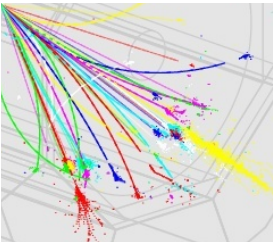
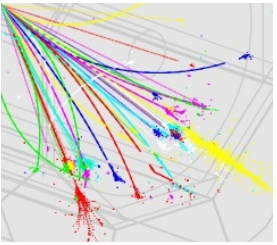


CALICE Meeting

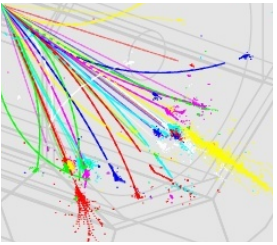
RAL 18.06.2007

M. Stanitzki



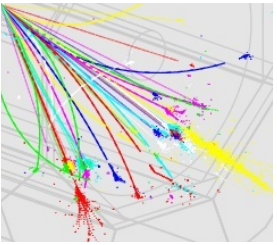
Bits and Pieces

- Working with Vanilla (cont'd)
- StepSize in Geant
- Linux-LabView interface
- First Look at π^0

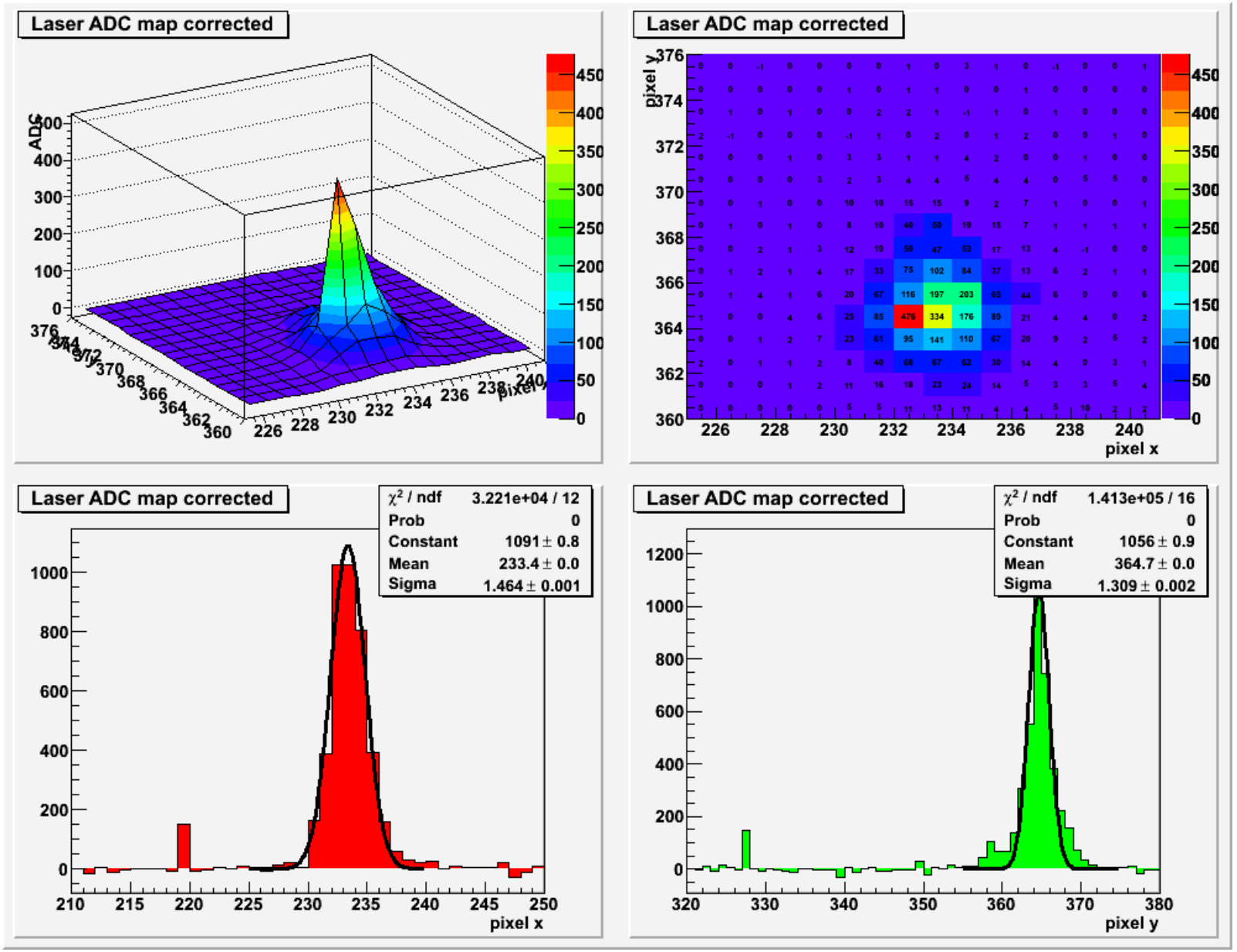


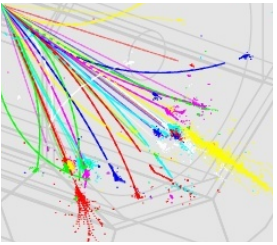
Vanilla and Laser

- Work by Giulio, Konstantin and Marcel
- Run Laser with a lot of filters
- synchronous firing
- Take special “pedestal run” to do pedestal subtraction

