TB 2014 preparation and simulations

Itamar Levy
Tel Aviv University

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outline

Several issues :

1. Status of preparation .
2. Test beam simulations results.

Preparation

The main issue in preparation of DAQ for the beam test is the synchronization between the event in the FCAL DAQ to the event in the MIMOSA Telescope DAQ – discussed heavily during TB meeting. Need to much between TLU number (FCAL) to Frame counter (MIMOSA).

- Several subject :
  - AUX hardware based on v1495 I/O module,
  - AUX software in EUDAQ.
  - Frame counter extracting from the MIMOSA file.

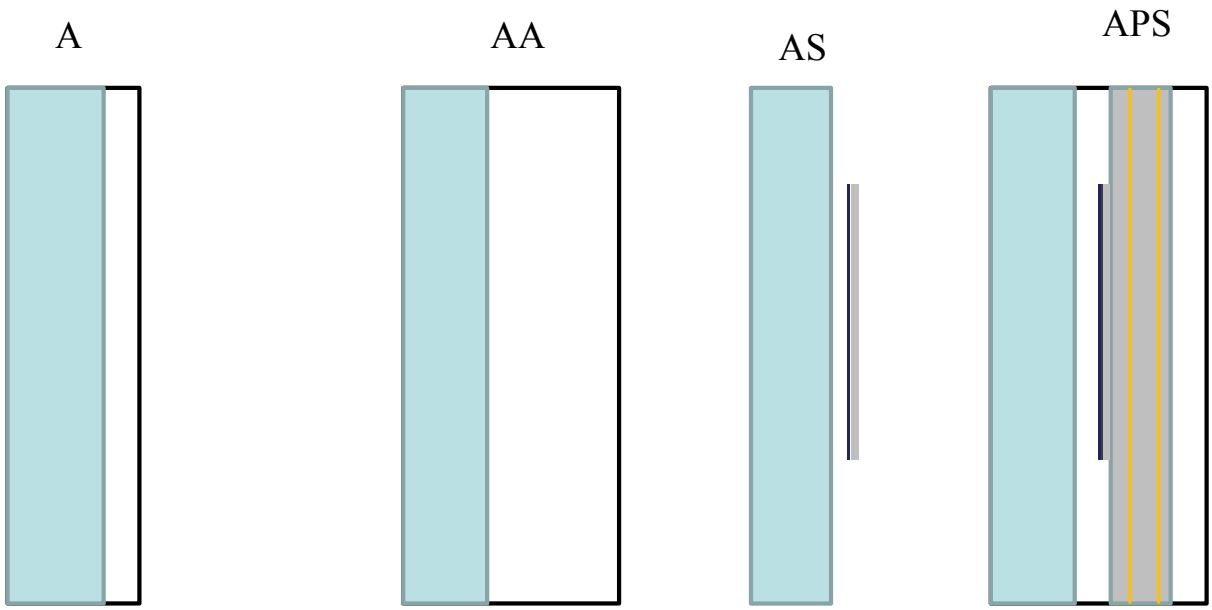
Preparation

- Hardware work on AUX device was ended but now it still on going…
- The base for the software, a EUDAQ producer and a converter, is done and work (as far I could test it), and is already installed on the DAQ computer.
- We will try to change a VME bridge to free USB connection.
- The Telescope analysis software is the Mimosa Analysis Framework (TAF), can by found at : http://www.iphc.cnrs.fr/Public-documentation.html
- It is possible to extract the Frame counter from using TAF.

