Preparative Tests For The Large Prototype TPC DESY

Georgios Laskaris

Supervisor: Klaus Dehmelt

FLC/TPC GROUP

SUMMER STUDENT

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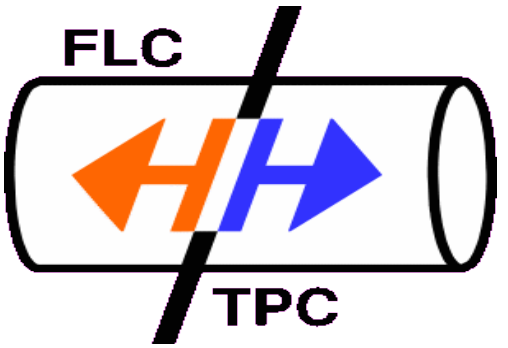
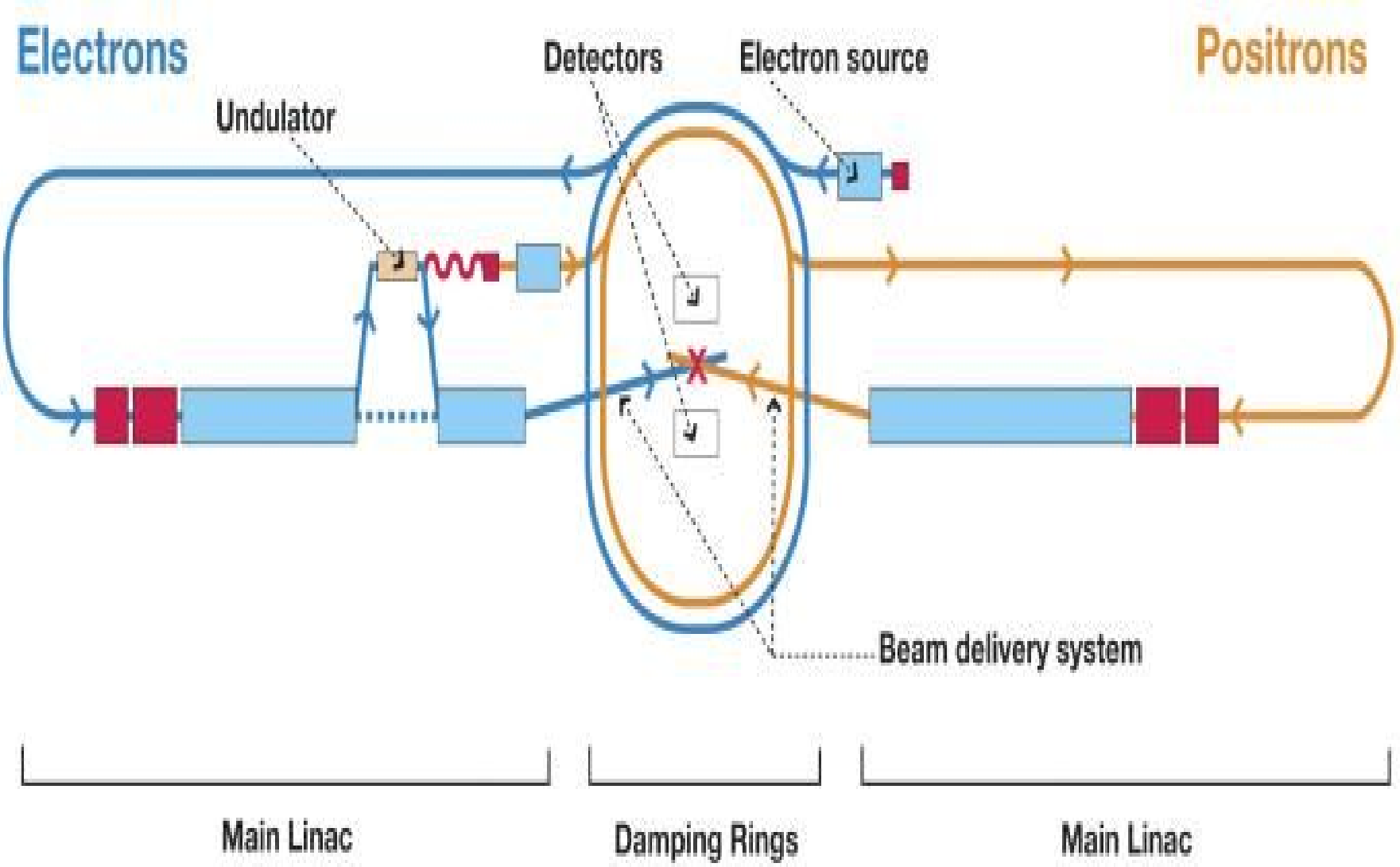


