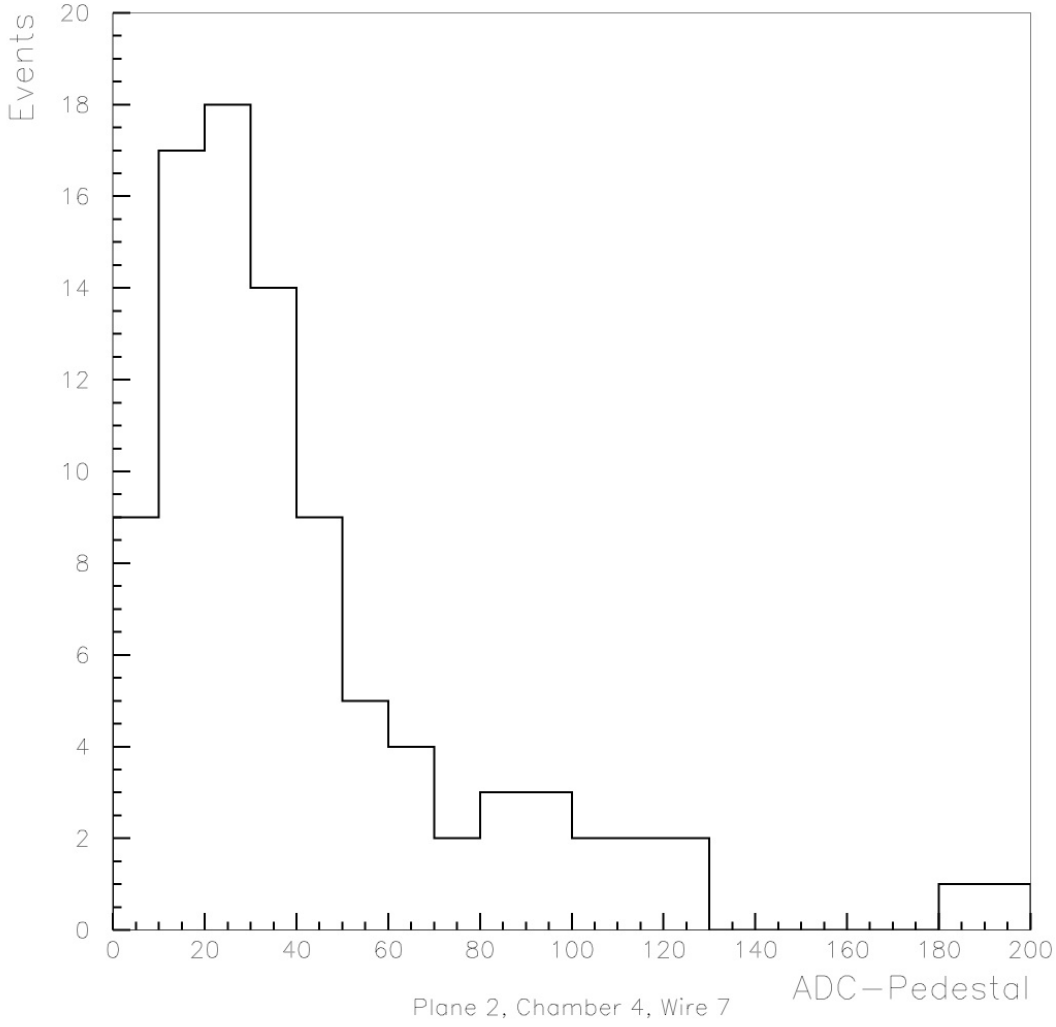
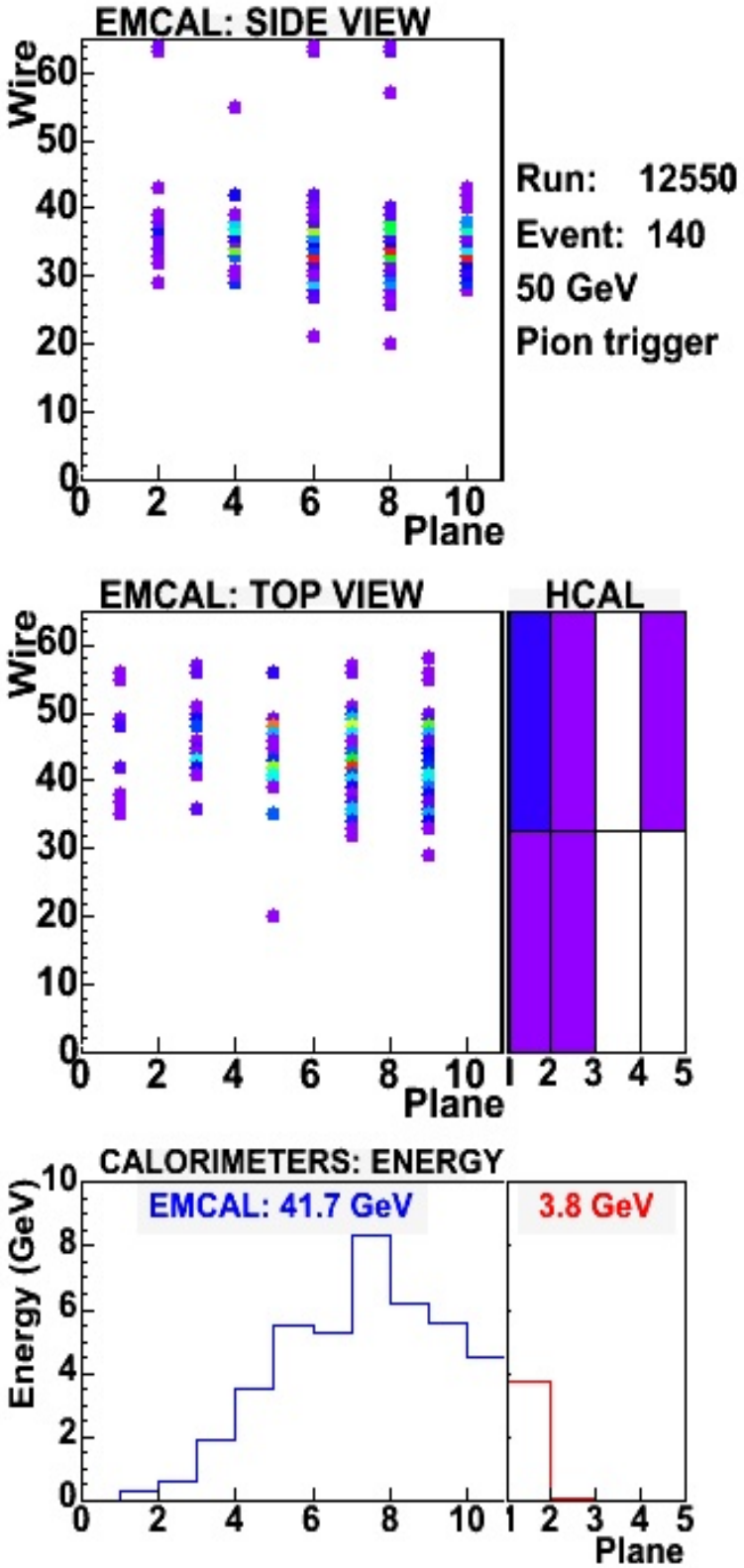
EMCal Calibration