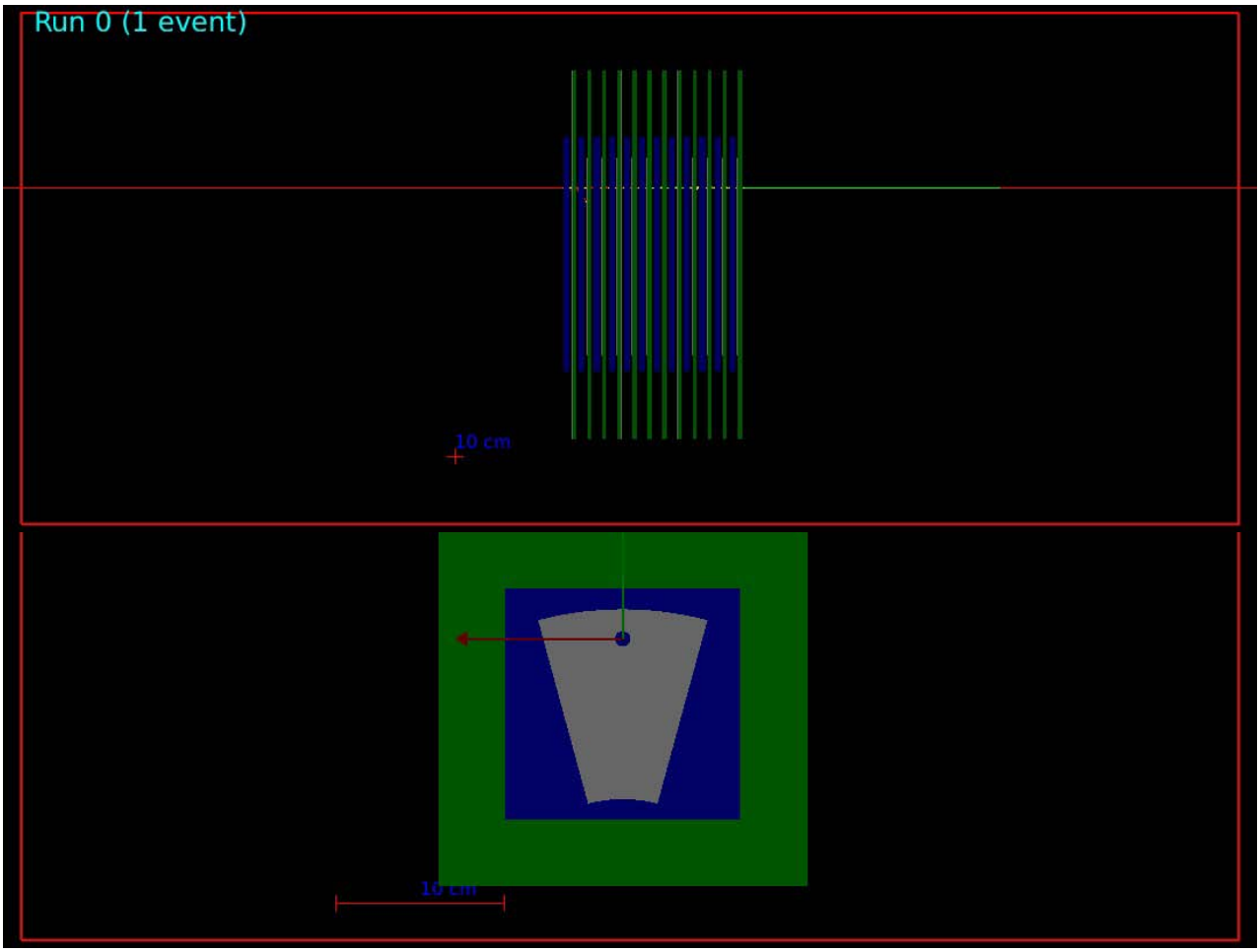
simulations

- Simulations done in Lucas.
- Rewrite the Test Beam environment in Lucas.
- Add a setup parameter : “TBeam_senrio” , it gets a string with the layers scenario : A , AA , AA, APS
- Tried 3 scenario :
  - As a base full 12 layer.
  - Layer 4-5-6-7.
  - Layer 1-3-5-7 (suggested on last meeting).
- Each sample contains 10k event (electrons pions or muons).
- Took into account full layer (not only connected pads).
- Will up load it to the SVN.