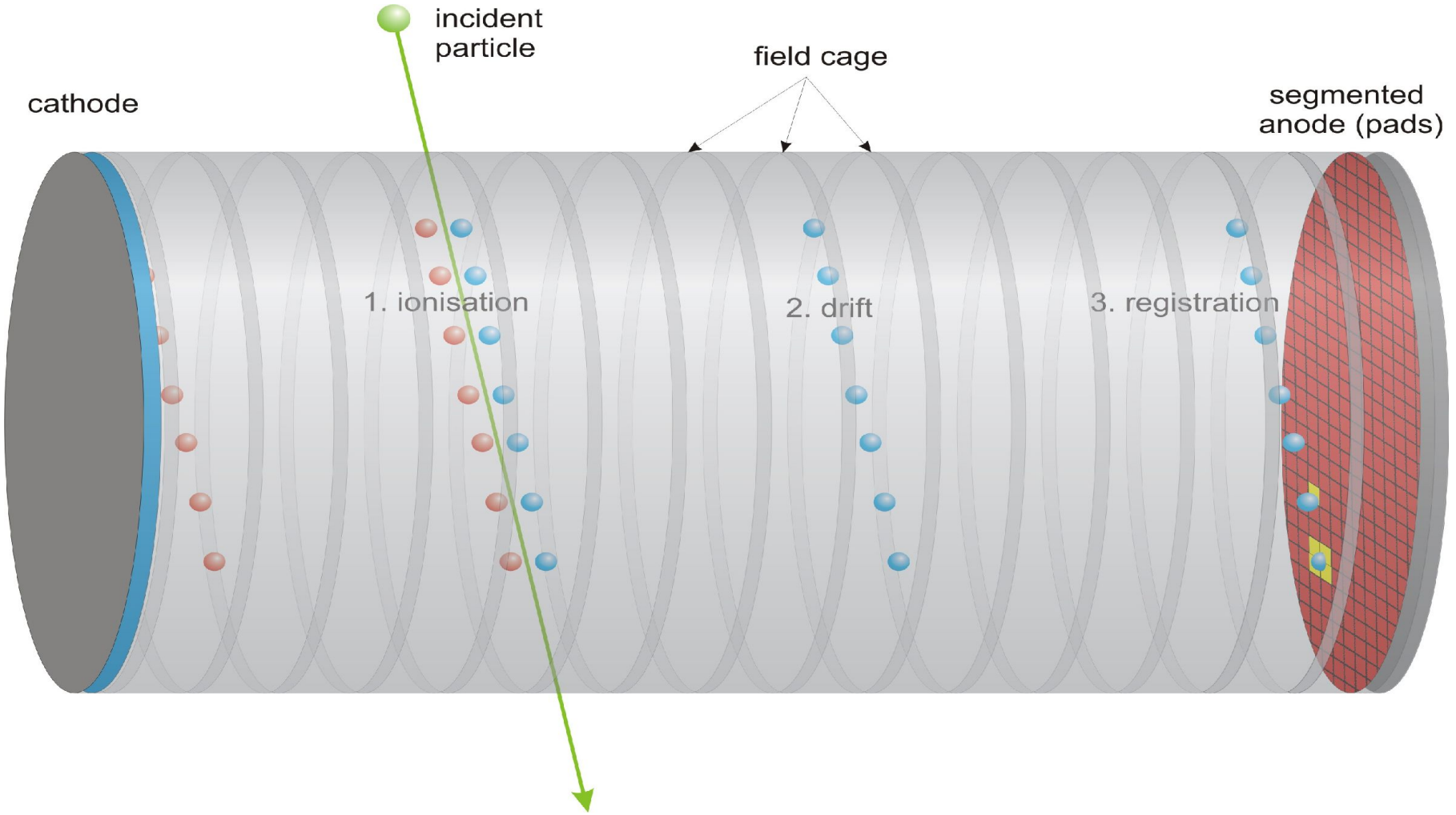
What did I do here?

