

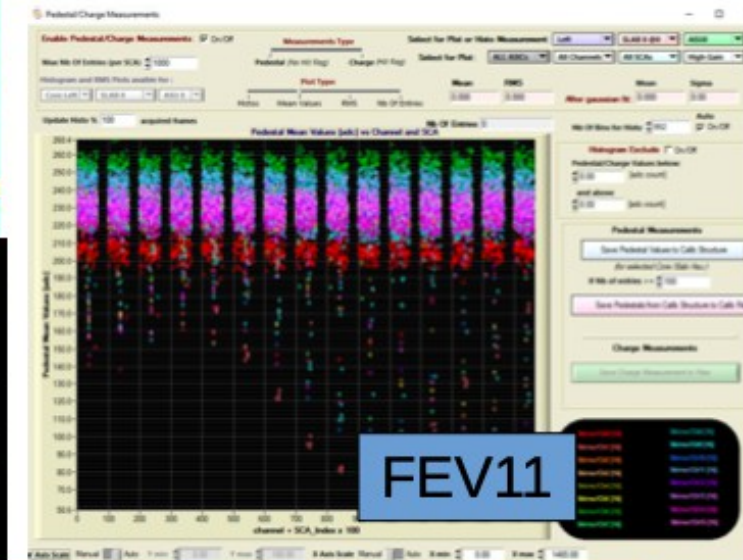
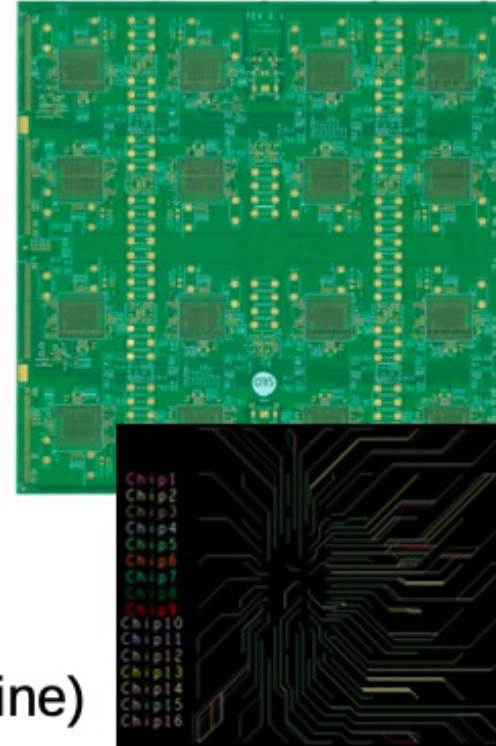
New FE boards

Improvements:

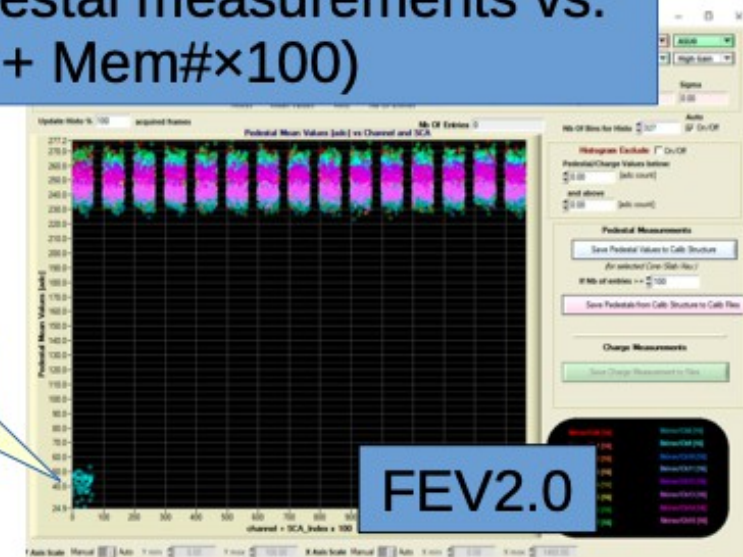
- Power distributions
 - Local power regulation
 - Local High Voltage filtering & Supply
- Signal distribution (buffering), data paths
- Monitoring (single ID, temp, probe analogue line)
- ASIC shielding/routing

Status:

- pre-version 2.0 tested, minor corrections needed
 - Noise uniformity dramatically improved (ex: outliers in thr. / 20 !)
- version 2.1 produced, ... in metrology
 - before cabling, 2nd metrology, gluing, ...
 - All material available : ASICs being tested



Pedestal measurements vs. Ch# + Mem#x100)



Four boards are meanwhile fully cabled and subject to first tests
 Goal: build 15 layer stack for 2024 based on these Boards

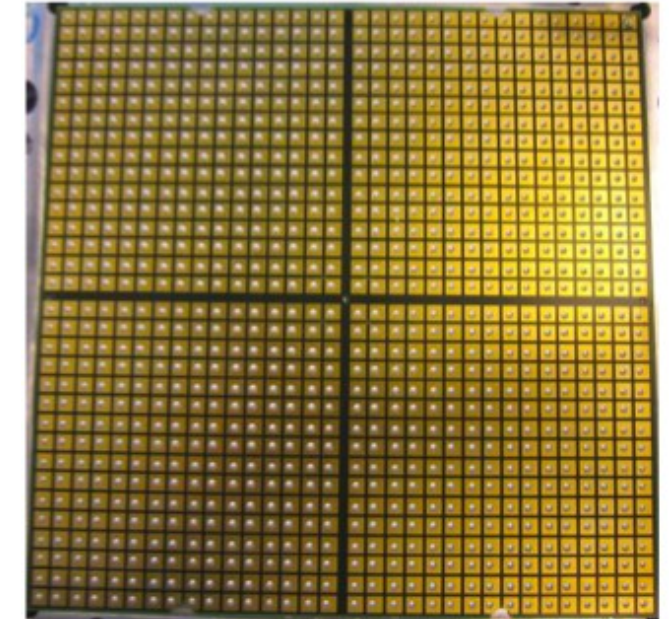
Metrology and PCB Deformation

DESY, CNRS-IJCLab, CNRS-LLR, FZU, JGU

- Setup of a device to measure the flatness of the PCB at different stages
- PCBs will be out into cabling machine and dimensions will be monitored before and afterwards