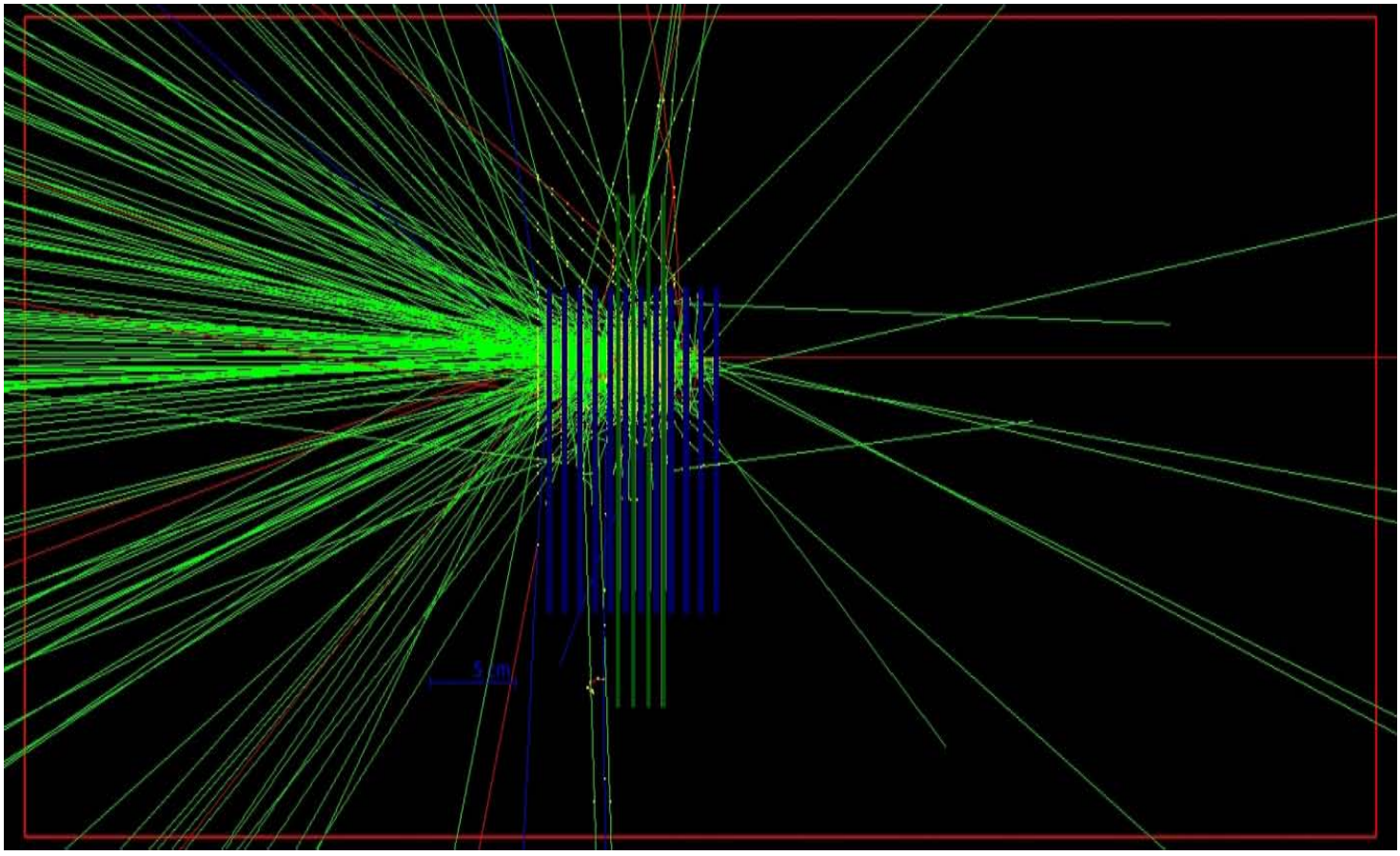
Layers scenario



Visualization



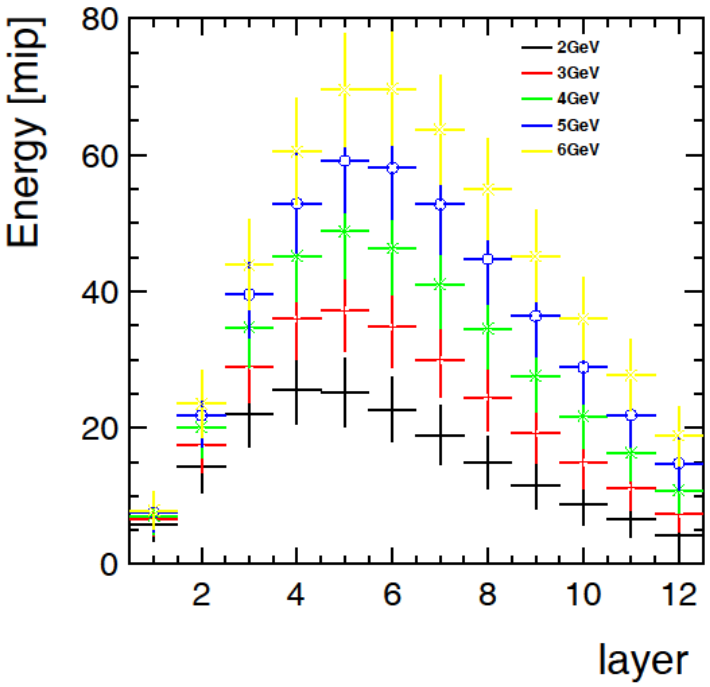
Visualization



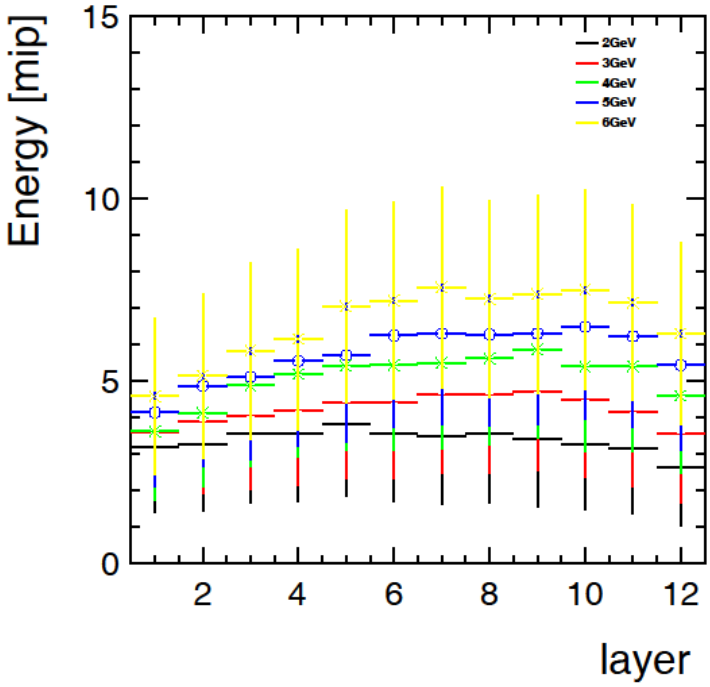
Simulations results

- Mean energy deposited per layer