- I participated in the setup of the Data Acquisition System of a TPC and I wrote a manual for the beginners.
- I participated in the creation of a new event display for the readout of the TPC
- I participated in the testing of samples that will be used for the Large Prototype of a TPC

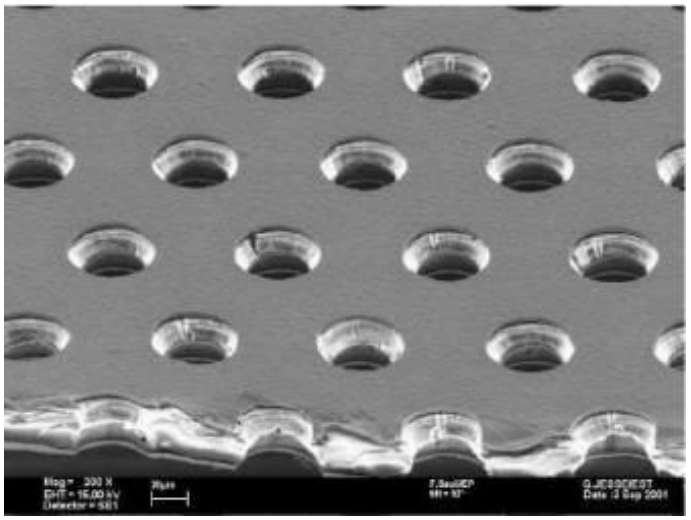
What is the ILC ?

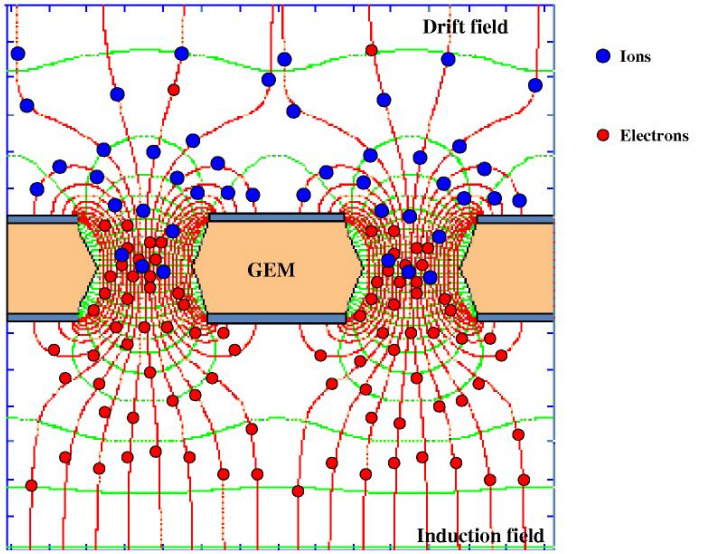


What is a TPC ?


incident
particle
field cage
cathode
segmented
anode (pads)
1. ionisation
2. drift
3. registration