Glue – Alternative agents and procedures

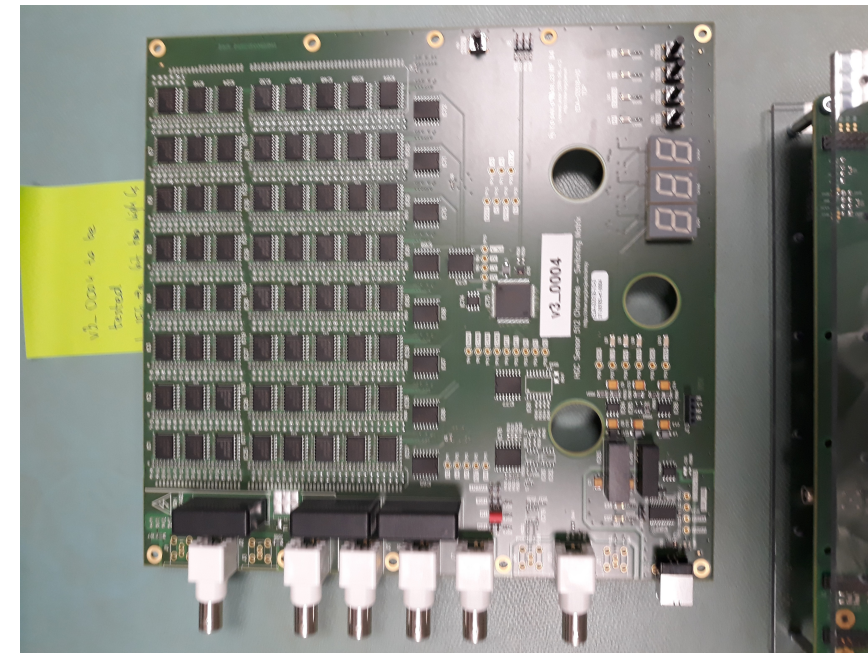
- After discussion with Astronomy Institute of Paris and Epotek
- Test glue of type H20E as alternative to Epotek J2189
 - Should have higher mechanical stability
- Use EPOTEK 301-2 as underfill for mechanical stabilisation (proposal of Epotek)
 - This underfill has low viscosity that ensures mechanical stability by capillary effect
 - First tests promising – underfill flows across the PCB, need to control polymerisation
- Alternative proposal EPOTEK 353ND-T
 - Epoxy for gluing electrical component, could be used to stabilise glued sensor at sensor boundaries
- Alternative with double sided scotch about to be studied
- 25 sheets arrived last week, 10 on their way to IFIC
- Further contact with Technacol, a lab specialised on polymers for technology transfer to industry



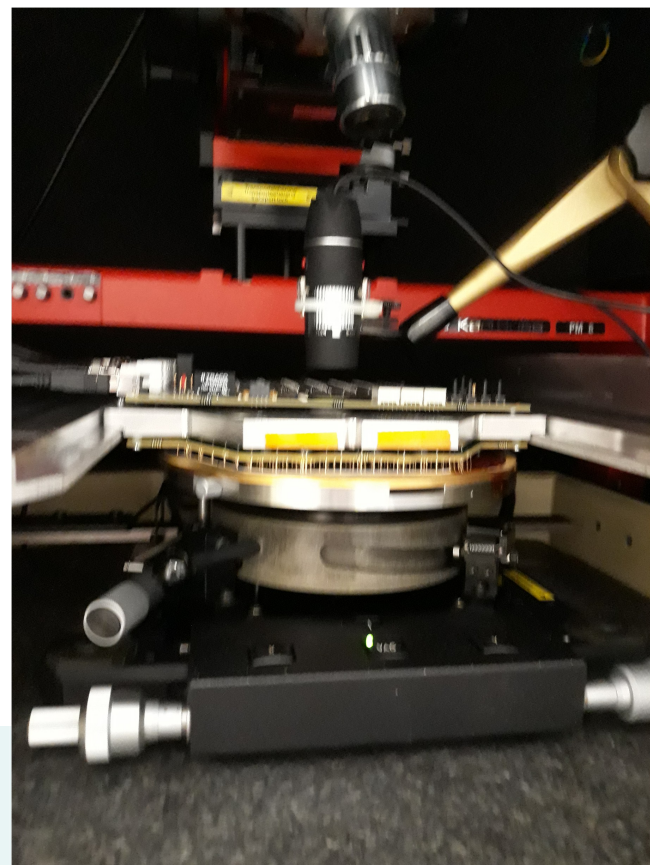
Pull tests

- IJCLab prepares pull tests in order to get a quantitative picture of the mechanical stability of the glue

- **Inventory of sensors at IJCLab**
 - 12/12 in good shape after visual inspection by Jimmy and myself
 - Stored under controlled conditions in IJCLab pixel lab
- **Sensor testing**
 - R.P. Paid visit to CERN (CMS-Lab) on 14/6/23
 - Sensor testing can be done at CERN
 - Need PCB adapted to our sensor size and shape
 - Depends on availability of CERN electronics workshop
- **Inventory of HV Kapton**
 - 8 Kaptons available but they are not well pried
 - Are they still useful?



“Universal card”



Sensor in
Probe station



HV supply
I meas.
Frequency
generator