# Towards the next (January) test beam.

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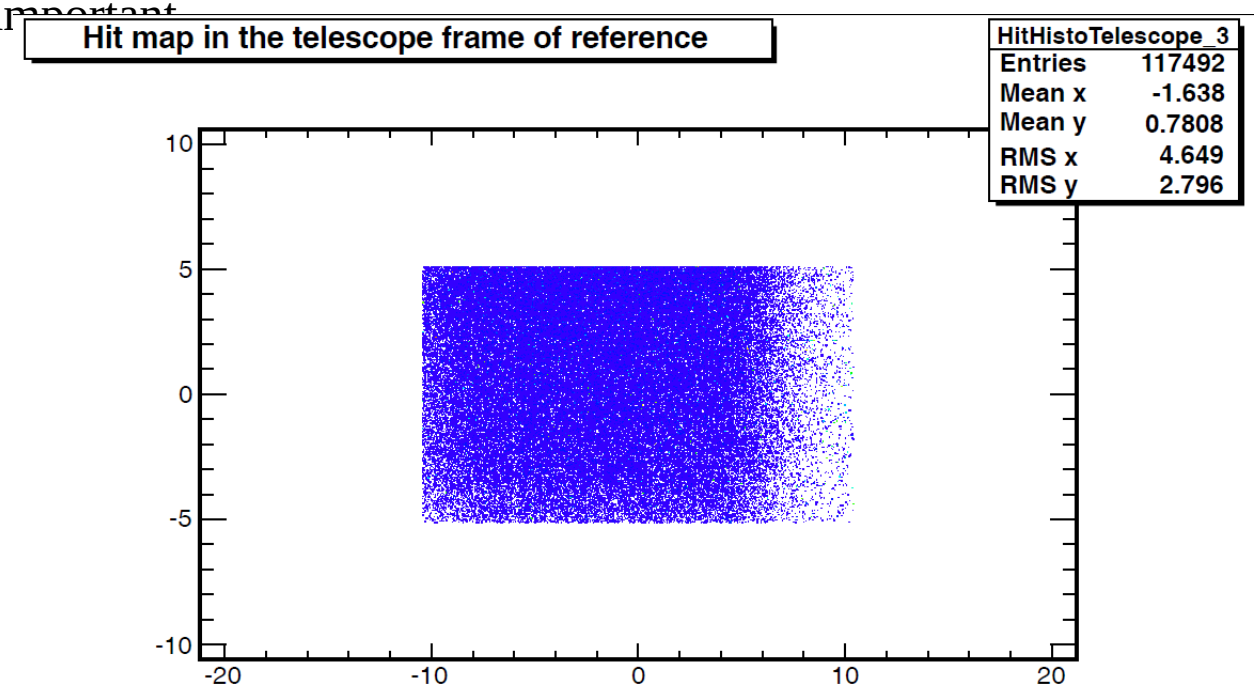
# lesson from August.

