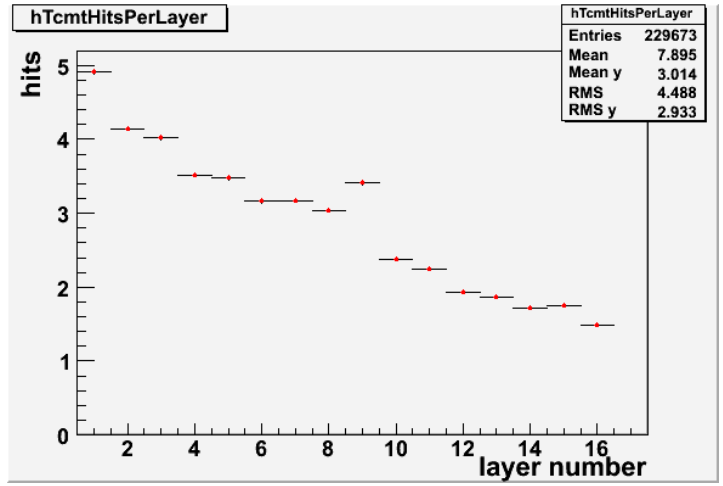


80 GeV pions (MC)

Comparing number of hits per layer

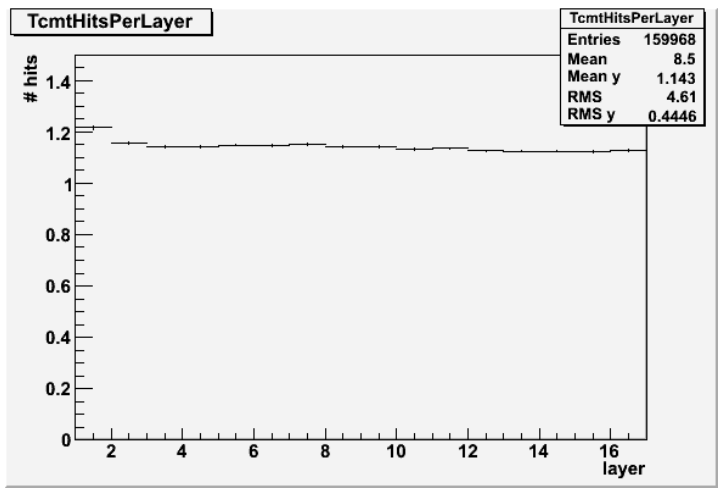
muons (data)

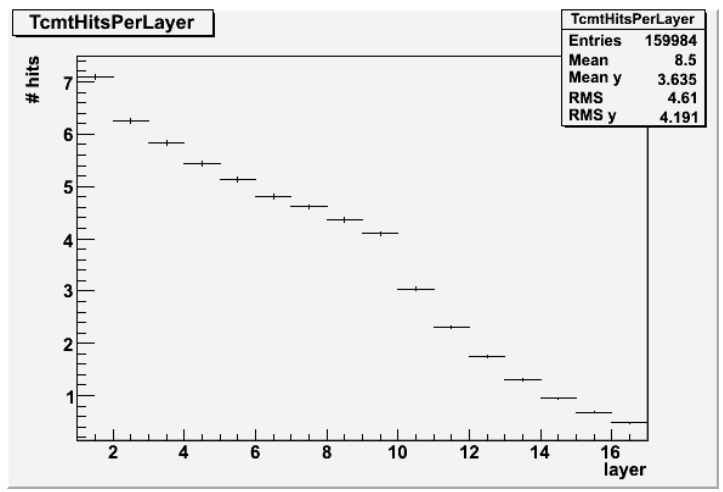




80GeV pions (data)

10GeV muons (MC)