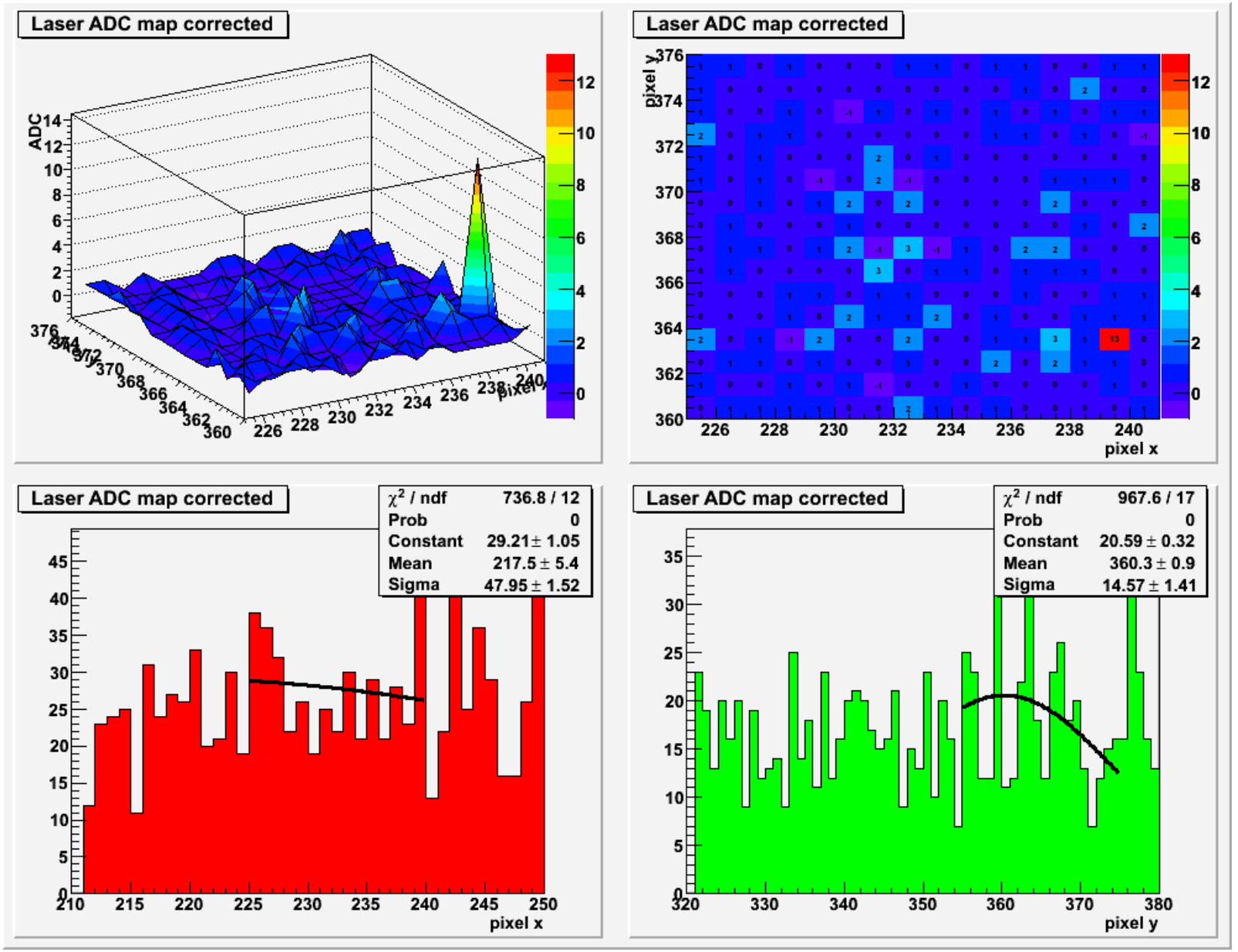


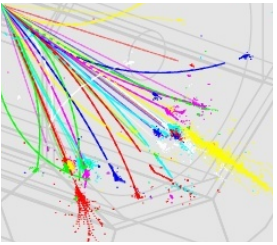
Vanilla Charge spread



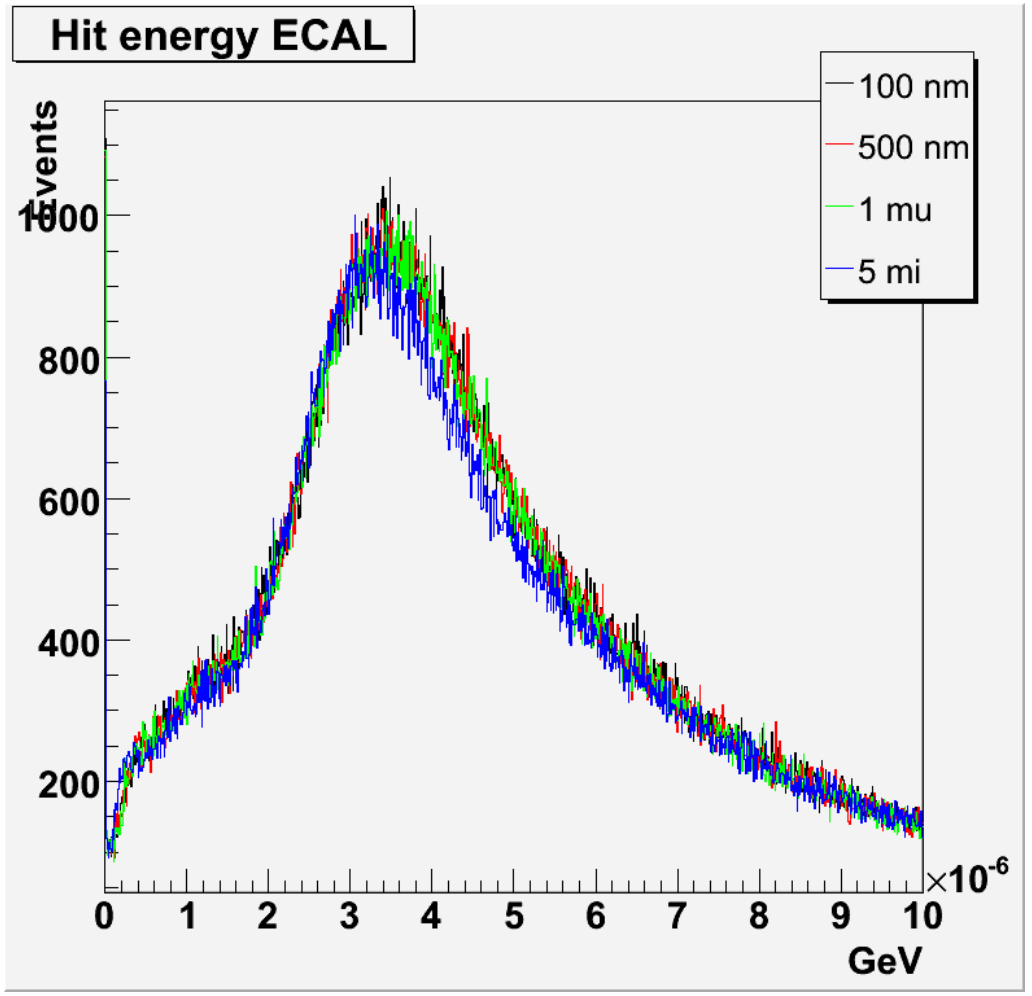


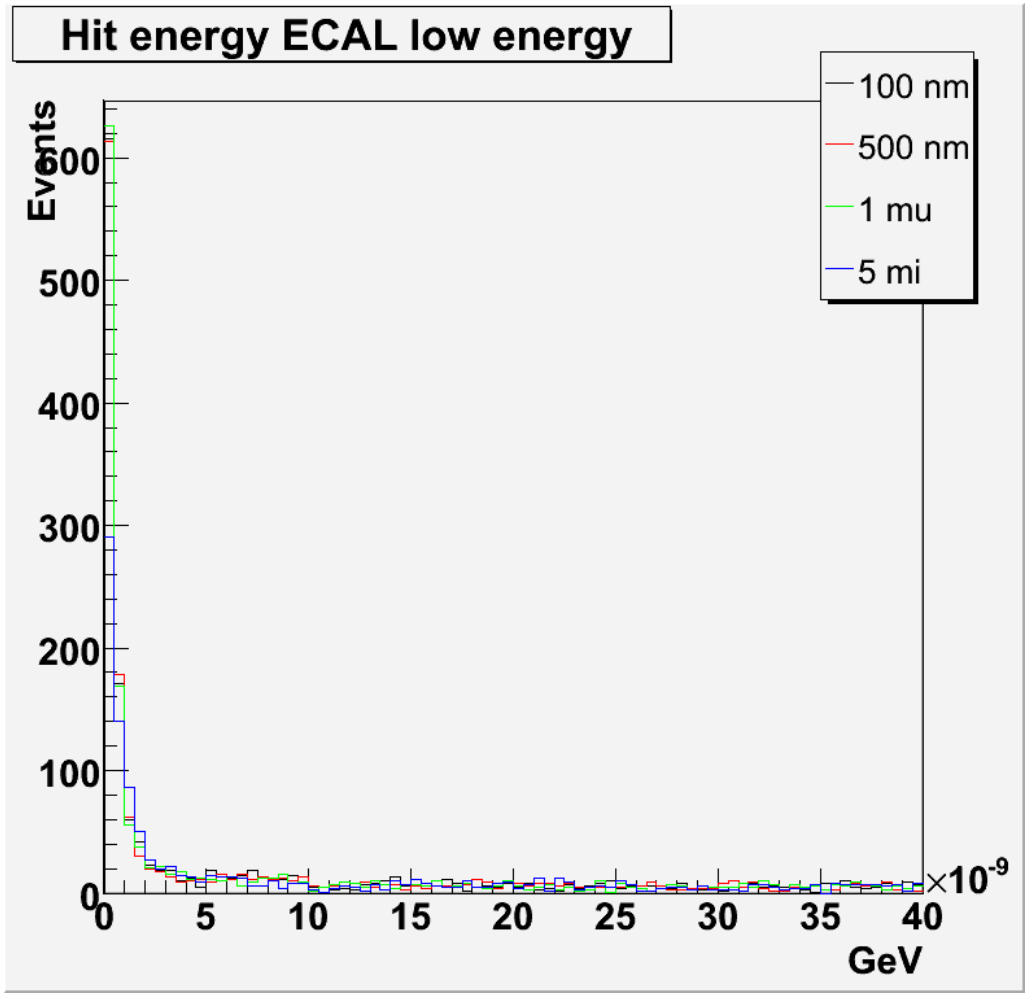
Noise only

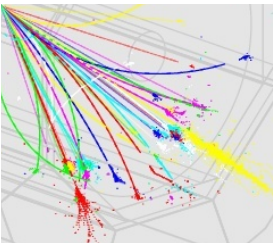

Laser ADC map corrected
ADC
pixel x
Laser ADC map corrected
pixel y
pixel x
Laser ADC map corrected
χ² / ndf 736.8 / 12
Prob 0
Constant 29.21 ± 1.05
Mean 217.5 ± 5.4
Sigma 47.95 ± 1.52
pixel x
Laser ADC map corrected
χ² / ndf 967.6 / 17
Prob 0
Constant 20.59 ± 0.32
Mean 360.3 ± 0.9
Sigma 14.57 ± 1.41
pixel y



Stepsize in Geant

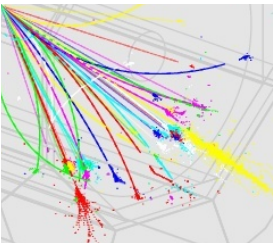






Linux<->LabView

- Needed for DAQ <-> Laser Communication
- Use of Sockets for Linux
- Use of TCP library for LabView (Makes things a lot easier...)