The amplification System of a TPC



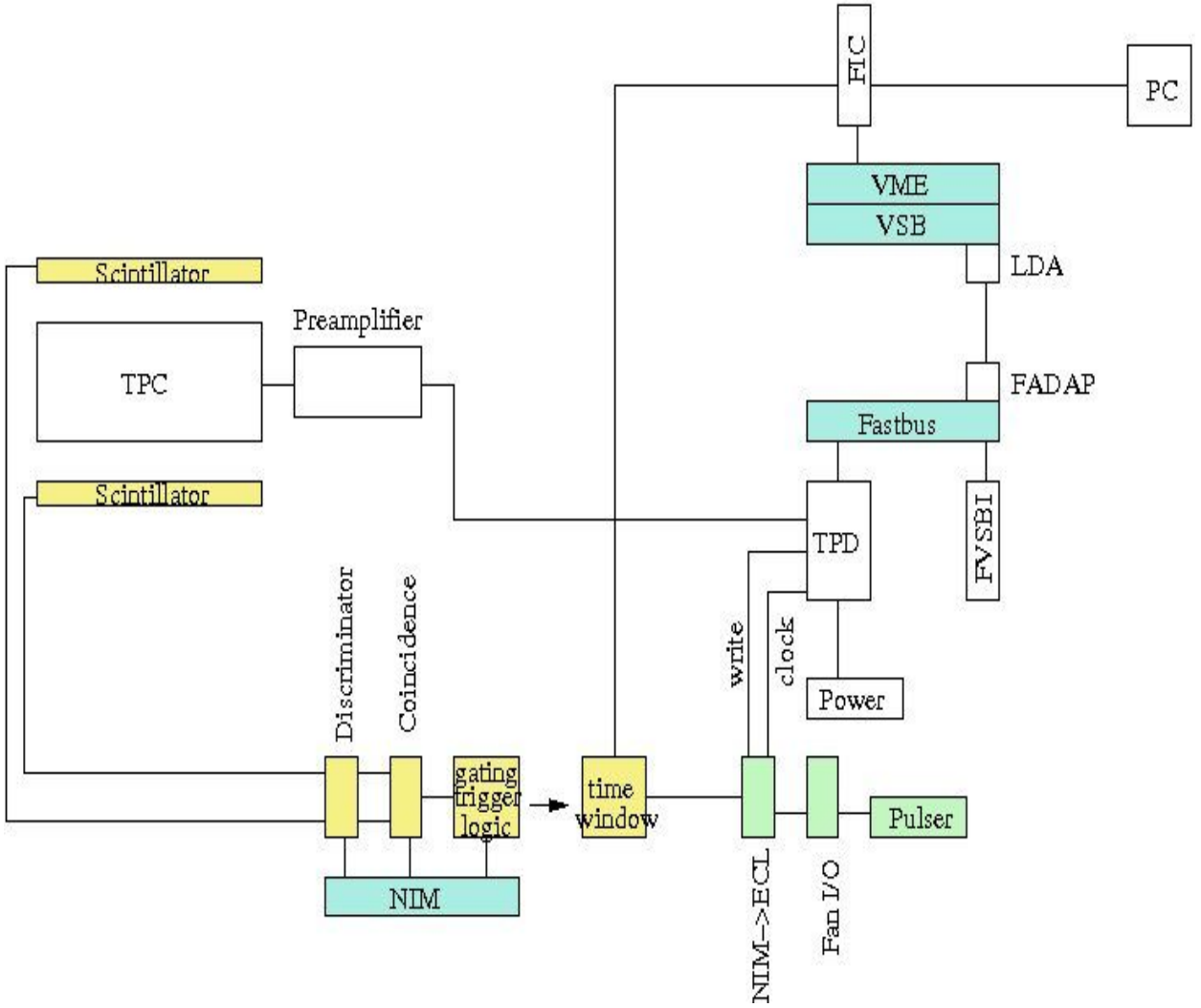


- The GEM is used in order to amplify the signal that we take from the TPC
- The GEM is made of three layers :

  Copper-Kapton-Copper (in principle it is a capacitor with thousands of holes)