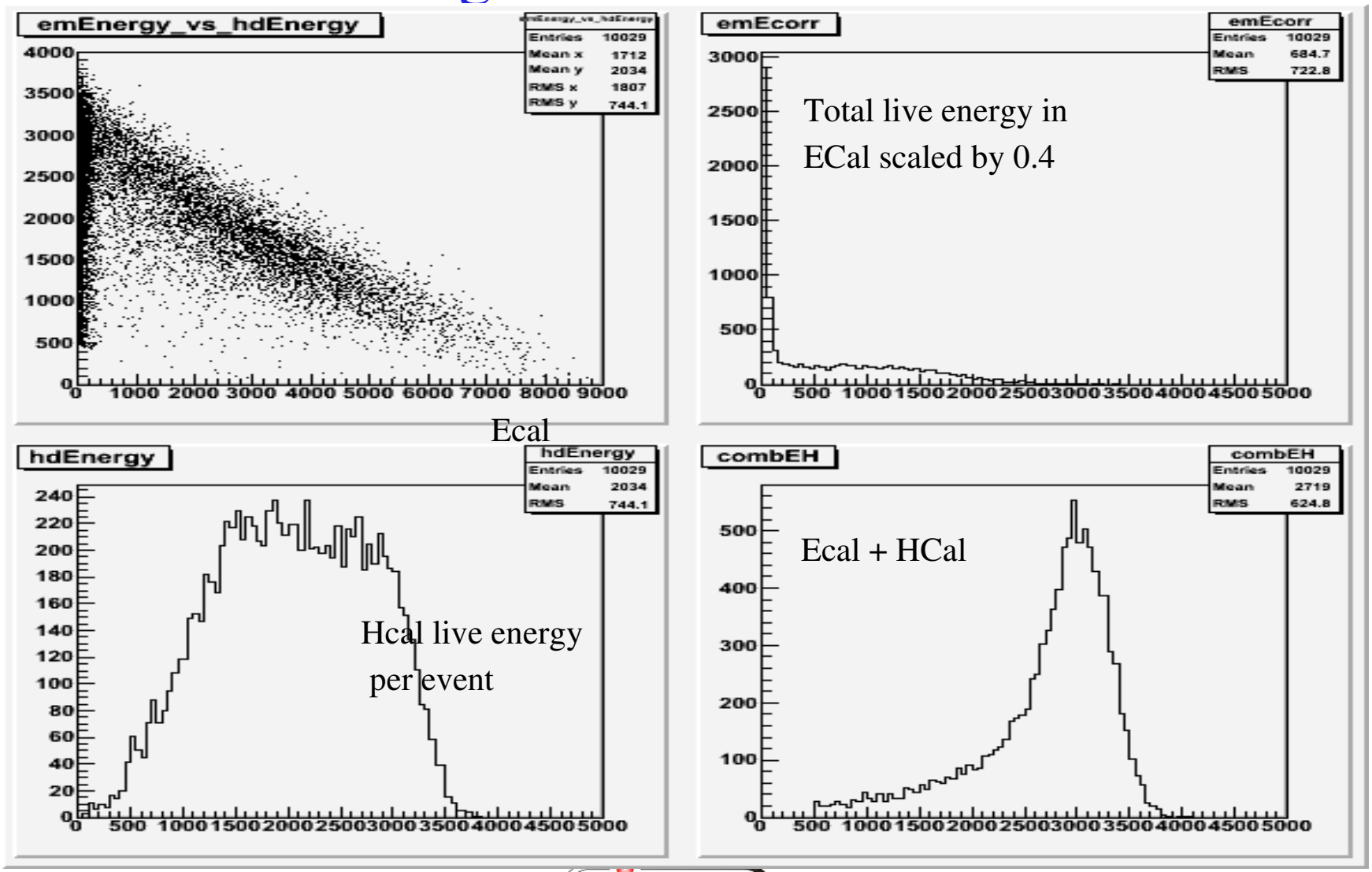




80 GeV pions (MC)

Combining Ecal and Hcal – TB data

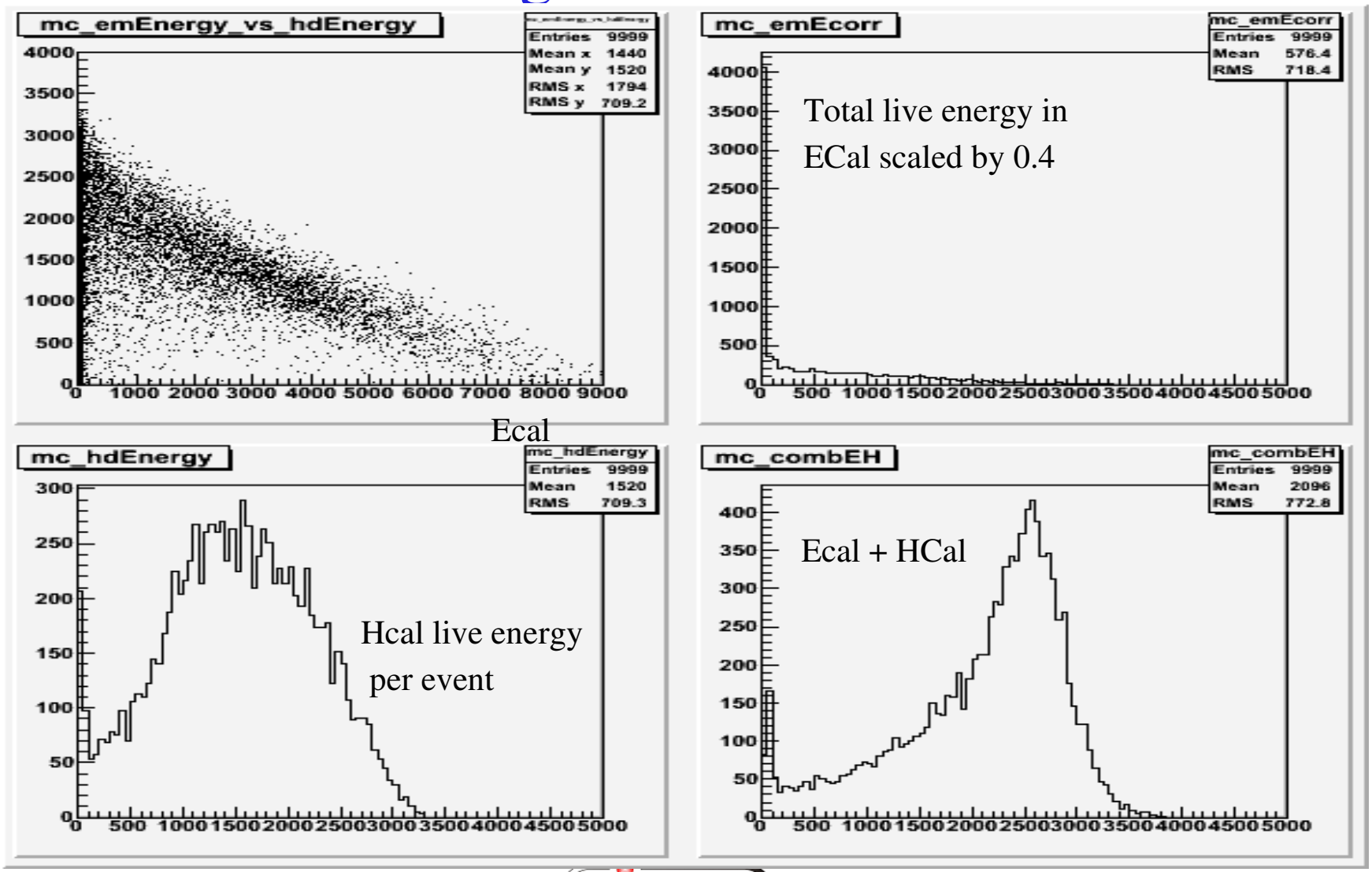
Hcal