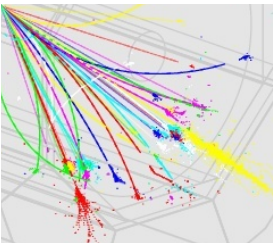


Linux Socket Driver

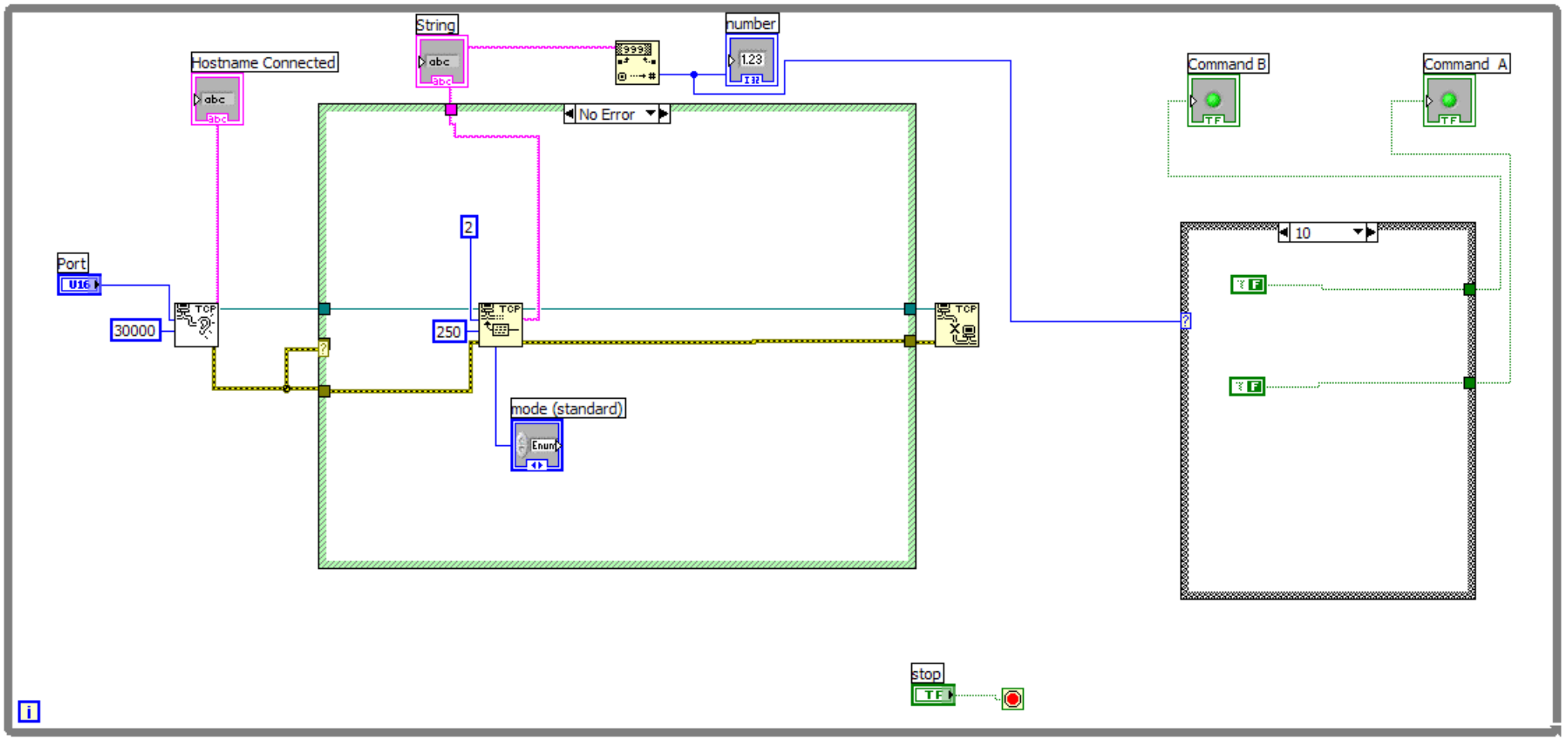
Wrapped in a C++ class

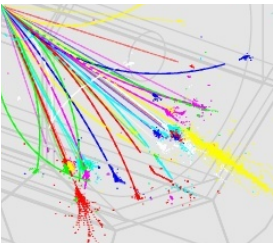
```
LaserSocket * mySocket=new LaserSocket;

mySocket->OpenSocket();

mySocket->SetDestinationHost("192.168.0.102");

mySocket->Connect(portnumber)==0)

mySocket->SendMessage(“11”);

mySocket->CloseSocket();
```

Works reliably and can be easily used without deep knowledge about sockets



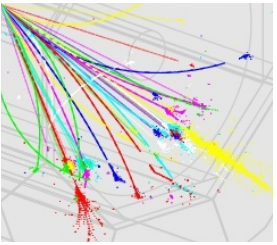
LabView Side





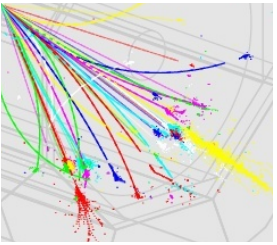
Look at π^0

- Strong interest at LCWS for π^0 reconstruction
  - τ physics
  - em shower reconstruction
    - find π^0 candidates
    - apply kinematic fit
    - use corrected energies in event reconstruction

