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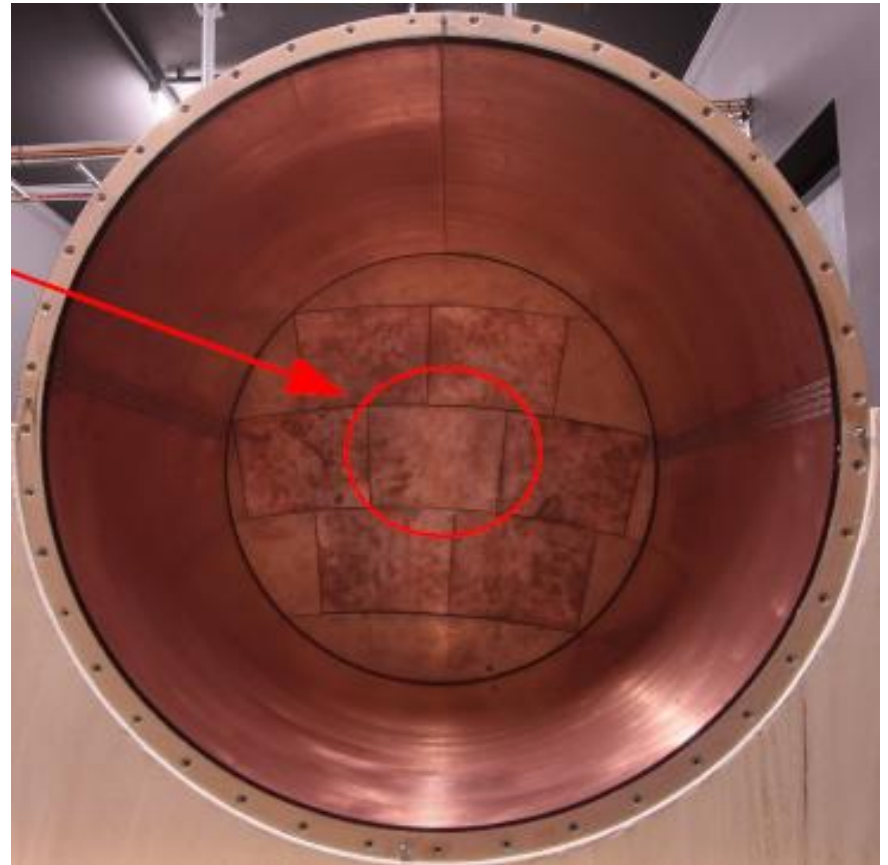


