

AIDA²⁰²⁰



**Si-W electromagnetic calorimeter
Status report on the assembly process
Gluing – Electrical and Geometrical measurements**

**Contribution in the development of an assembly line for highly granular
calorimeters with semiconductor readout**

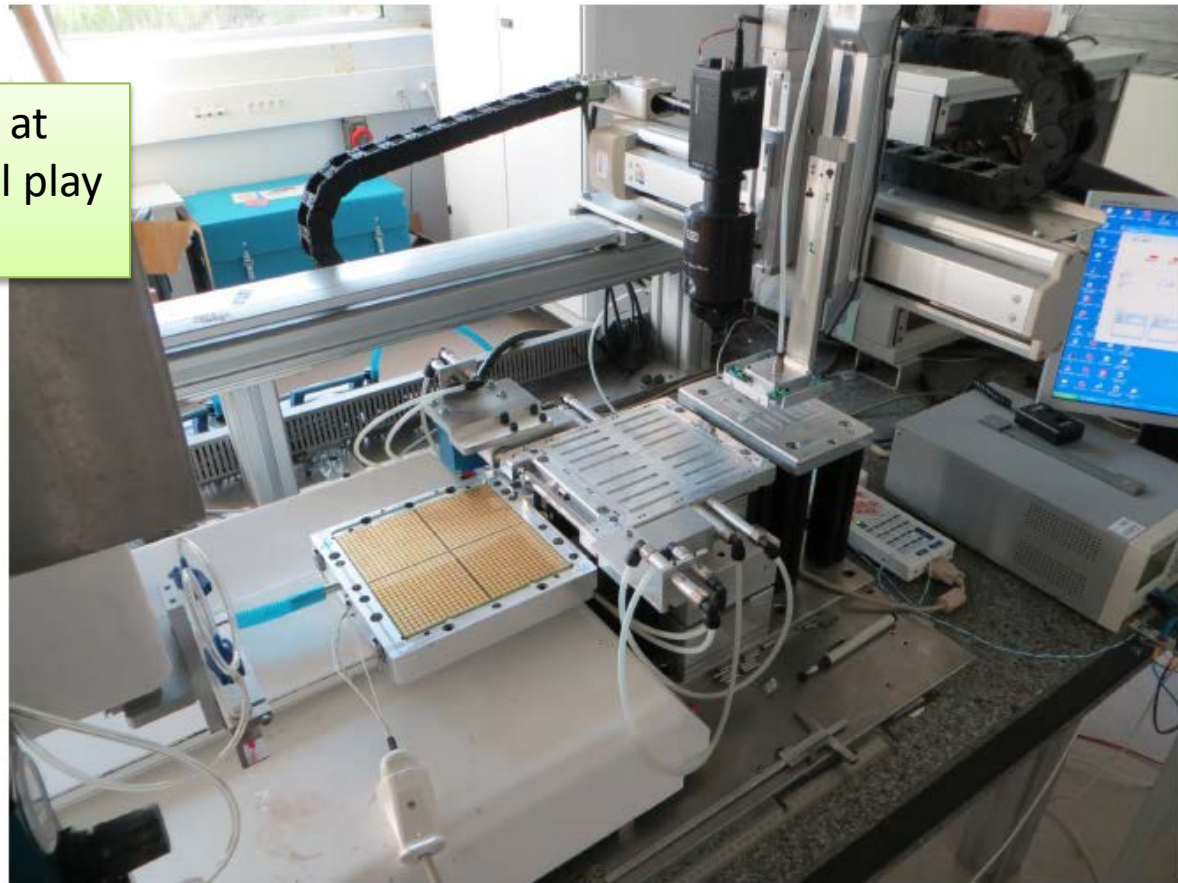
See <https://agenda.linearcollider.org/event/6741/> for details

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Gluing and positioning automated process

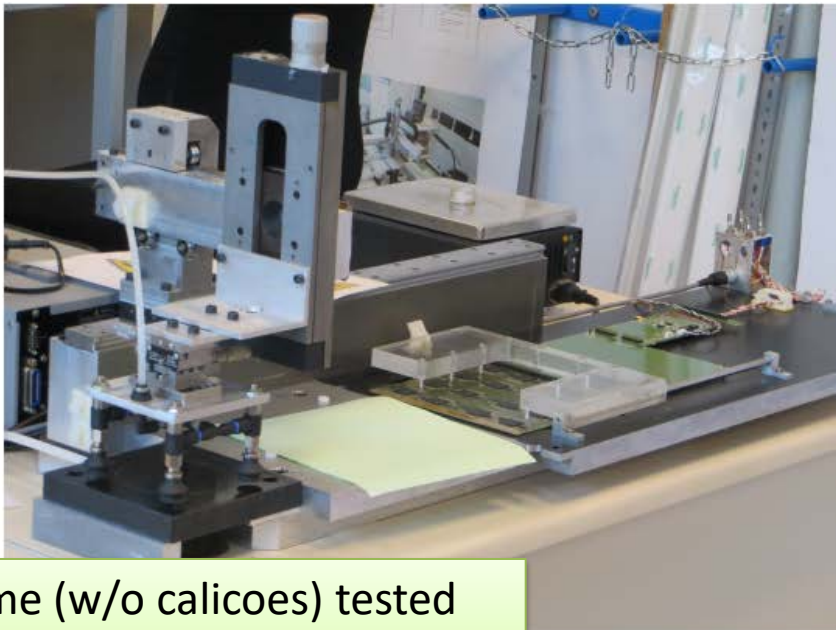
- Software (Labview) for the gluing robot has been implemented
- The second robot for positioning, alignment, and handling has been assembled and its software developed