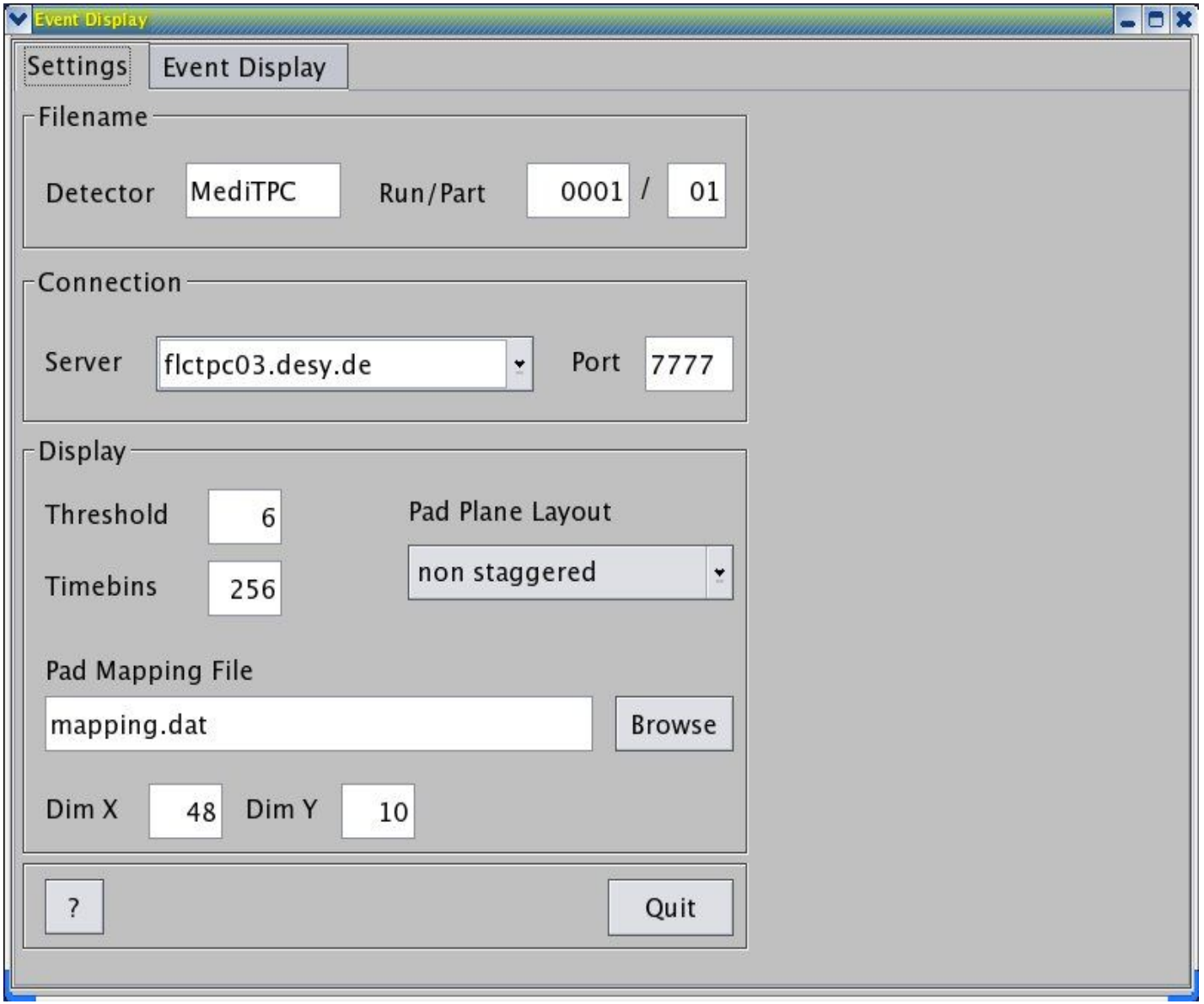
The test setup for the operation of a TPC

- Scintillators
- Discriminator
- Coincidence unit
- Counter
- Gate generator
- Fan I/O
- ECL-NIM-ECL
- Linear Fan In Fan out
- TPD Fast bus
- Controller
- PC