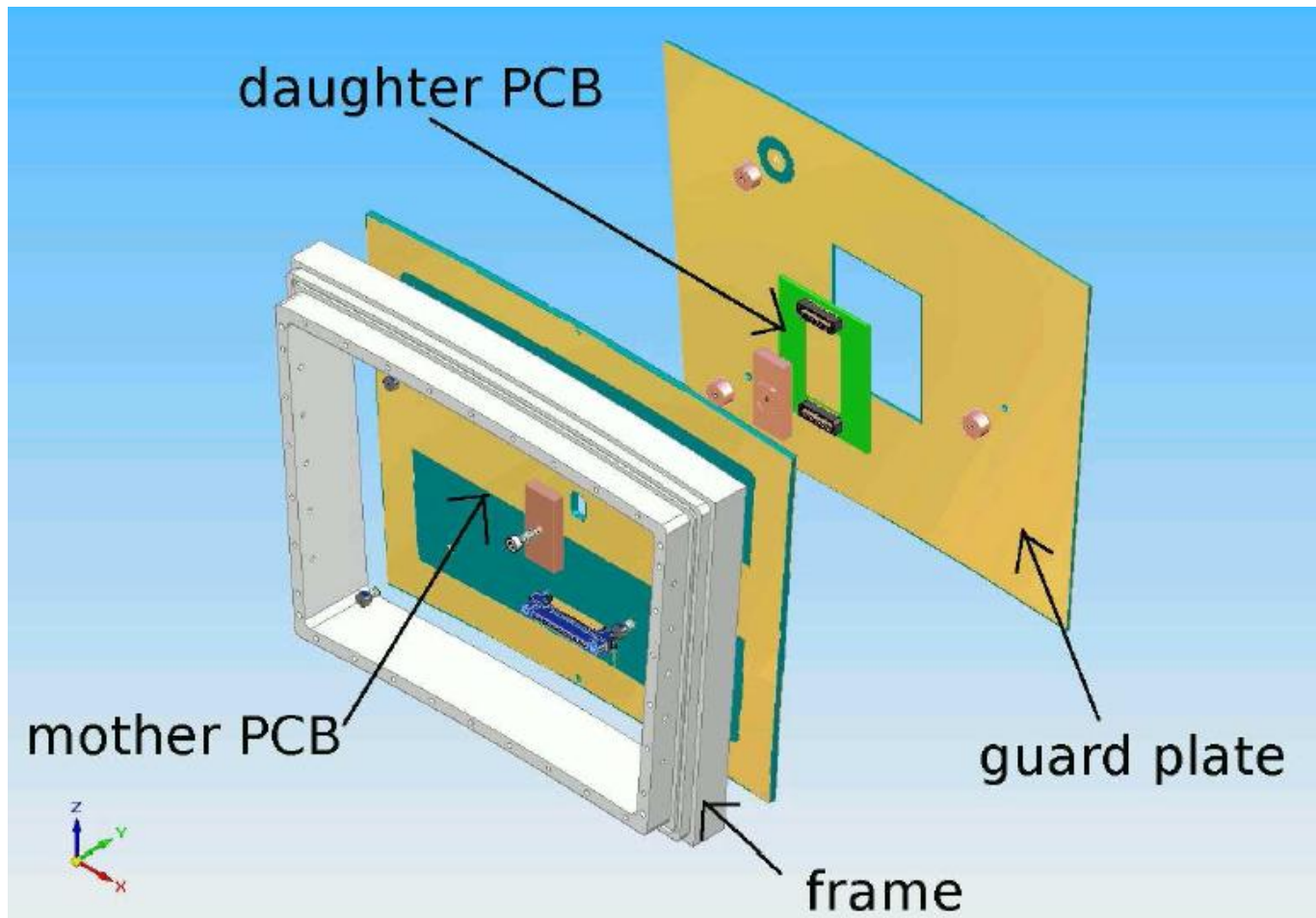
saclay

Design and operation of an 8- TimePix chip TPC Endplate

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The goal is to have one
8-chip module which
can be inserted in the
LP endplate





The electronics on board has to deliver power and steering signals to the chips and has to send the data to the MUROS

Due to constraints:

- paving with fragile InGrided chips (100 bonding wires per chip)
- high power consumption
- robustness
- Electric field homogeneity