- Calibration using muons:
  - use dedicated μ runs taken for the CALs (Run# 13919)
  - tagged μ using Beam-Ckov
- Energy deposit per plane:
  - $\sim$ 1 radiation length of Lead + Al extrusion walls + Gas = 13 MeV
- Preliminary ADC$\rightarrow$Energy scale has been incorporated into the EventDisplay and OfflineProcessing programs

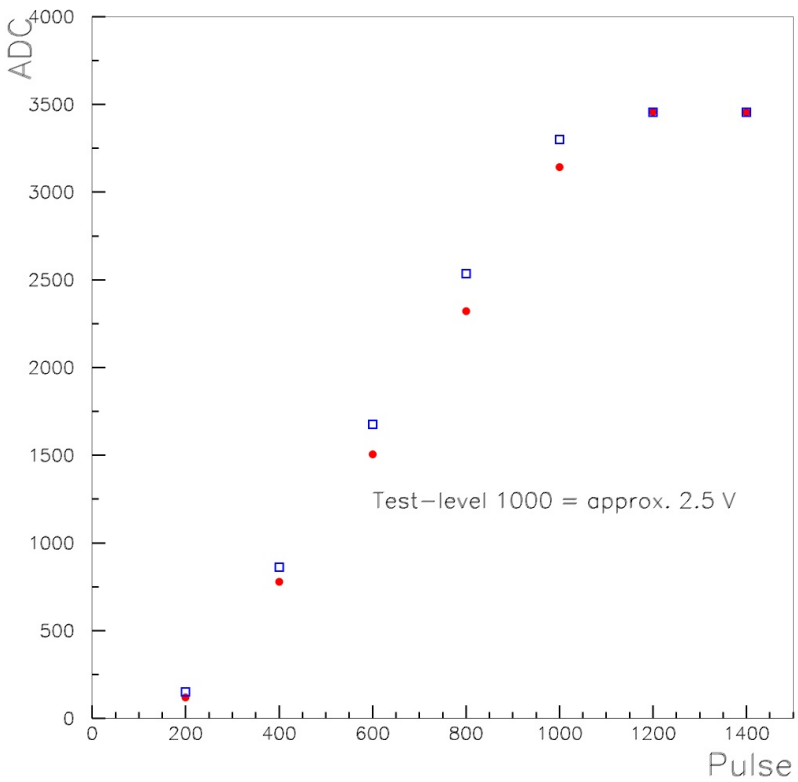

Events
20
18
16
14
12
10
8
6
4
2
0
0
20
40
60
80
100
120
140
160
180
200
ADC−Pedestal
Plane 2, Chamber 4, Wire 7


EMCAL: SIDE VIEW
Wire
Plane
Run: 12550
Event: 140
50 GeV
Pion trigger
EMCAL: TOP VIEW
HCAL
Wire
Plane
CALORIMETERS: ENERGY
EMCAL: 41.7 GeV
3.8 GeV
Energy (GeV)
Plane

- <u>Issues</u>:
  - No μ-trigger for taking periodic muon-runs
  - Pedestal noise

    pedestal subtraction important for μ-calibration

    shielding on cables to try minimise noise
  - μs help us calibrate (to 10-20%) only with small pulses
  - For large pulse-heights, need to rely on test-pulse/ADC correlation



- Need to understand nonlinearities near amplifier-saturation

- Also have to understand wires saturating due to space-charge

- Gain fluctuations due to gas flow, temperature, HV

- Kr83 technique proposed for the TPC would be extremely useful for the EMCal
  - Unlike μ this will also give us wire-by-wire calibration

News

- HyangKyu Park has left our group
- Hoping to get another post-doc (pending grant approval)