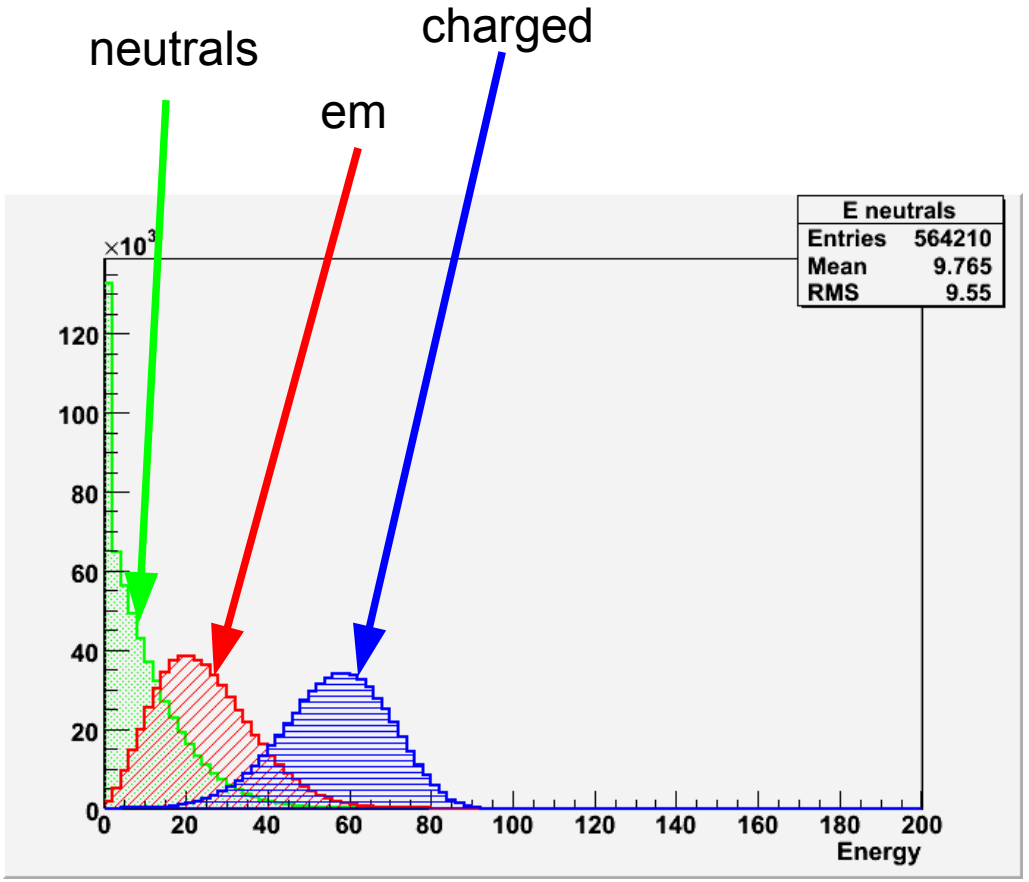


How many ?

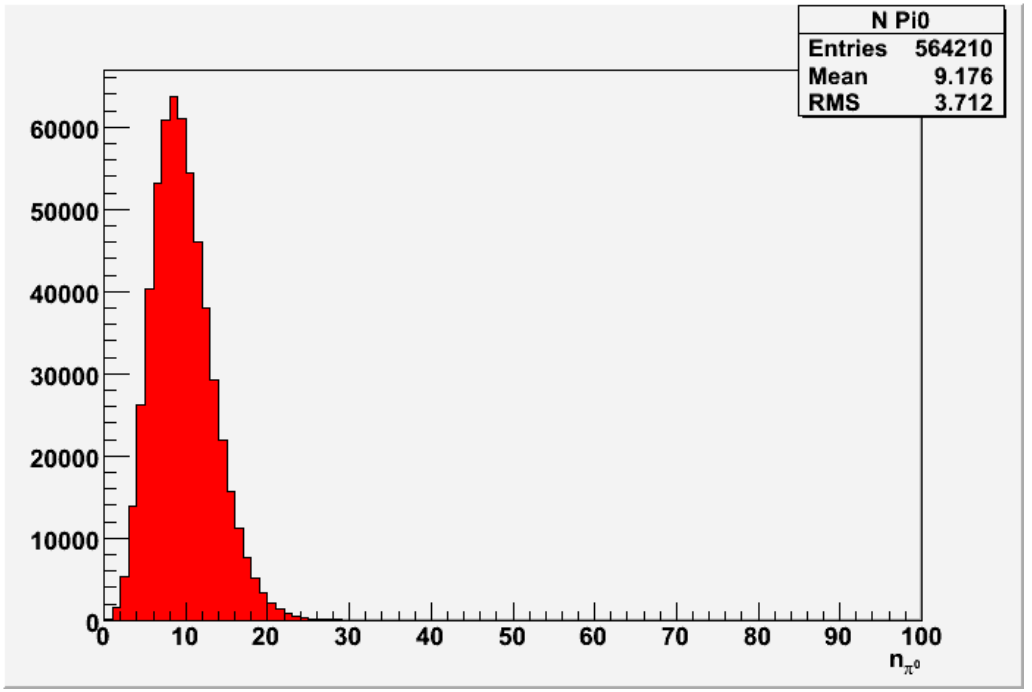
- Generate Z-> uds (~ 100 GeV per Jet)
- Using Pythia 6.4
- Use MAPS only...
  - Digitize has issues with Pandora (unclear why)
- Loop over Event record