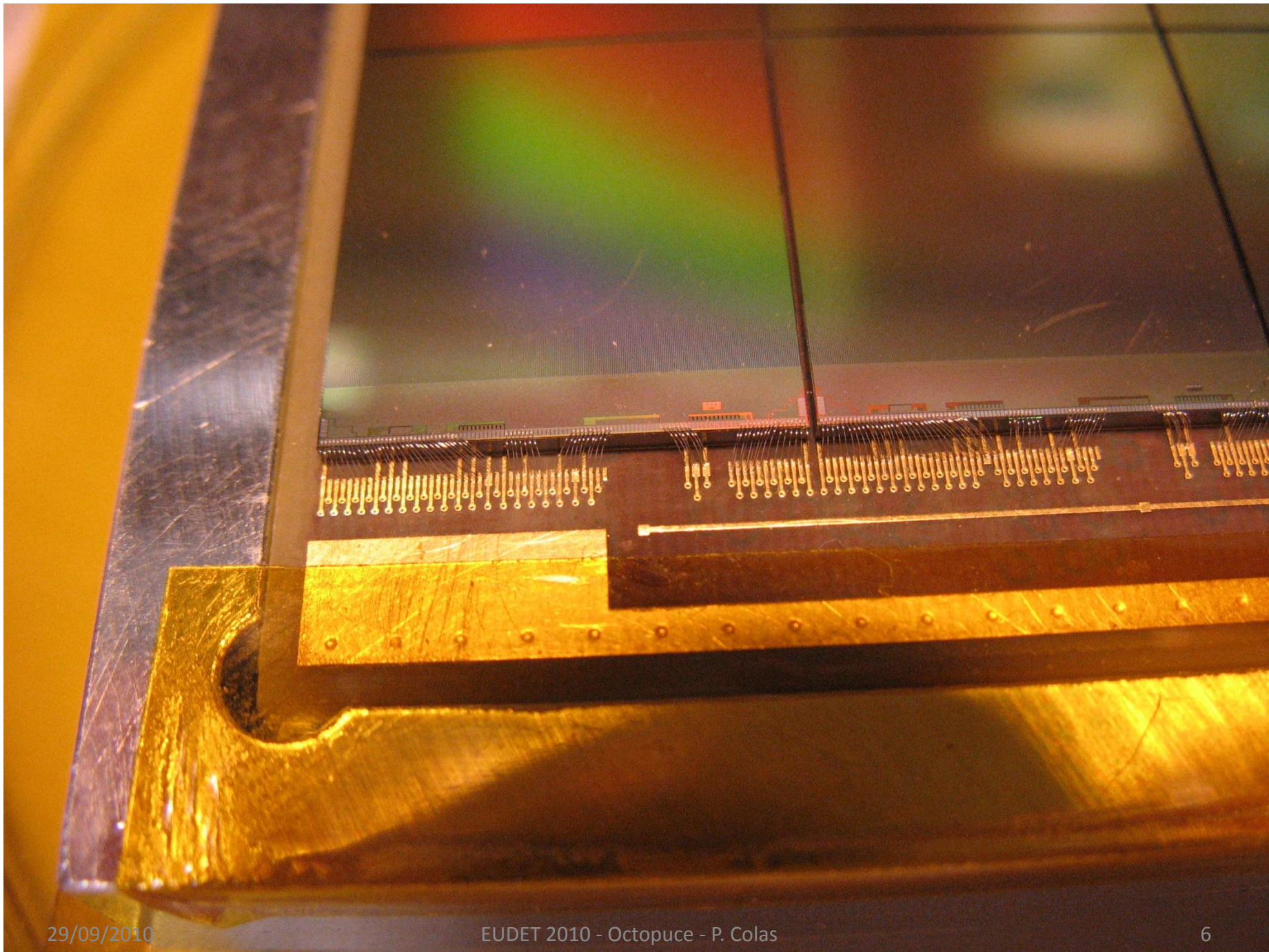
The design evolved : separate in 3 parts :

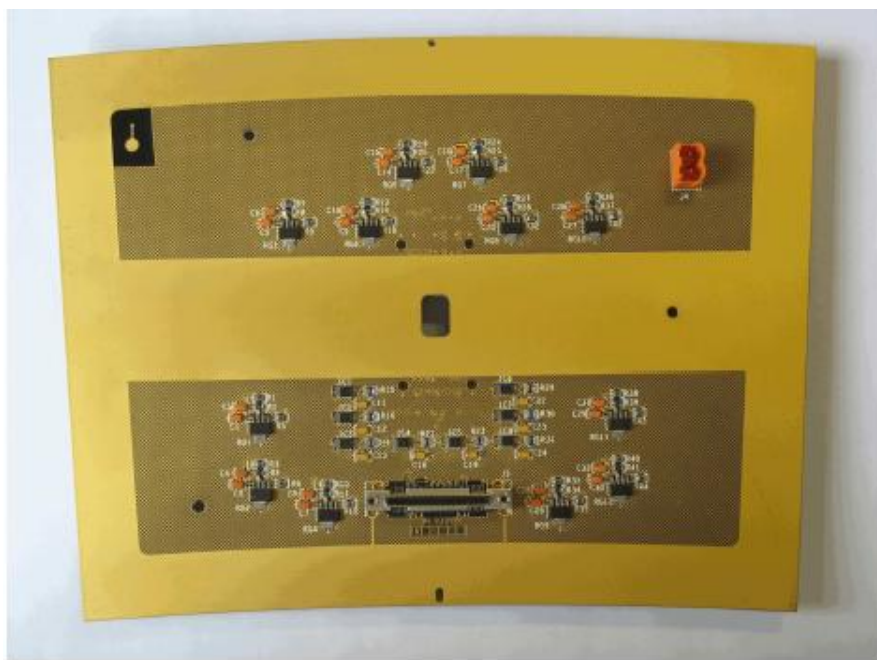
- mother board with regulators
- daughter board with copper radiator, daisy-chaining of the chips, and possibility to bypass a dead chip
- termination plate for the field