Electrons



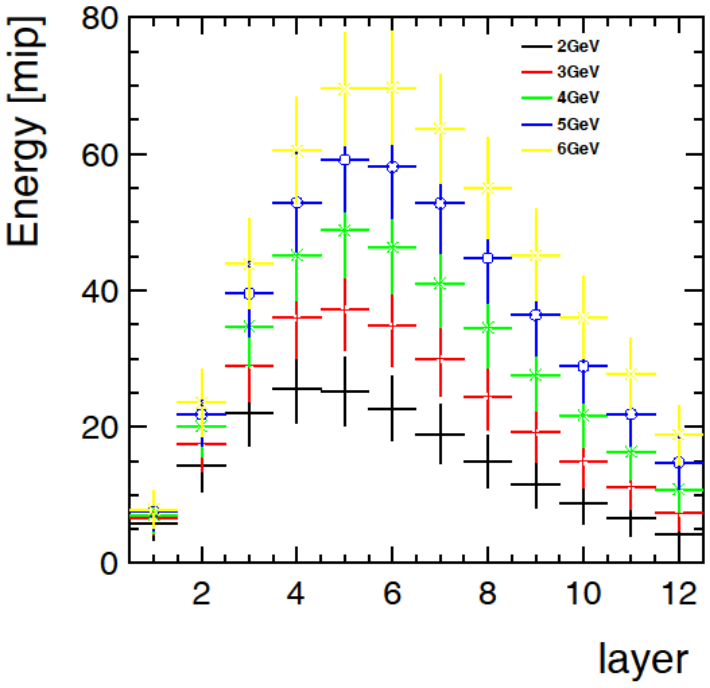
Pions



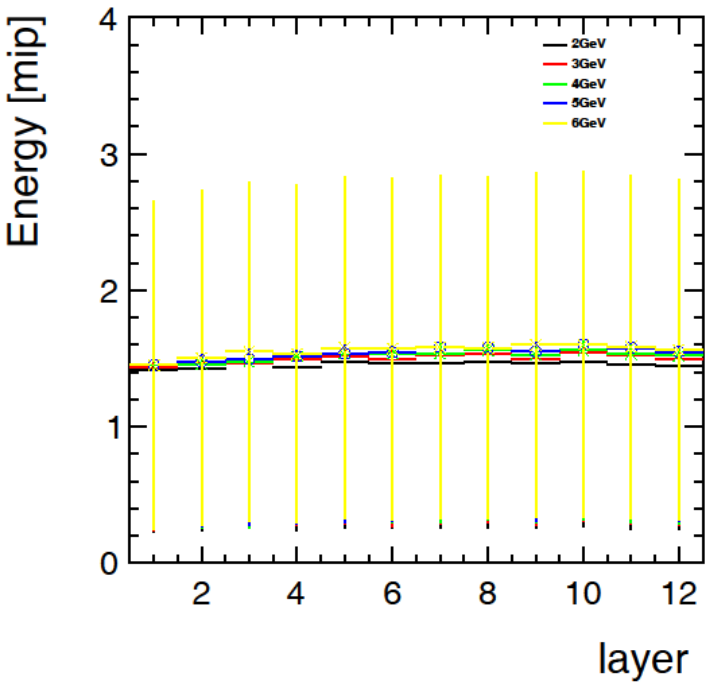
Simulations results

- Mean energy deposited per layer

Electrons



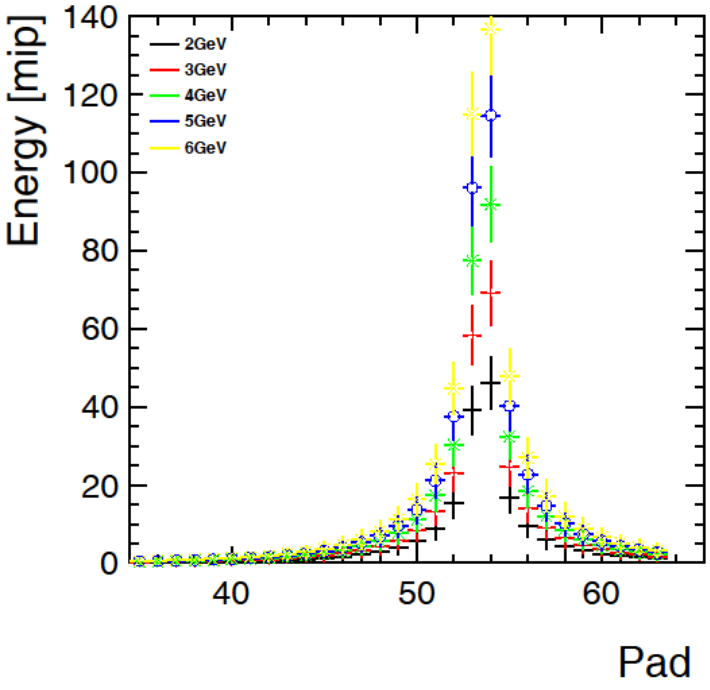