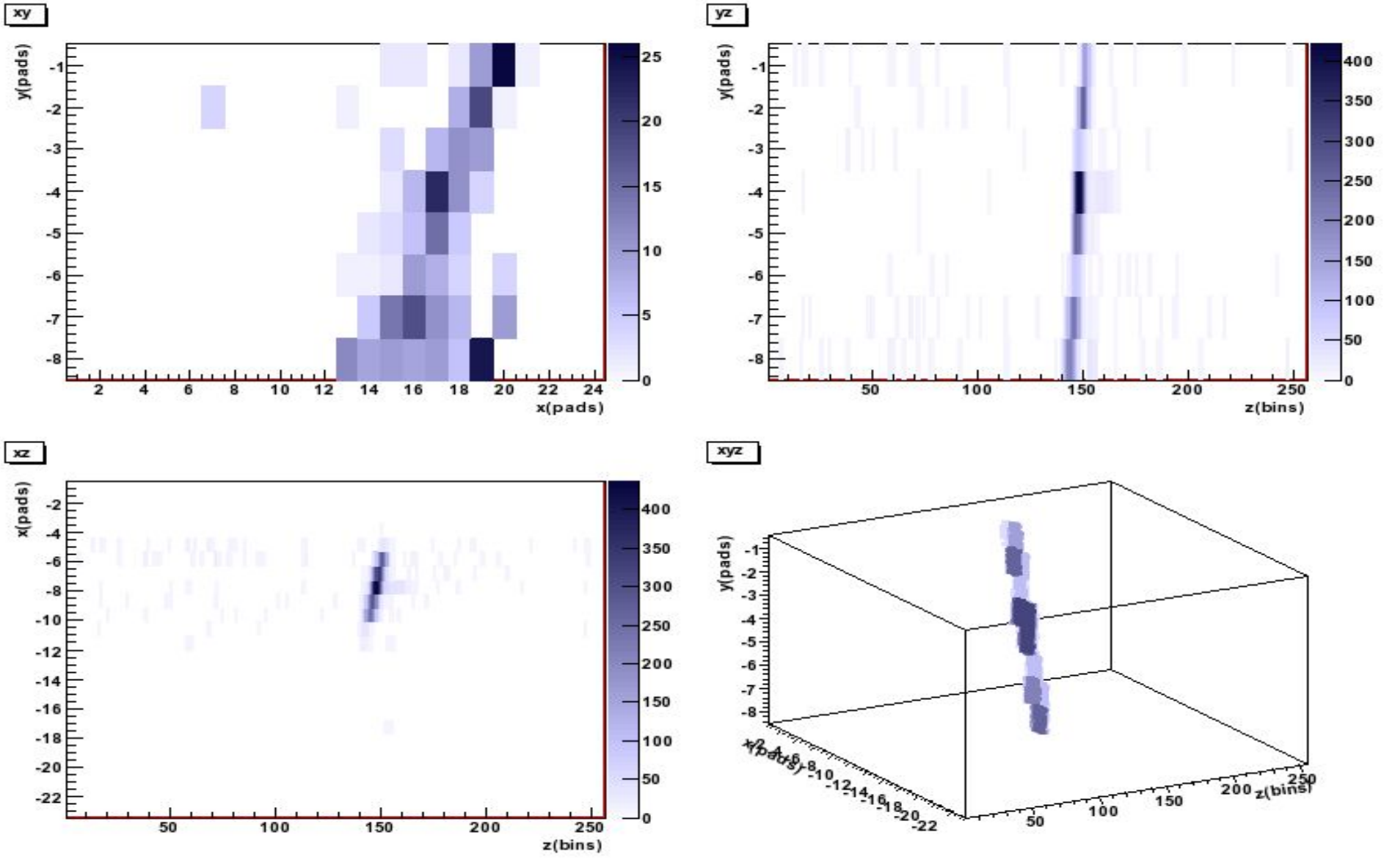


What is the event display?

- Through the event display we can set some parameters in our system in order for example to cut the noise
- We can visualize our raw data and see if what we get is meaningful
- This picture represents the control panel of a new event display
- In order to achieve all these goals we use Root to display the events and tQDWidget to construct the control panel