- The chips have been produced in Twente, and bonded in NIKHEF (thanks to Yevgen Bylevich, Jan Timmermans, Jop Rovenkamp)
- The HV is brought by one or several wires

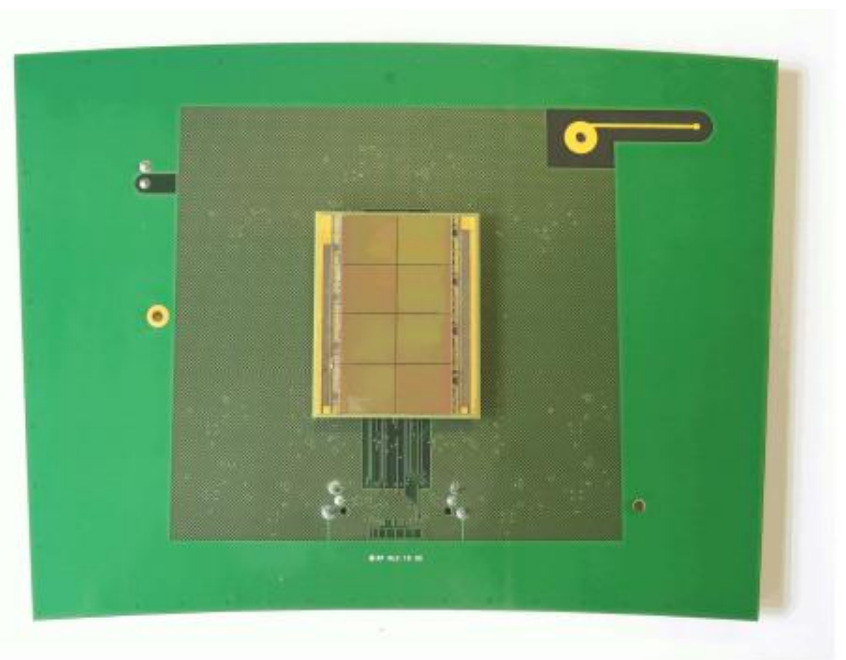
HV connection pad with prints of several attempts to bond them