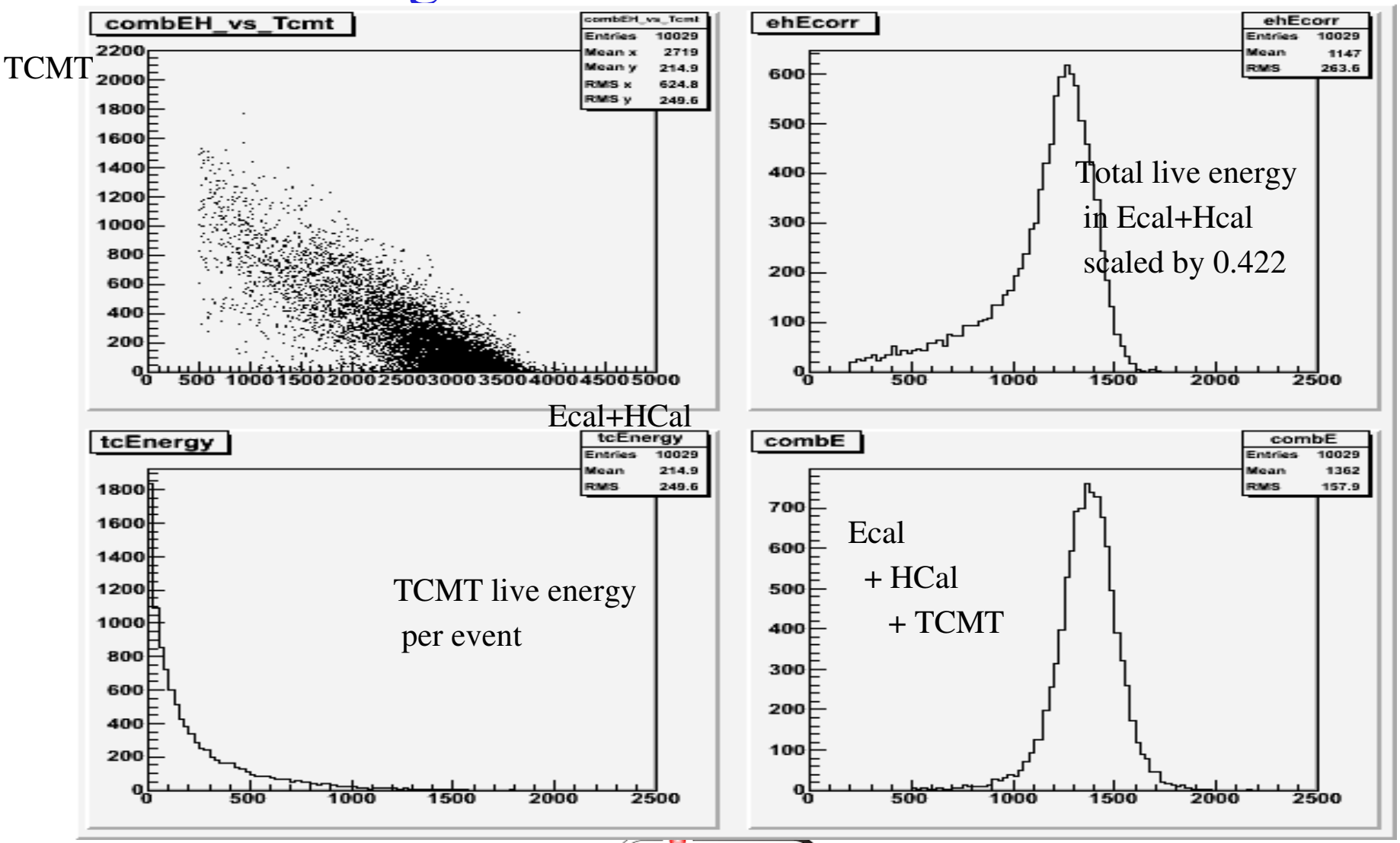
Ecal

Combining Ecal and Hcal - MC

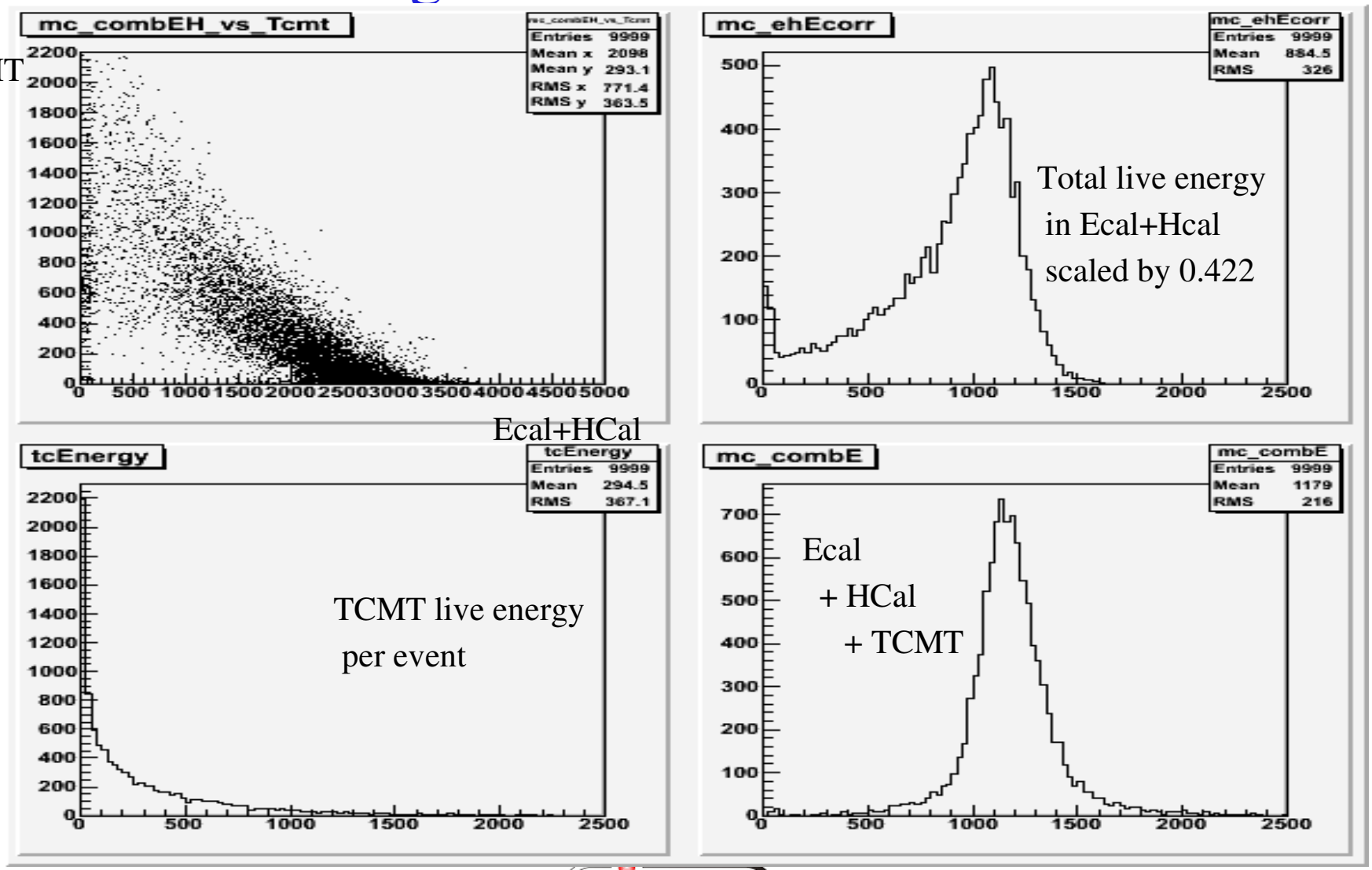
Hcal



Combining Ecal+Hcal and TCMT – TB data