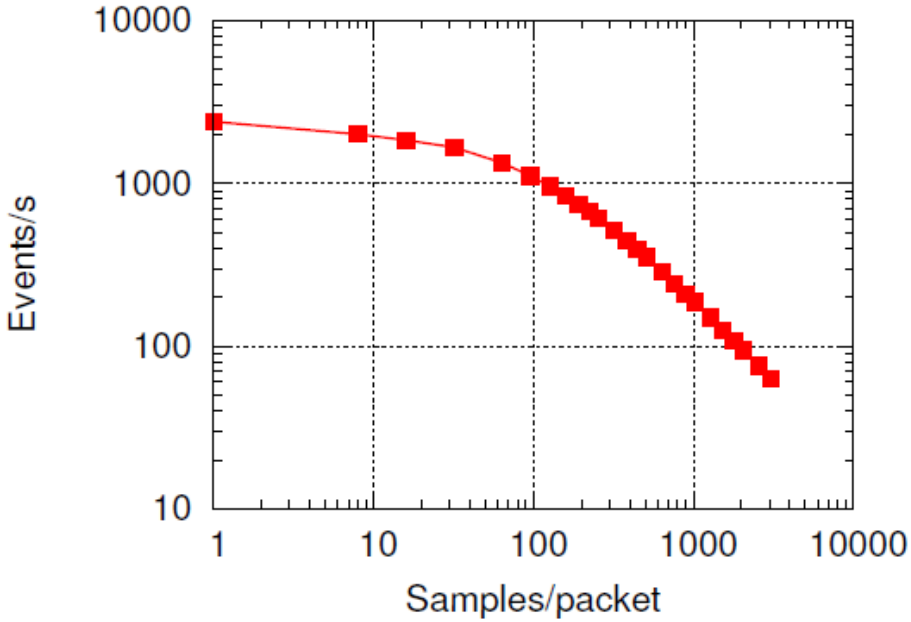
- During the last week of August we preformed beam test to the Sapphire stack with the EUDAT Telescope at beam line 22 - DESY.
- The Telescope active area is 10.6 x 21.2 mm2
- When only Telescope in the EUDAQ system (Sapphire sensor on separate DAQ) rate in 5 GeV electrons beam can get up to 600-800 Hz.
- When using data transfer in the EUDAQ rate Descending.
- Electronic loge book is important
- Preparations …




Beam profile of hits in plane #3

# Preparations

- Rate will be depends on the DAQ architecture .
- It the 2011 test beam we use 1 board with 32 channels and 32 samples each.
  with rate of ~50Hz.
- This test beam will have 4 boards…
- Considering 4 board connected to 1 computer (USB) / 4 computer.
  need to be tested.
- TLU connection need to be fixed.
- Mechanics :
  For single board (no external XY is r
  For the Tungsten structure.