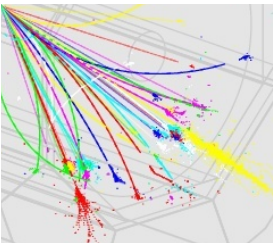
Some plots



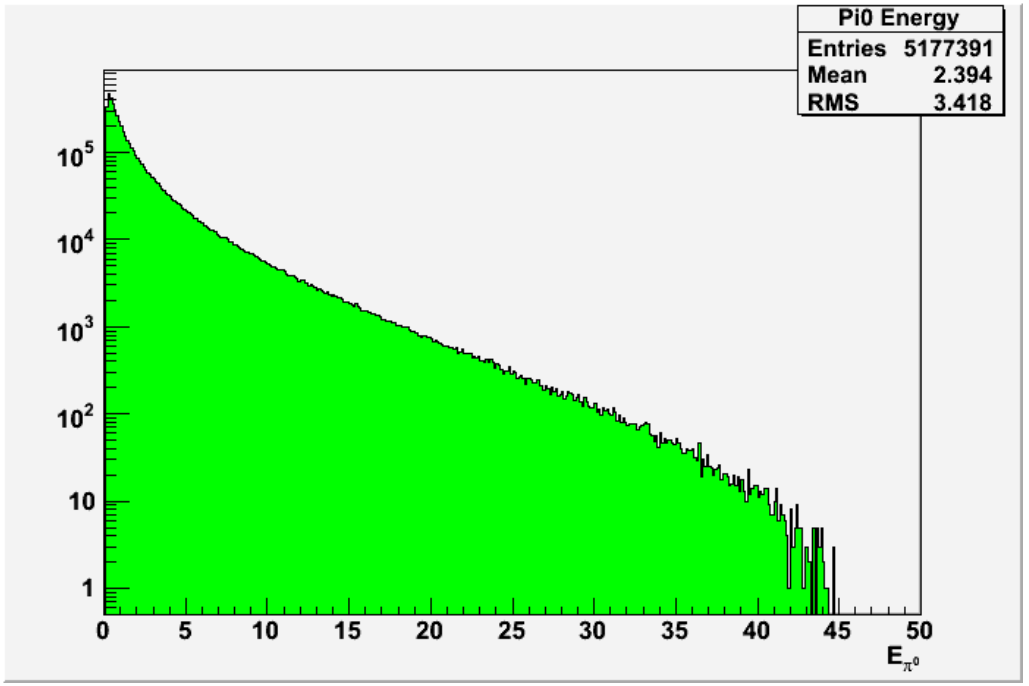
Jet energy composition



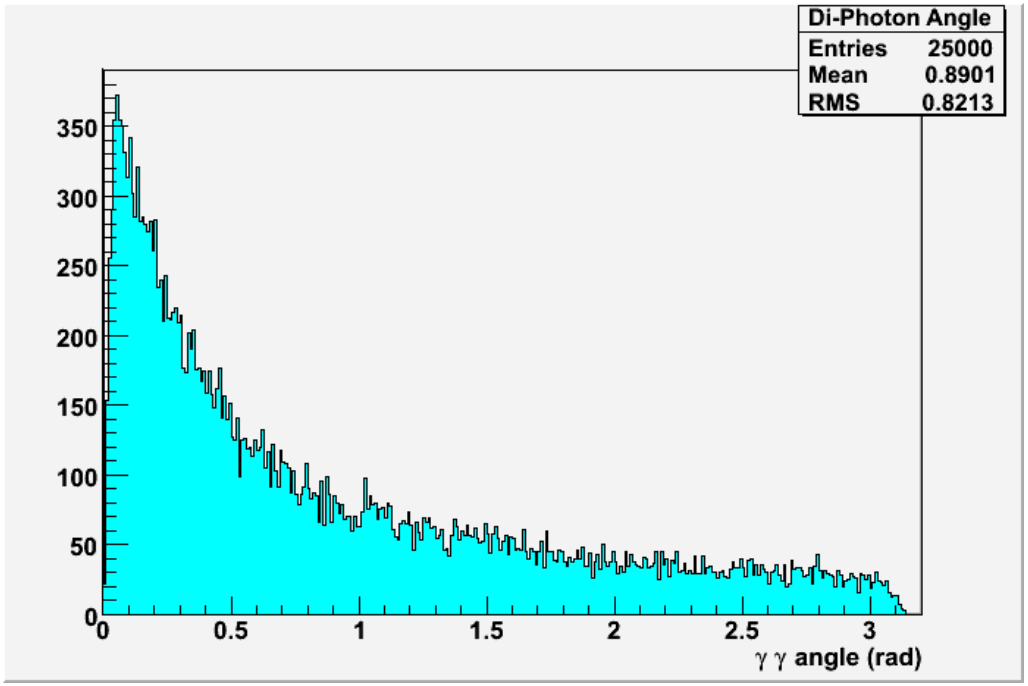
Number of π^0



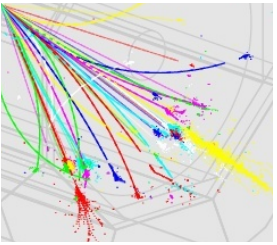
Photon spectra



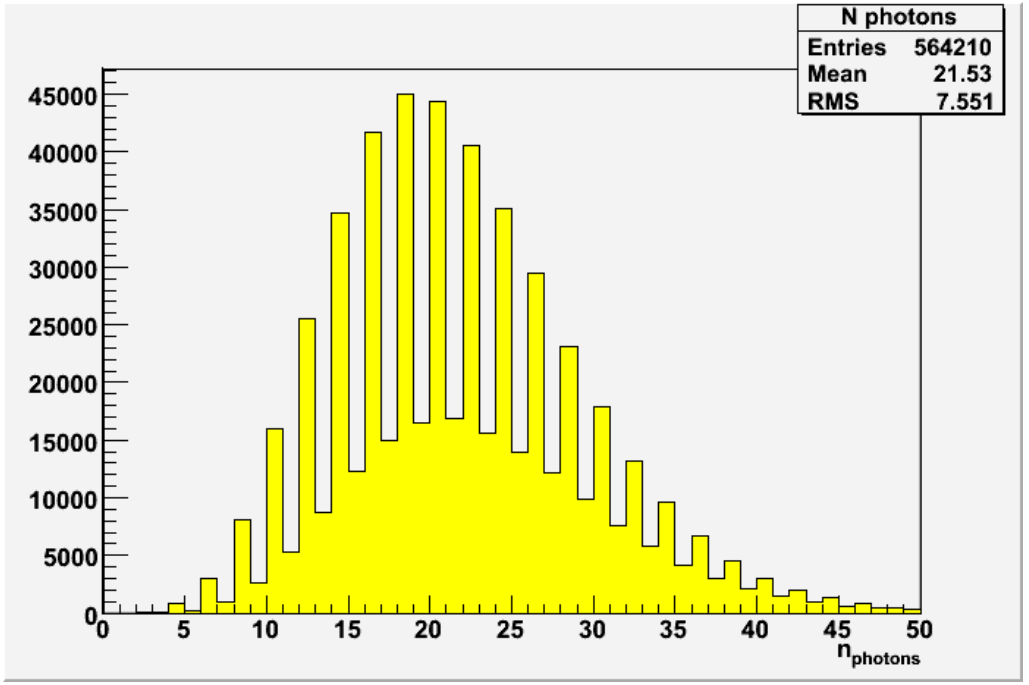
Energy

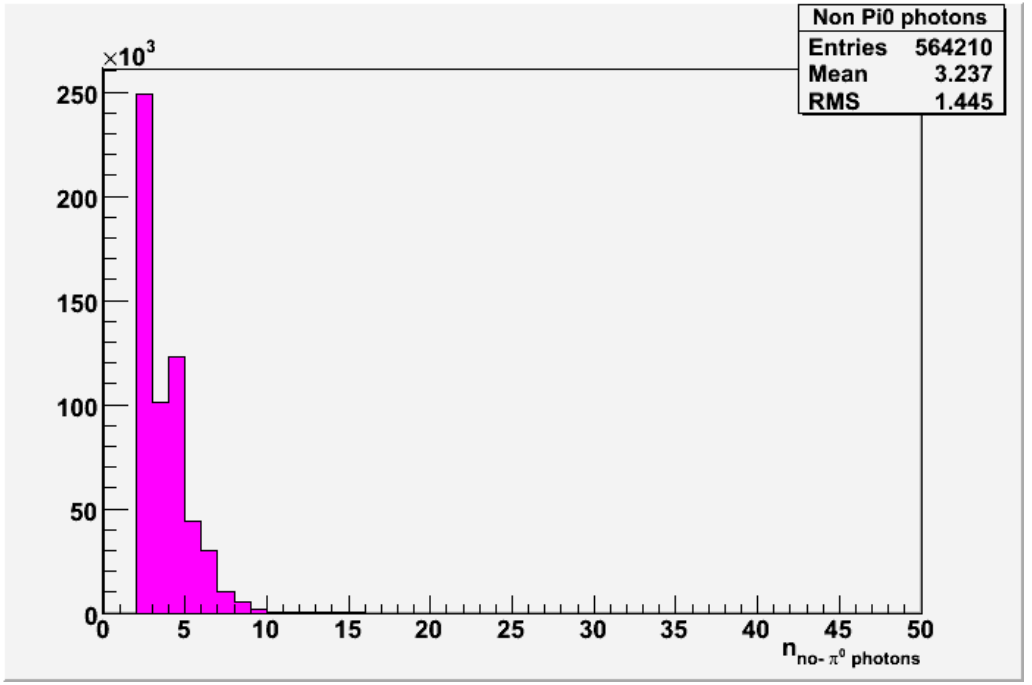


Angle between photons