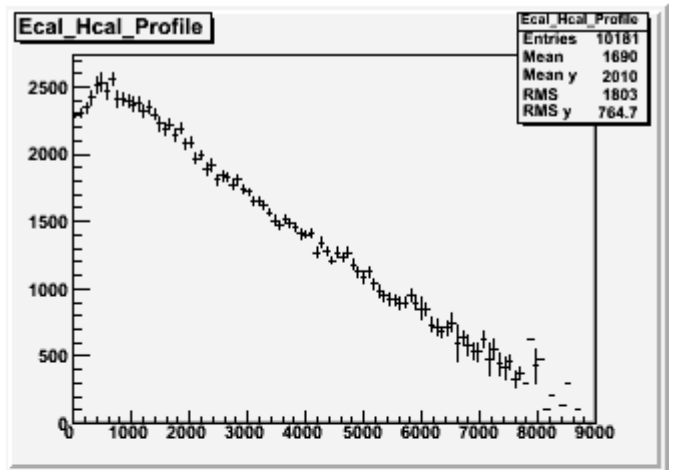


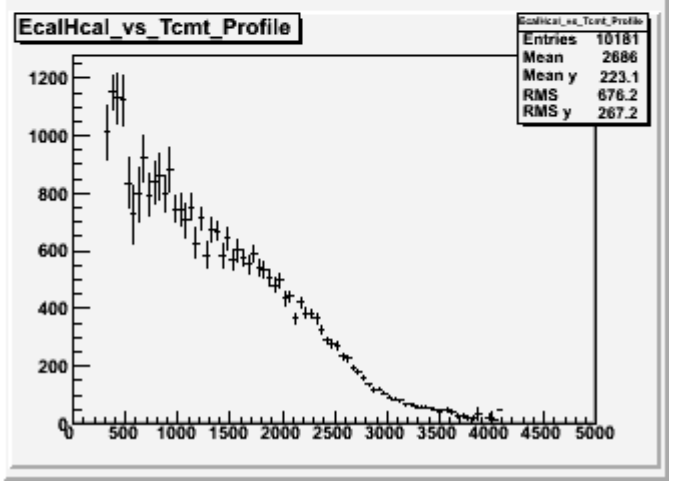
Combining Ecal+Hcal and TCMT - MC

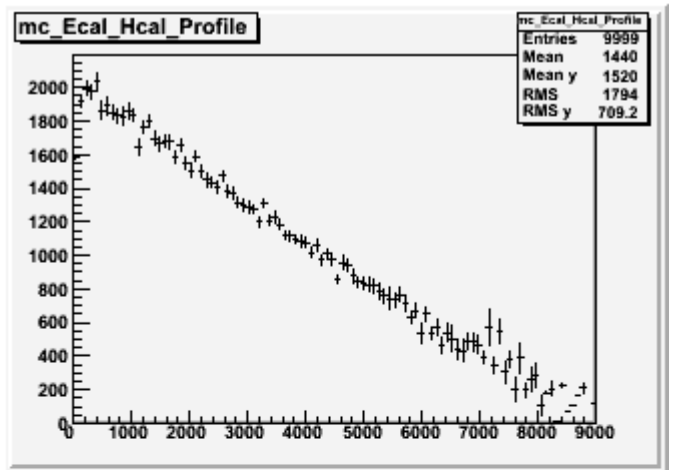