Muons



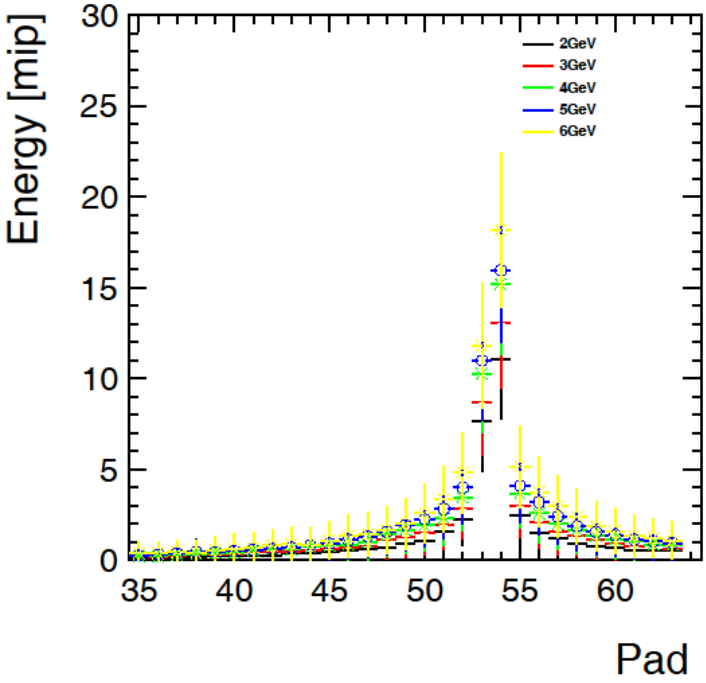
Simulations results

- Mean energy deposited per pad

Electrons



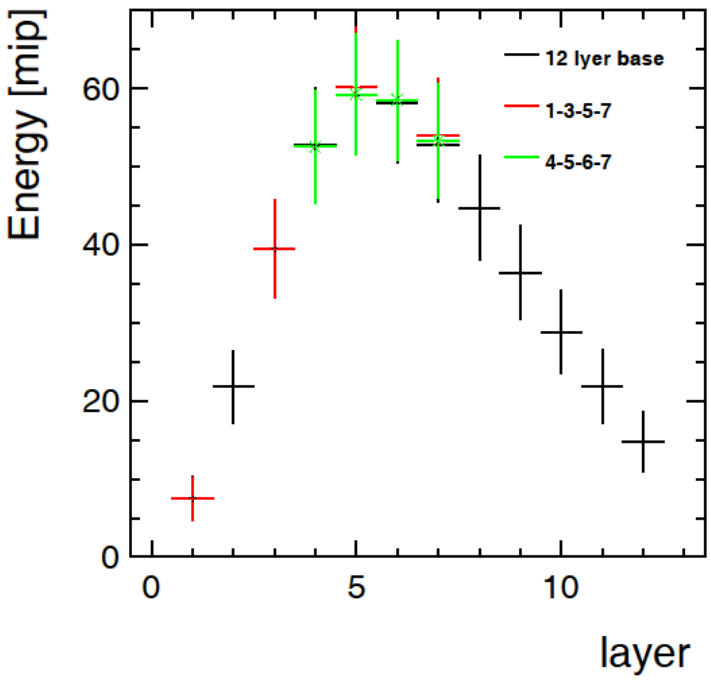
Pions



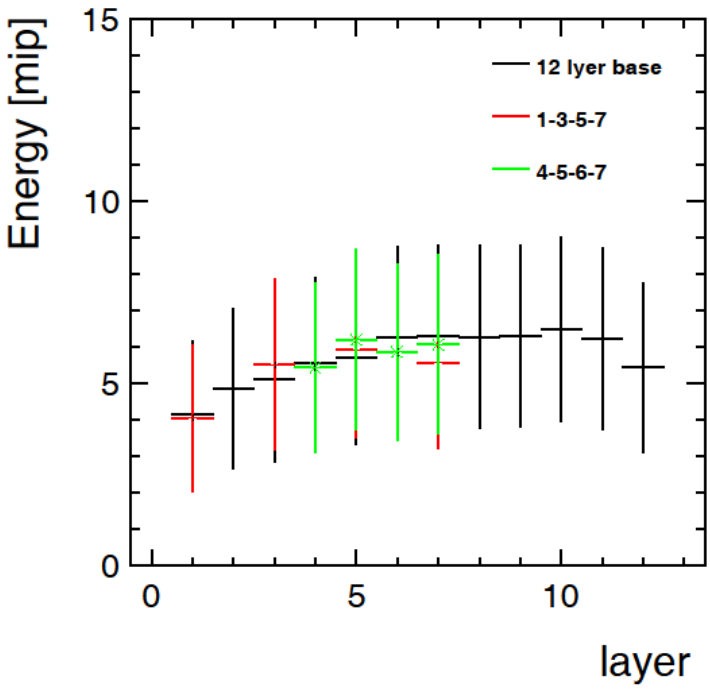