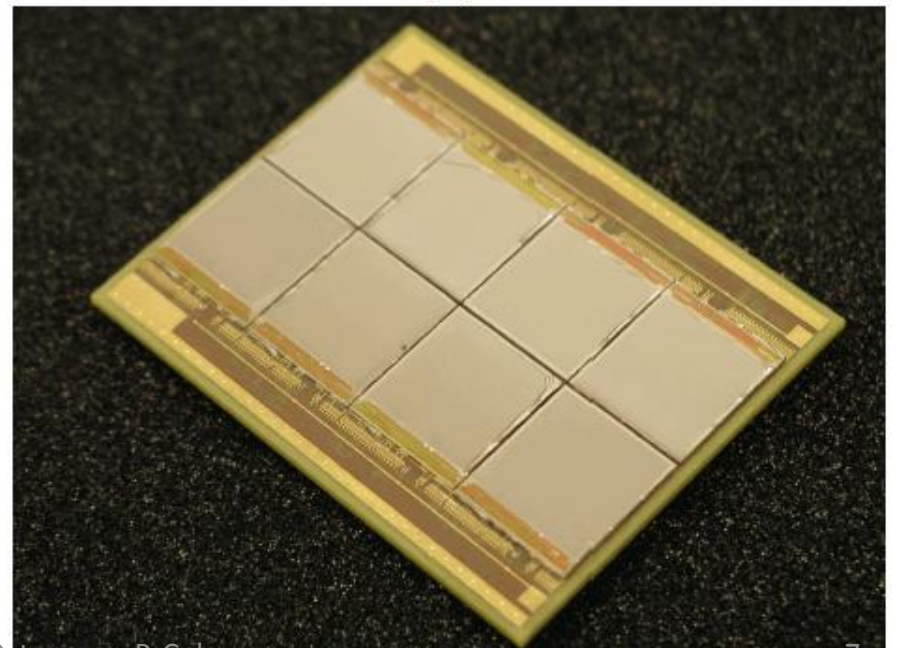




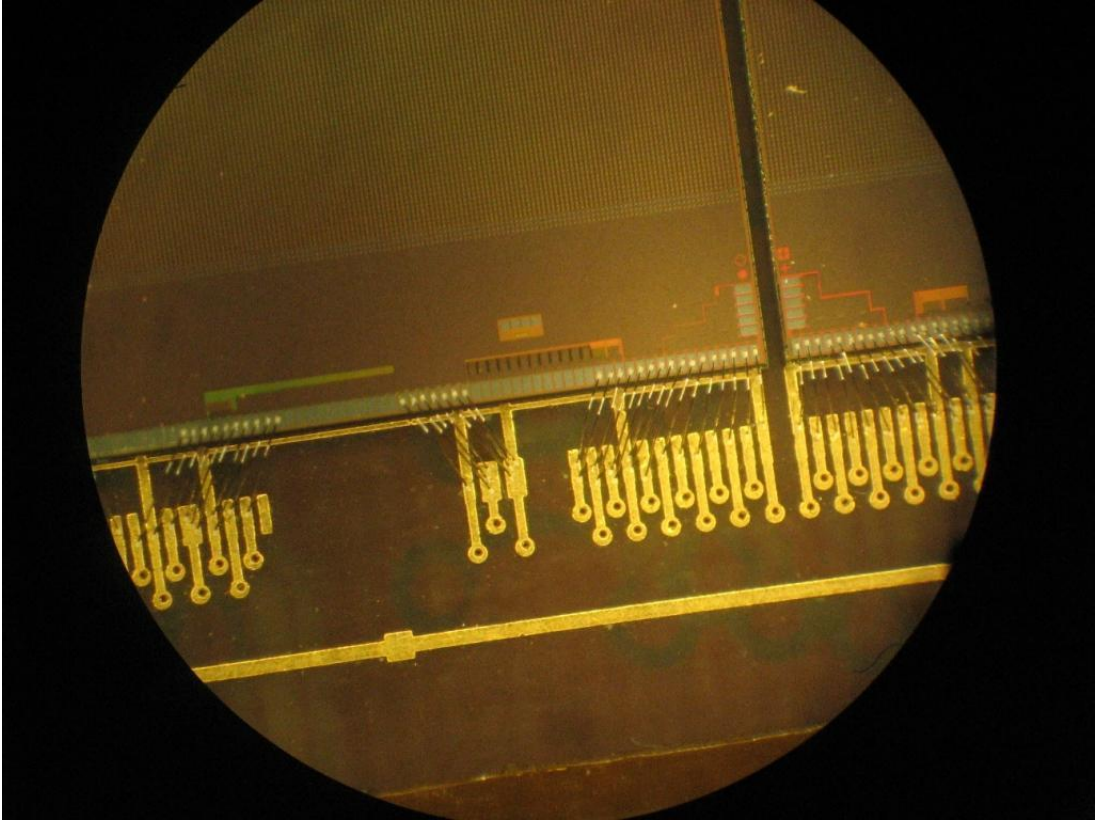
(1)