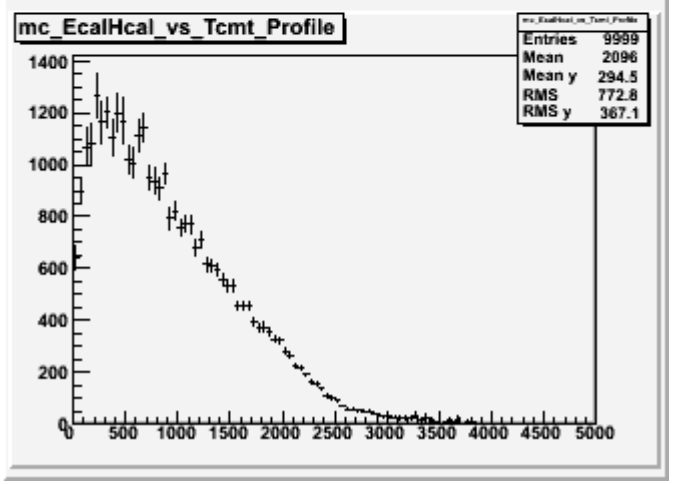
Ecal+Hcal vs. Tcmt profiles

TB data









TB Monte Carlo

Summary

- 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 SiPM saturation effects
  - Look at other pion energies
  - Longer term:
    - Development (and use) of official TCMT reconstruction & analysis software
    - Use of grid tools?