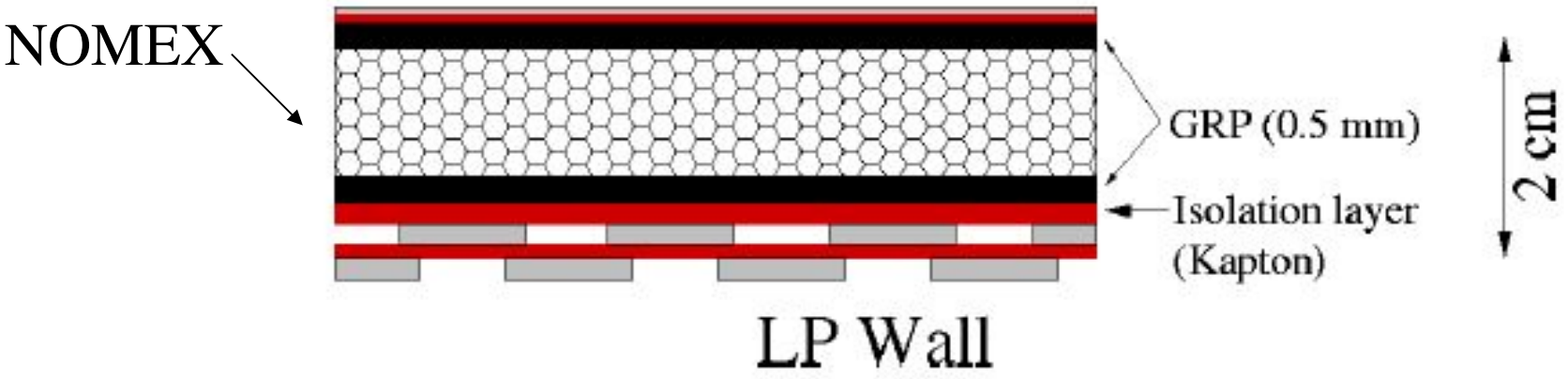


What do we get finally?

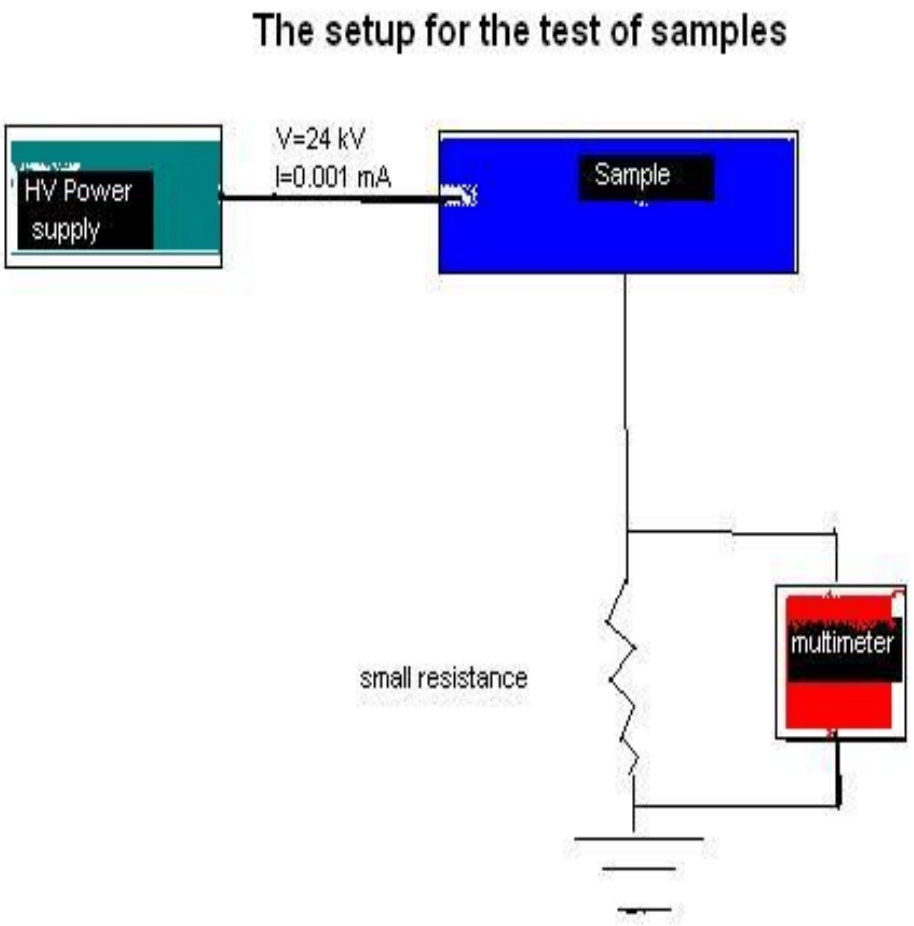


Testing materials for the construction of a new fieldcage for the TPC

- We need this material because it is light so as to have least multiple-scattering to the TPC fieldcage in front of the calorimeter
- It has to be mechanically and electrically stable
- Several different layer configurations



How do we check these samples?