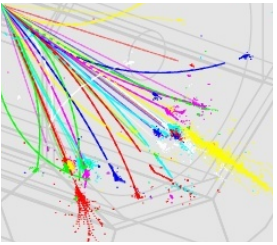
Number of photons



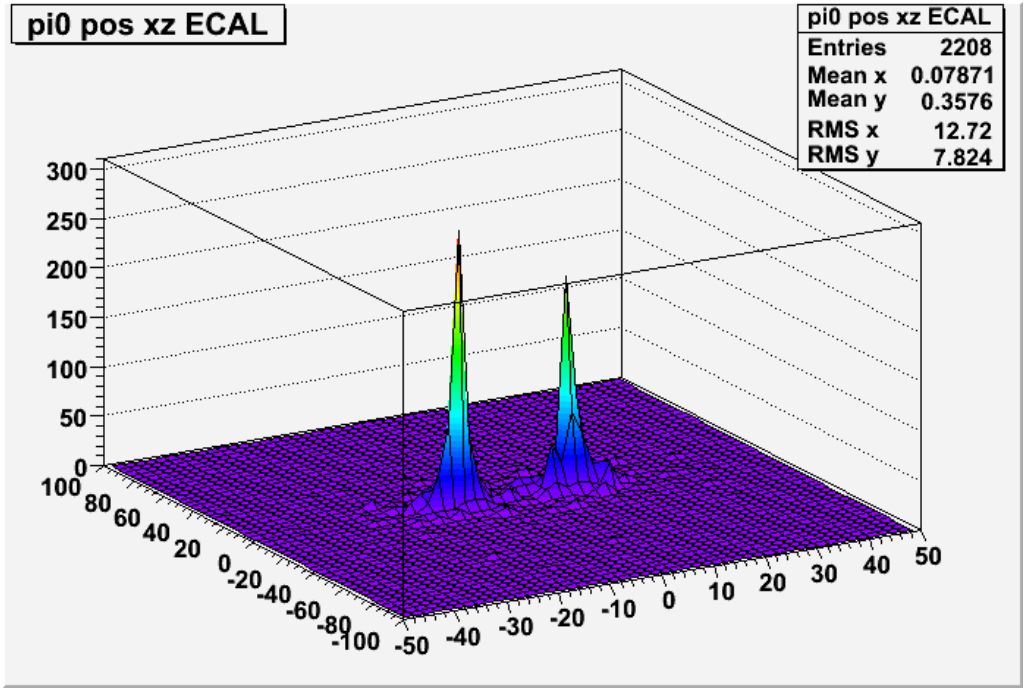


$N_{photons}$

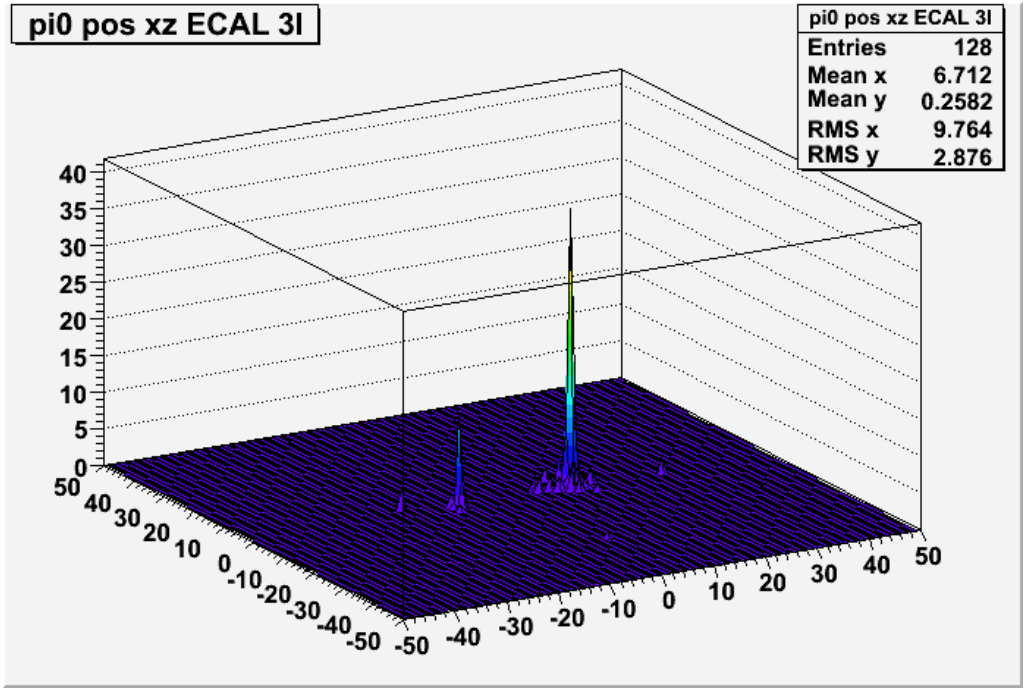
$N^{0}_{non\text{-}\pi\ photons}$



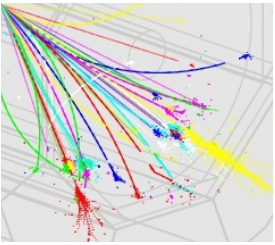
20 GeV π^0



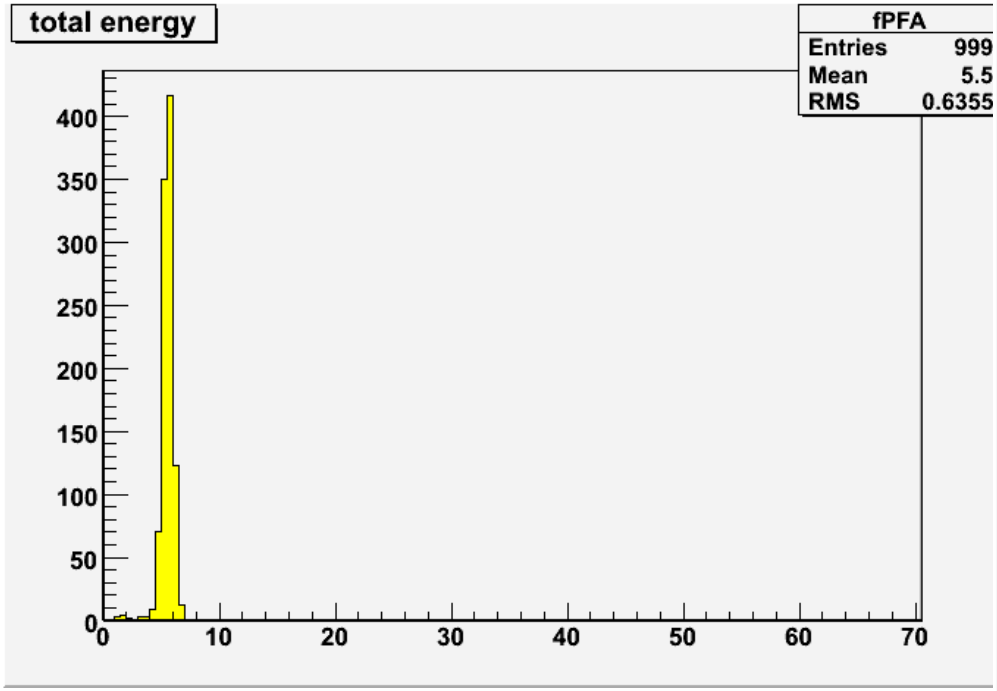
All layers

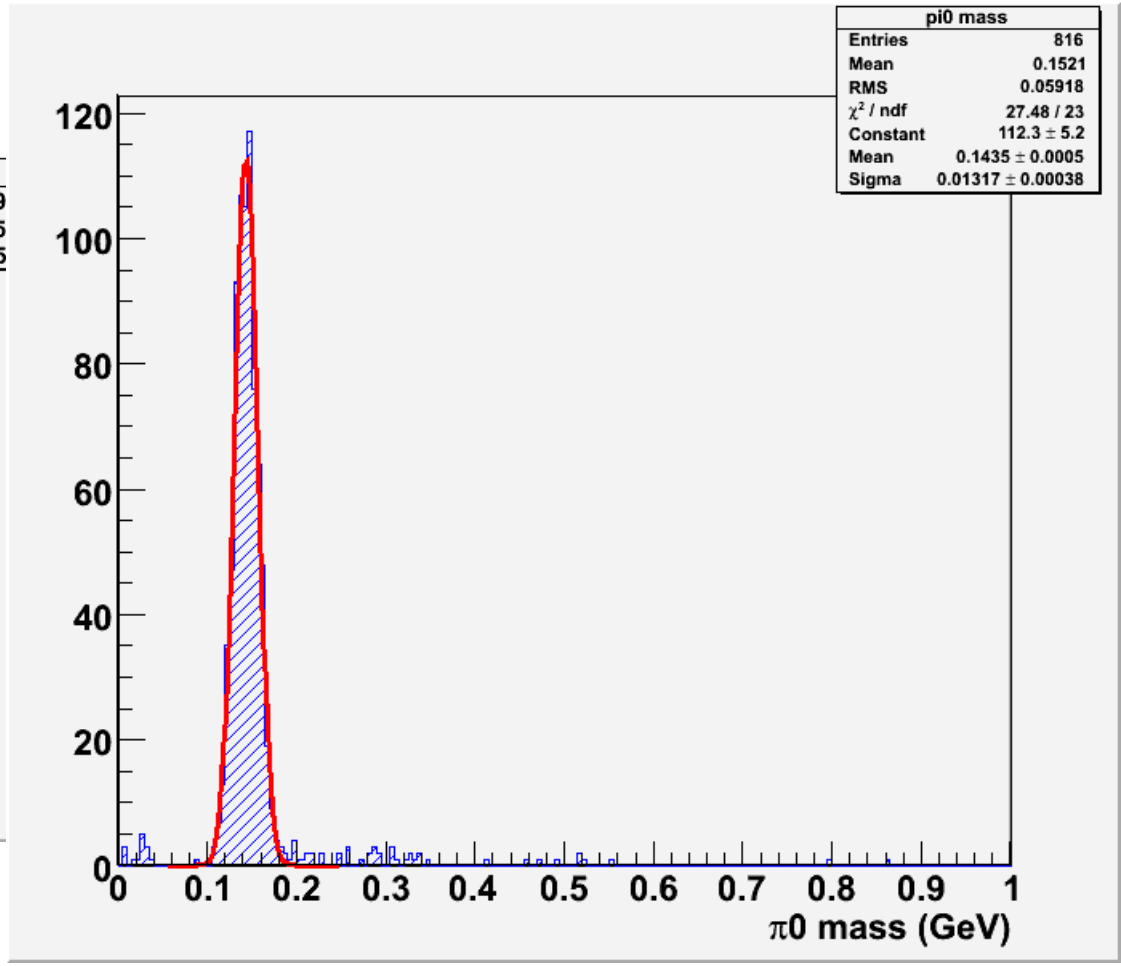


First 5 layers