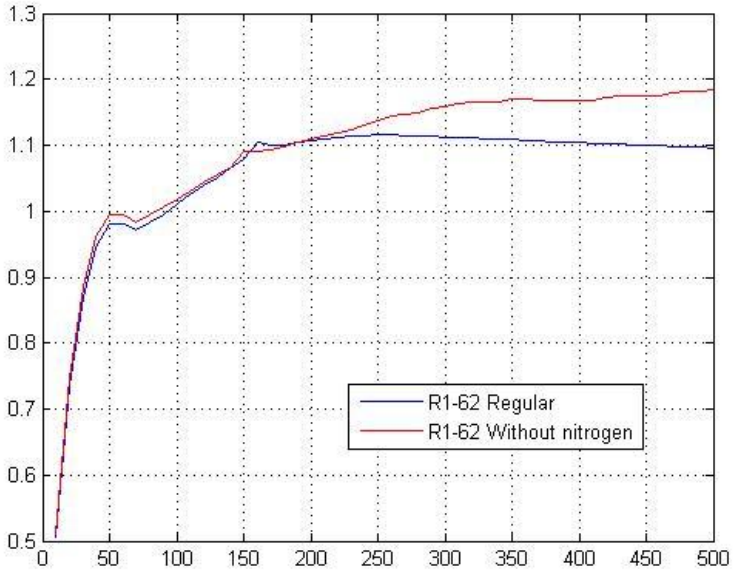


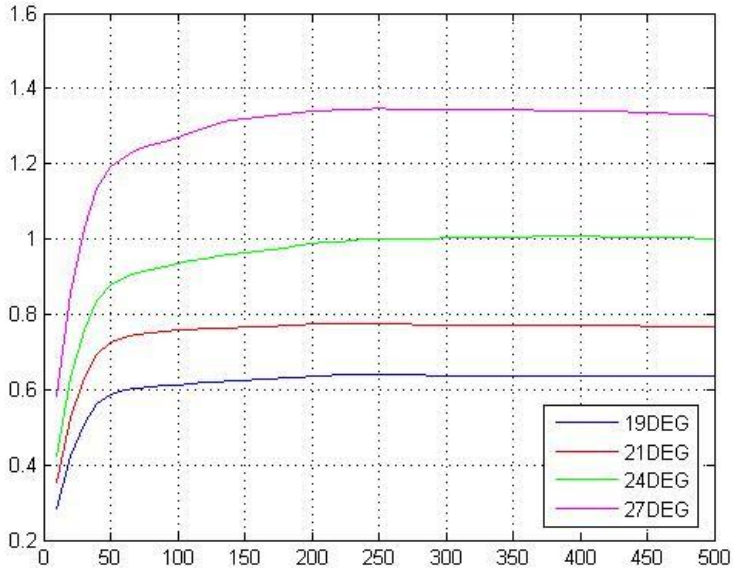
# Preparations

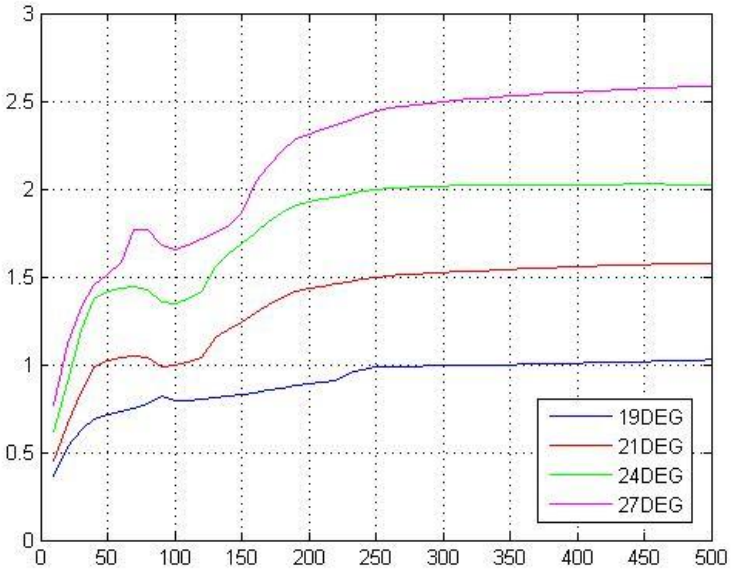
- For the next test beam we will need 4 Complete detector modules (for LumiCal and BeamCal …), 2 LuniCal sensor was used in the past, 2 more is needed .
- For that in Tel Aviv we are preparing  one.
- We upgraded the prob-station for thermal stability by adding a Aluminum thermal chuck under the sensor  chuck , and adding a stream of N2 gas to remove humidity.


# Sensor result - temperature and humidity

Result from sensor #13,
dark current (nA) as function
of the base voltage (V), in different conditions.