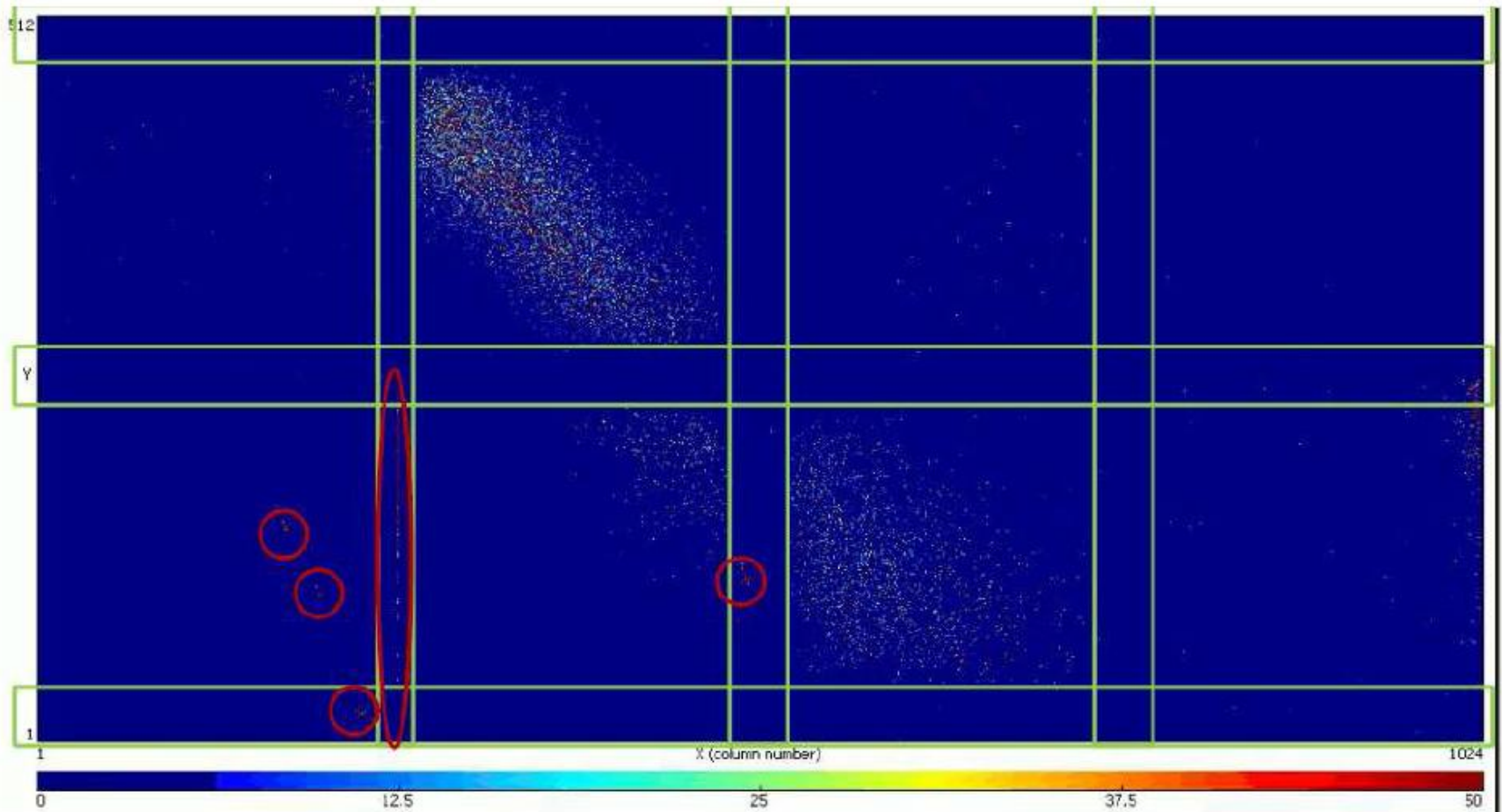
(2)