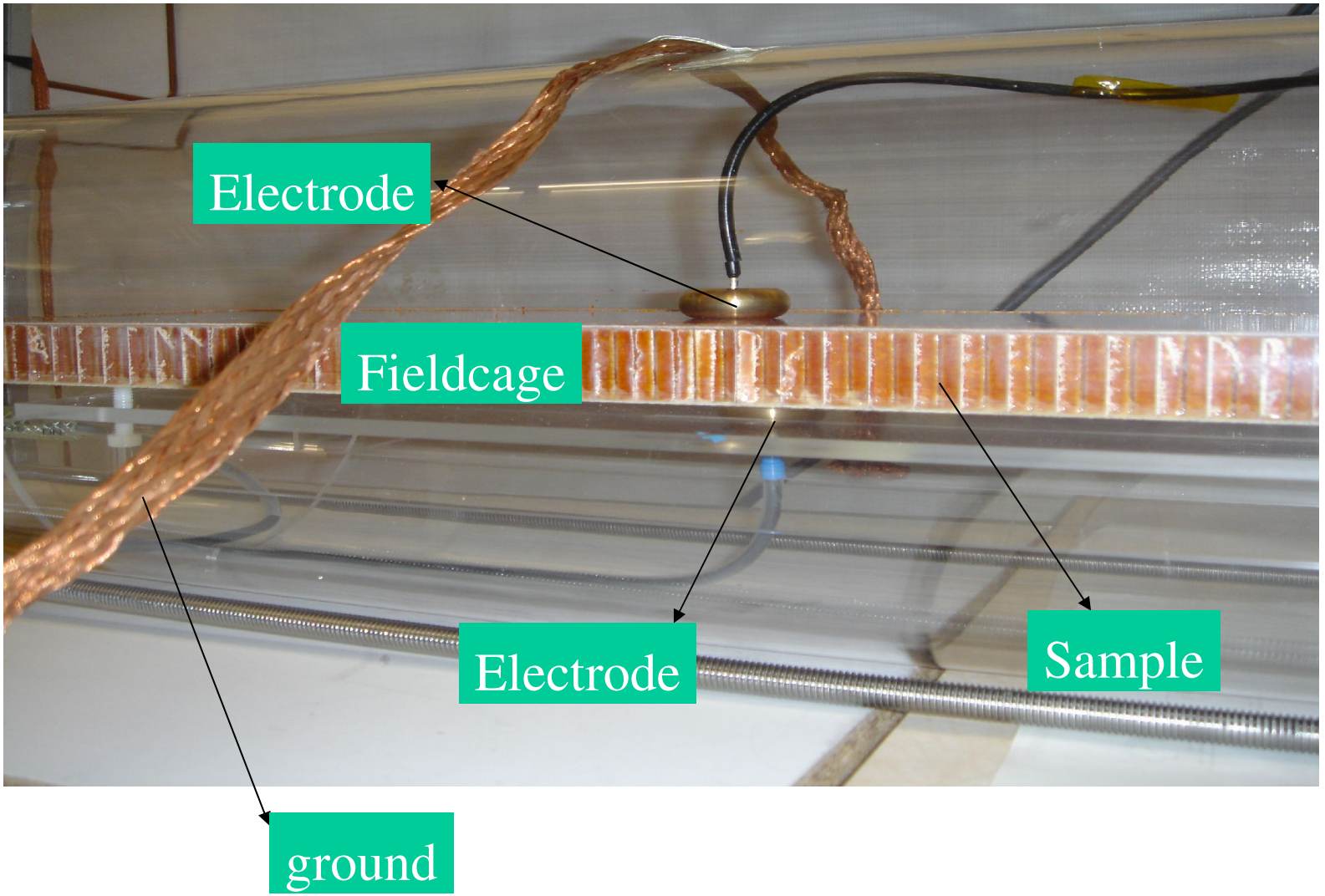
We check these samples by using a High voltage power supply at 24 kV!!!

We measure the floating current using a small resistance in series with our samples

No current above the limit of the measurement device observed

Long term test at 24kV did not show a breakdown.

A real image of the Experimental Setup



Conclusions

- DAQ manual for mediTPC provided
- The Event Display was an interesting experience for me because I have a deeper understanding of Root and its usage
- All samples for the FC wall electrically stable
- Thank you for the wonderful time that I have here at DESY