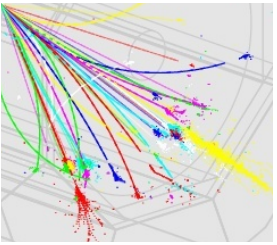


First shot with Pandora

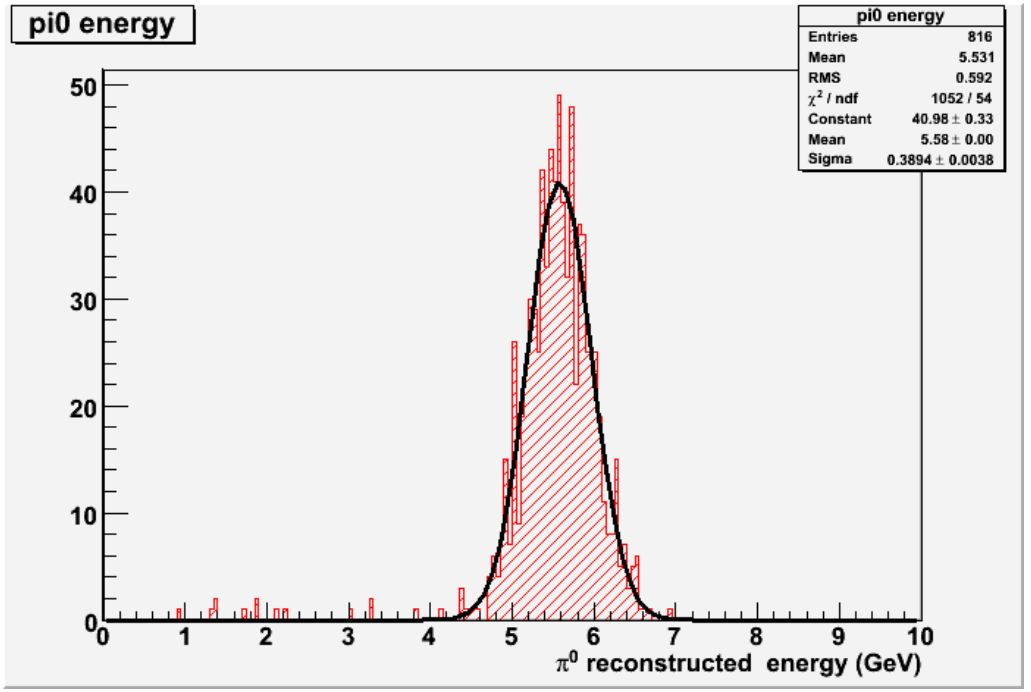


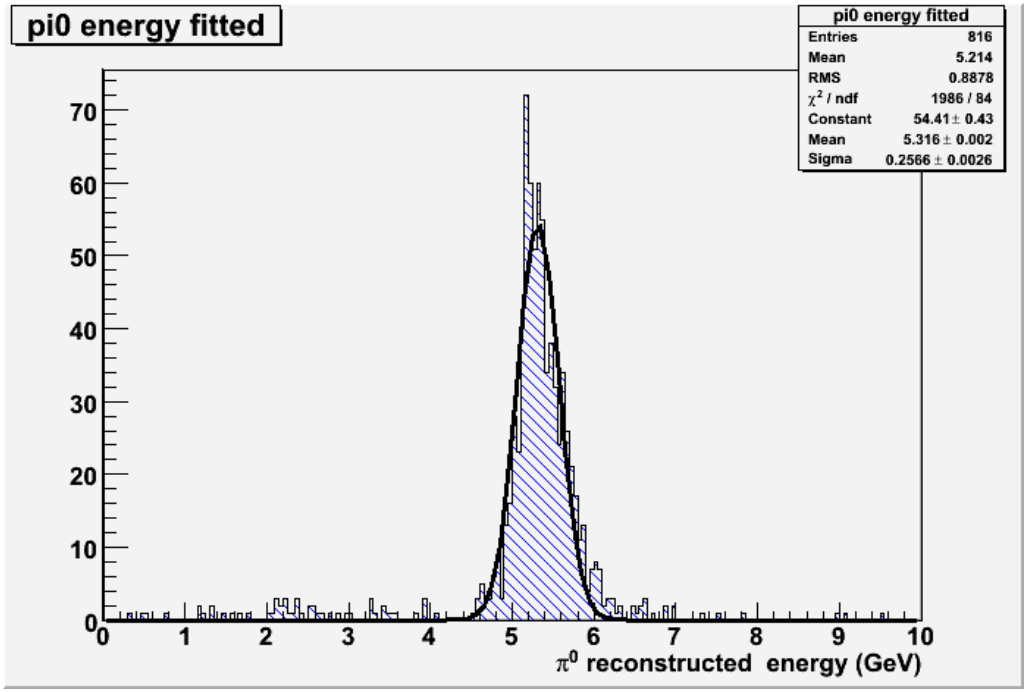


Generate a 1000 5 GeV π^0



Applying a scale factor

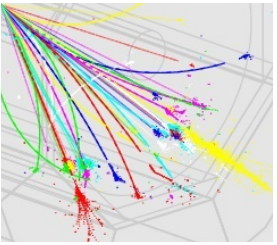




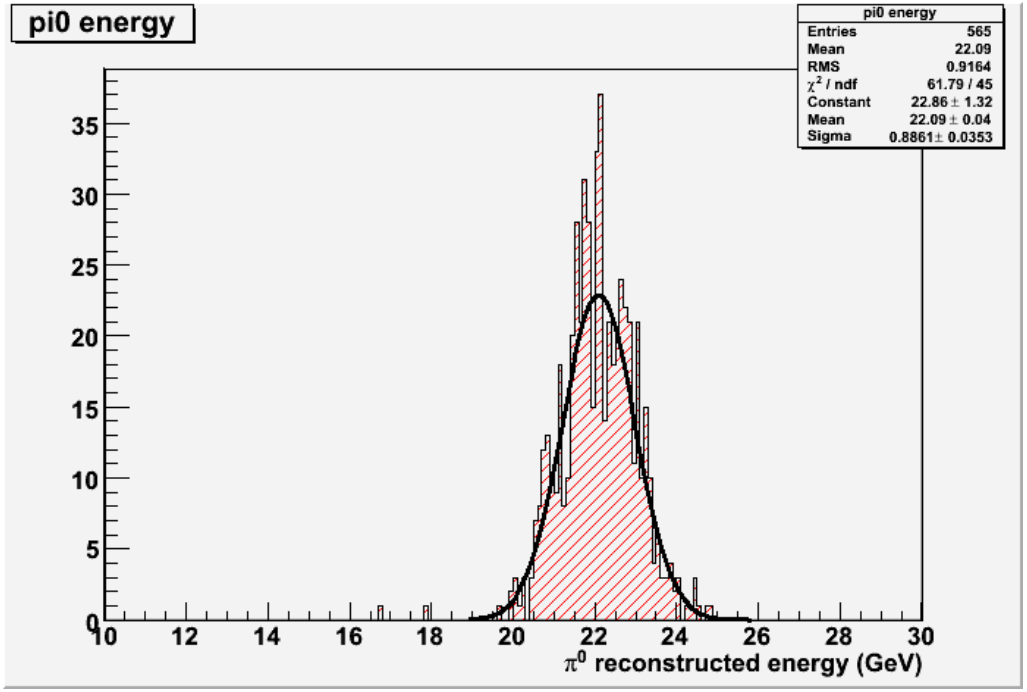
raw
5.58 ±0.39

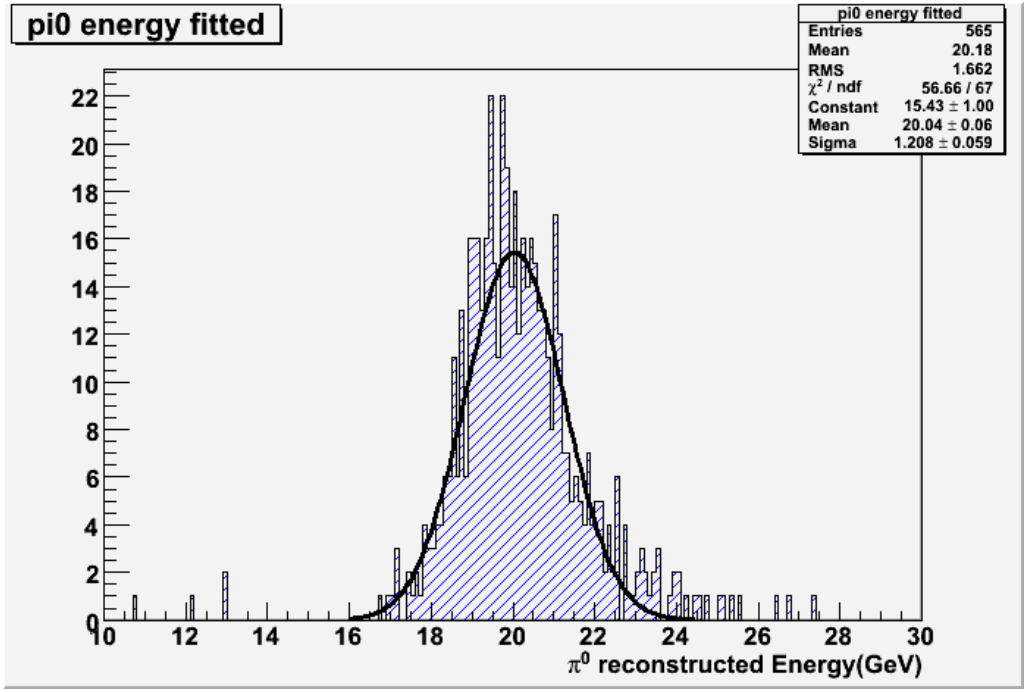
scaled
5.32±0.26

33 % better resolution ...
would be nice if it works with real events ...

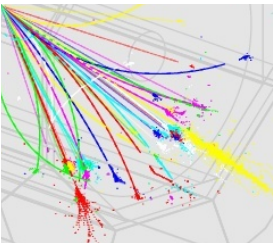


Same with 20 GeV π^0





No improvement here, probably scaling inadequate



What needs to be done ?

- Using a proper fitter
- Have a decent calibration (vital)
- better clustering
- more statistics
- try it with Z's ...