Simulations results

- Mean energy deposited per layer

Electrons



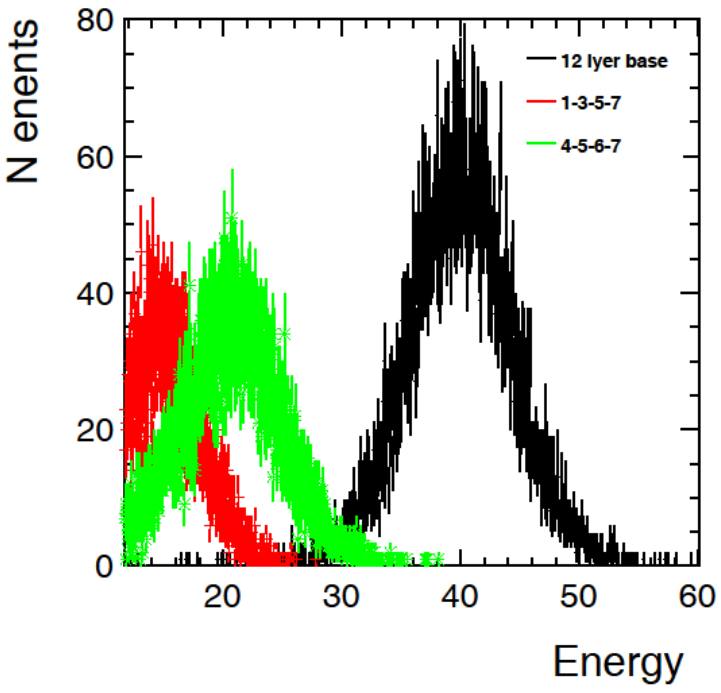
Pions



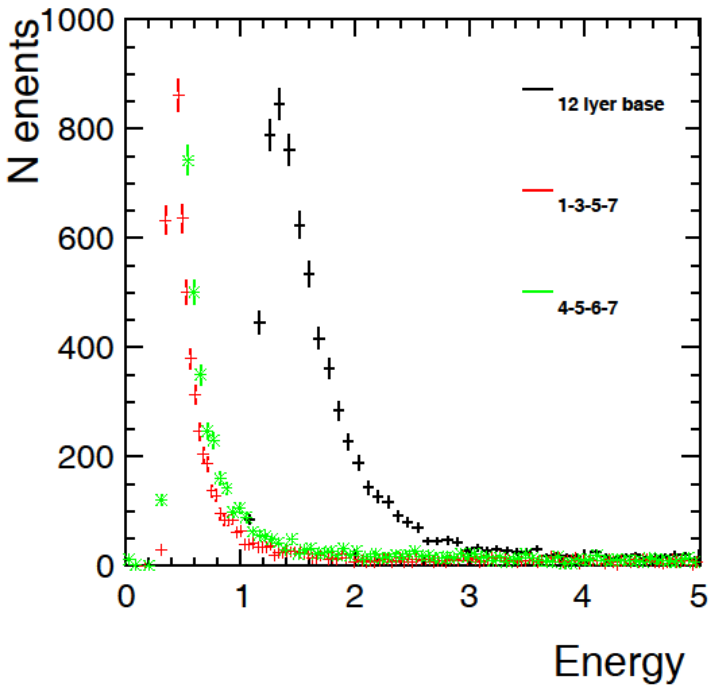
Simulations results

- Sum of energy deposited distribution