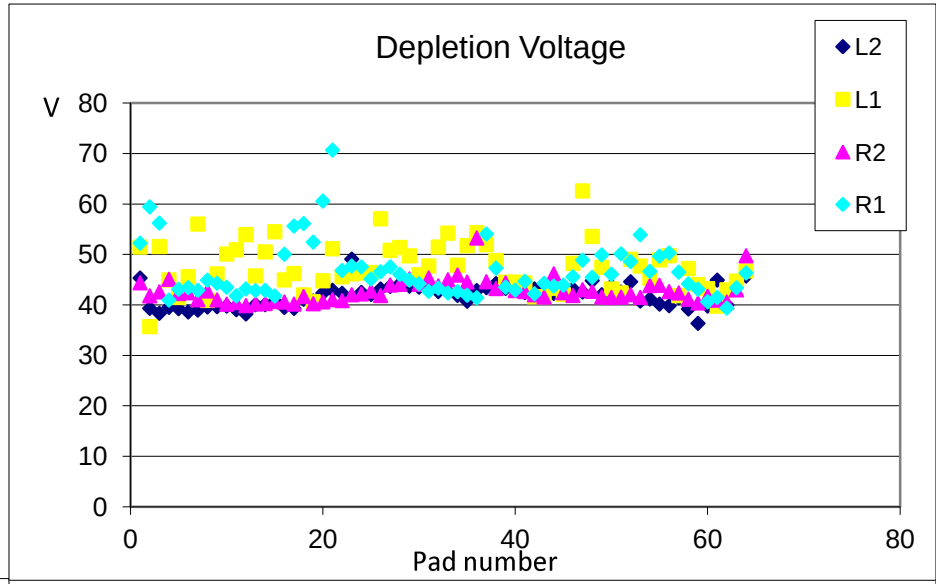


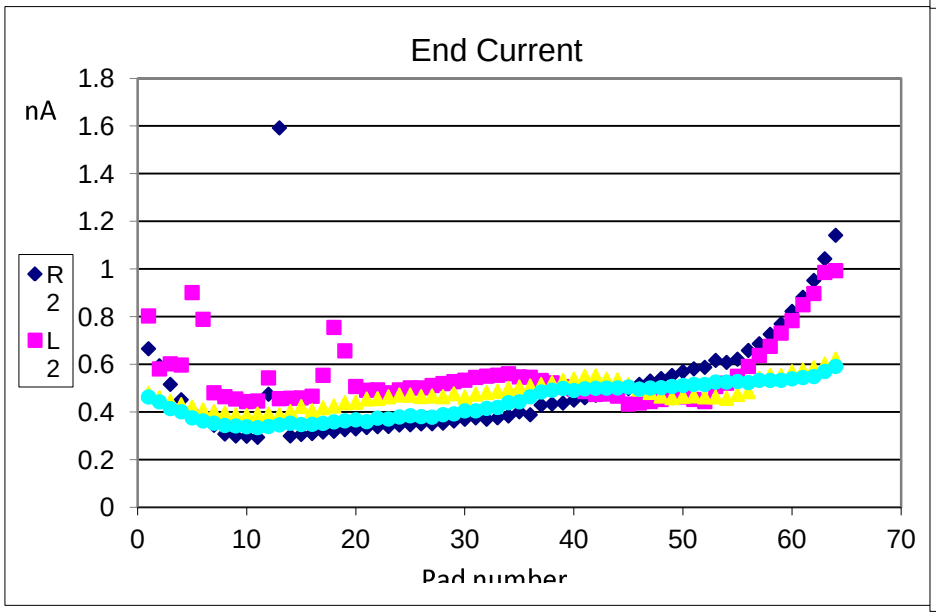



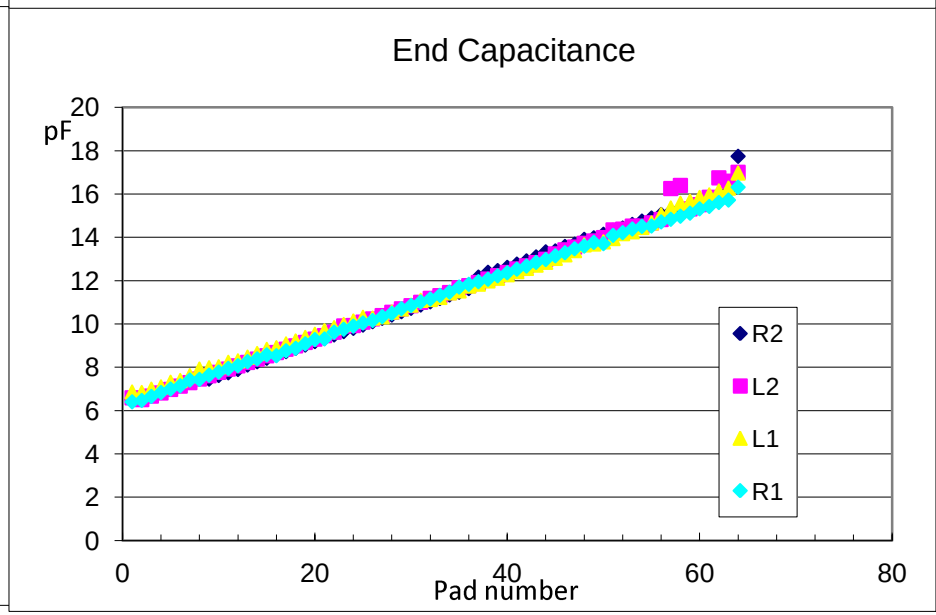



# Result of sensor #16

- Results of the full sensor.
- Some unexplained result,
  but by and large, in agreement
  with the past results.
- Bounding of sensor to sensor board
  and fun-out in the next weeks.