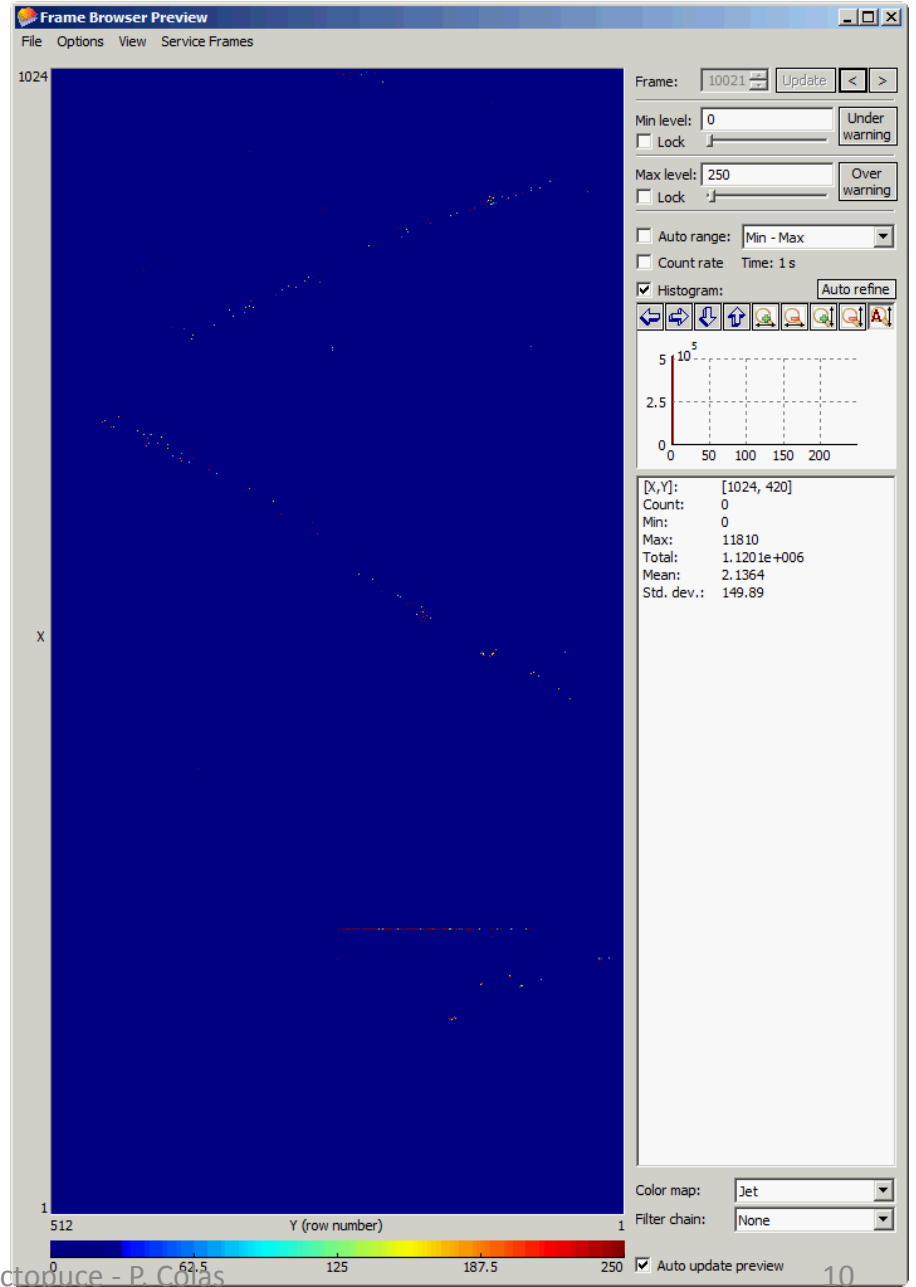
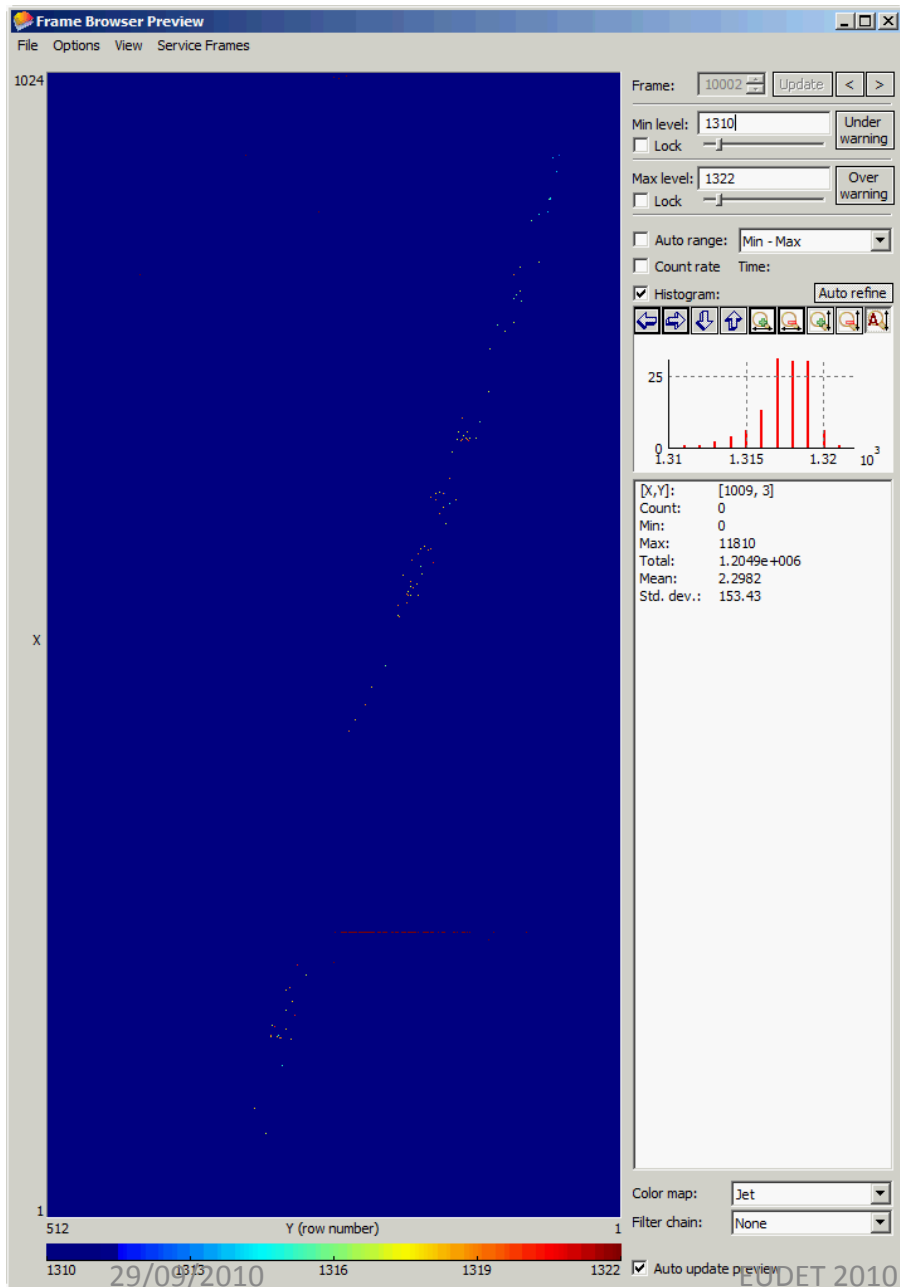
The support card with all the connections is now an 8-layer PCB



An alpha particle in the octopuce with Ar+5%isobutane at 325 V



Data taken in He + 20% isobutane at 375 V



Conclusions

The octopuce works in a stable way, ready for beam.

This is the largest (in number of channels) Micromegas TPC :

500 000 channels !

High sensitivity to the single electron.