Electrons

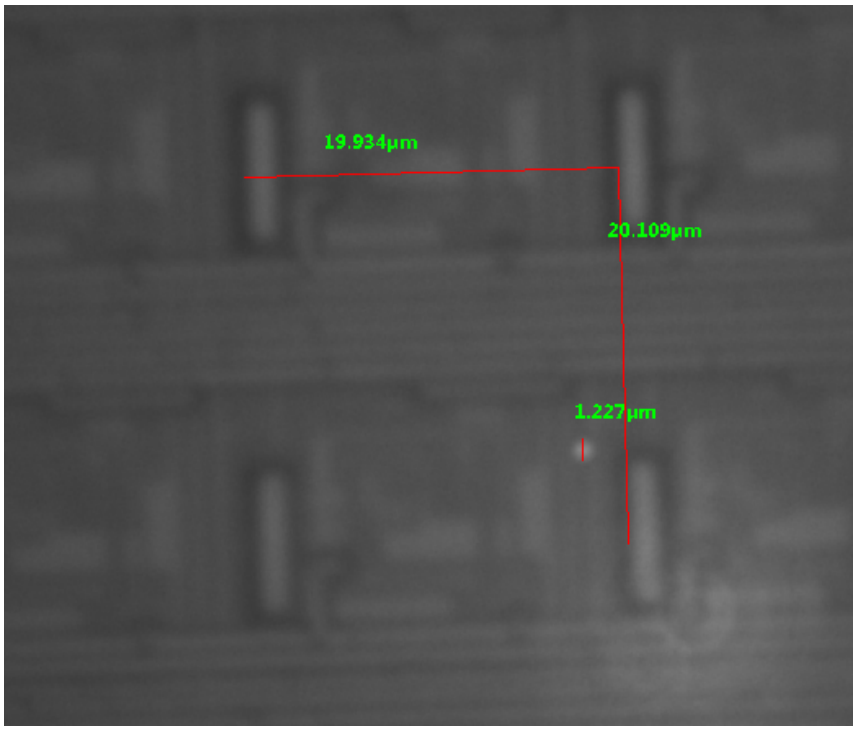


Pions



Extra

- From the laser system at TAU with a MIMOSA 32 sensor.



Summary

- DAQ for test beam not ready yet, but there is some progress.
- Analysis of Telescope data done by TAF framework, that is good.
- Its look possibly to distinguish between the electrons and hadrons showers from only 4 boards.
- In order to increase statistic we can go lower in energy then 5GeV.

Thank you!