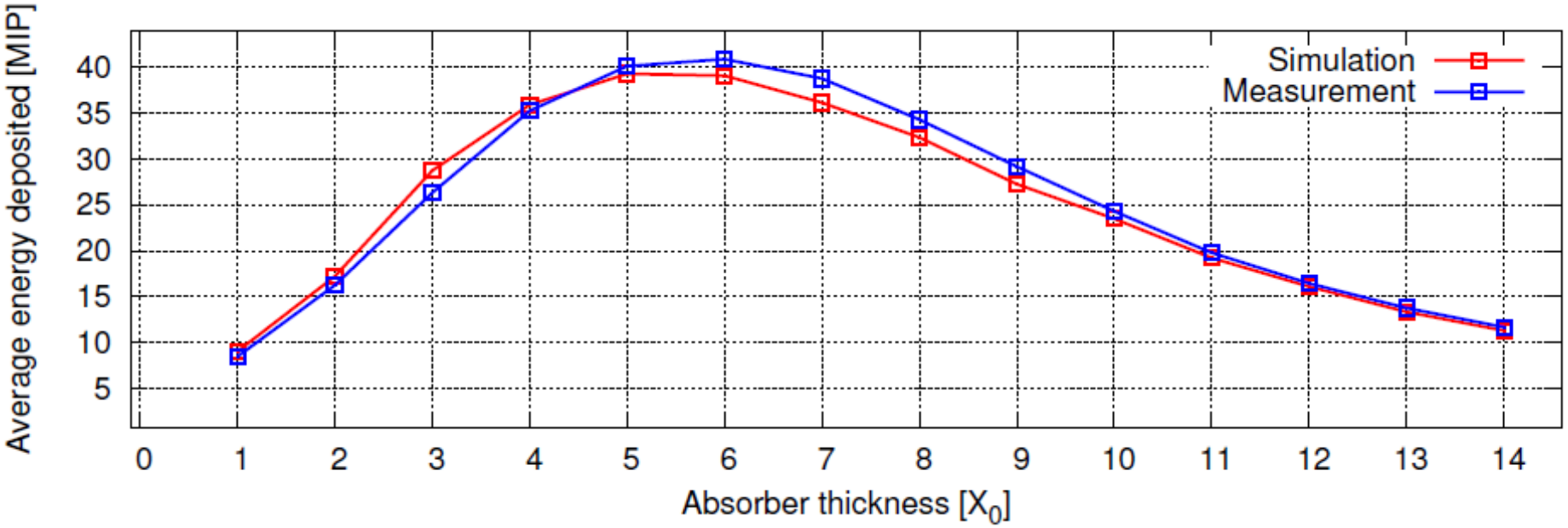


# Test beam Planes

- All sensor will require a stand alone calibration measurement ,
  for single MIP signal, CCE, and full sensor uniformity.
- High Statistic run for pads edge effect
- Measurements of shower Development in several configuration:
  First 4 layers (absorber – sensor).
  Layers 5-8 (shower pick).
  Layers 1-8 ( 2x absorber – sensor)
  - for position reconstruction of shower origin from LumiCal sensors.



# Conclusion

- We will have 2 week Test beam in the beginning of 2014.
- Preparations are essential for the test beam.
- Open issues
  - DAQ .
  - Sensor preparation .
  - Mechanics.
  - Electrical connections.
  - Electronic loge book.
  - Participants.
- I would like to thank Oron Rosenblat for the work and the very good measurements I showed today.