New motor aiming at reducing mechanical play of gearing

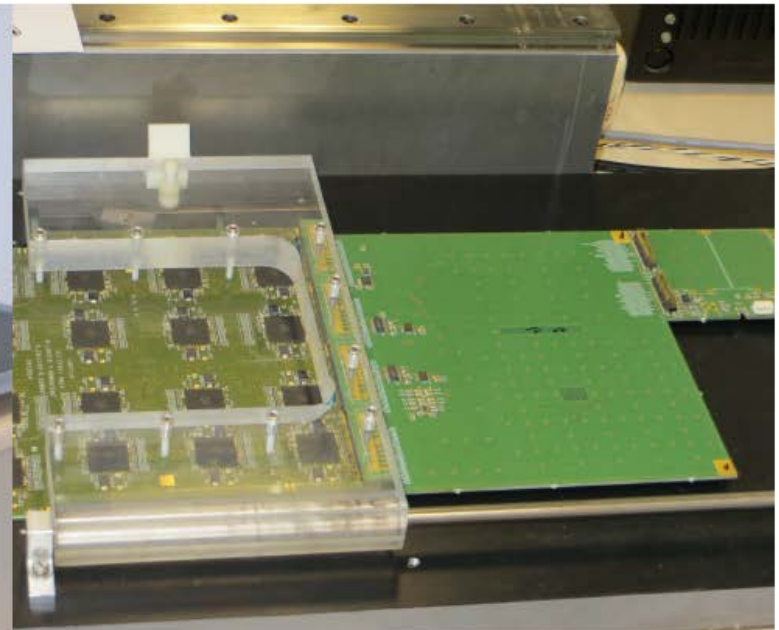


Electrical tests bench

- A dedicated electrical test system is used
 - to control the wafers before gluing
 - to check the short cuts immediately after gluing
 - to measure the $I(V)$ curves of each wafer and all 4 wafers
- sourcemeter Keithley 2450 + LLR Bench



Pyrame (w/o calicoes) tested for IV measurements of wafers



Plans to add a full DAQ system for testing after gluing (waiting for a GDCC and software)

PCB Metrology

- Development of an automatic process using a coordinate measuring machine (tri-dim machine)
- Before cabling :
 - Squaring
 - Parallel edges
 - Size
 - Thickness (flatness in depression)
 - Flatness
- After cabling : flatness and thickness



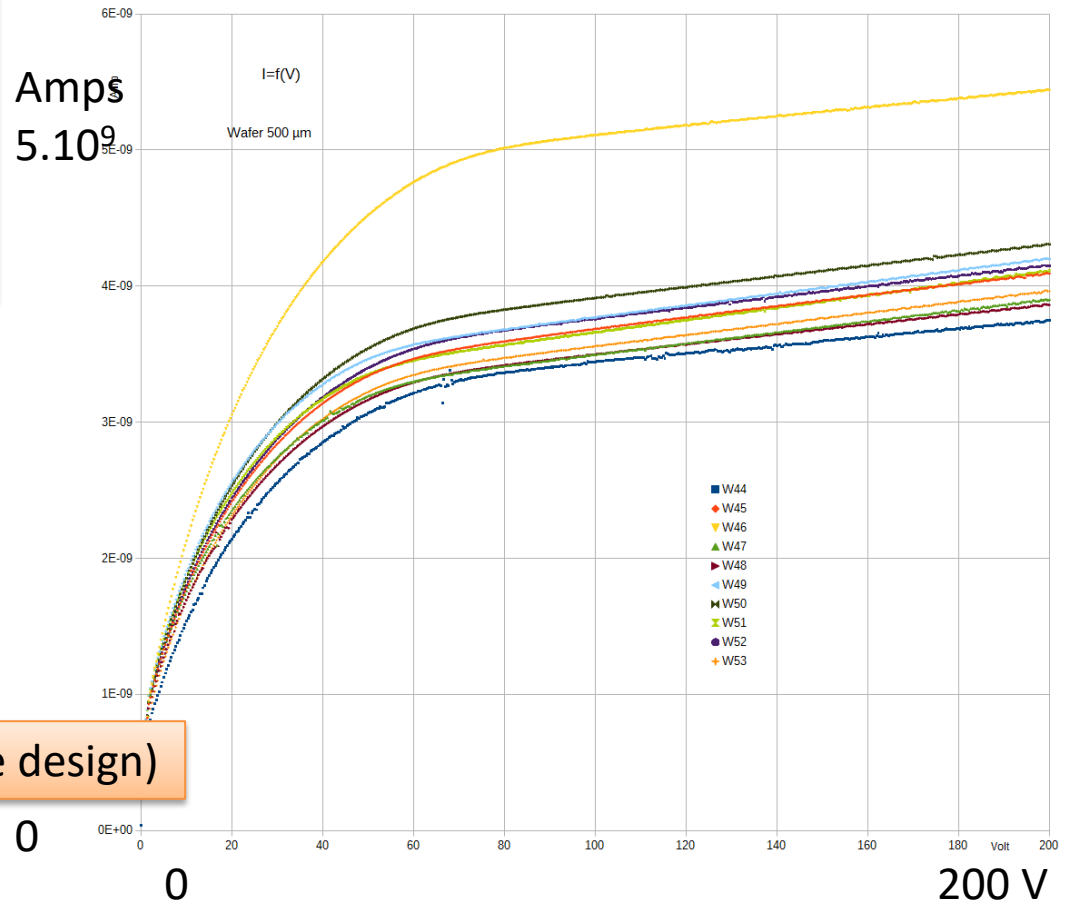
Latest FEV12 batch (24 boards) is 100% within tolerances (was ~70% in previous batches)

I(V) measurements on 2017 wafer batch

Measurements are compliant with HPK data

Monthly survey has started

Wafers are kept in a dry cabinet

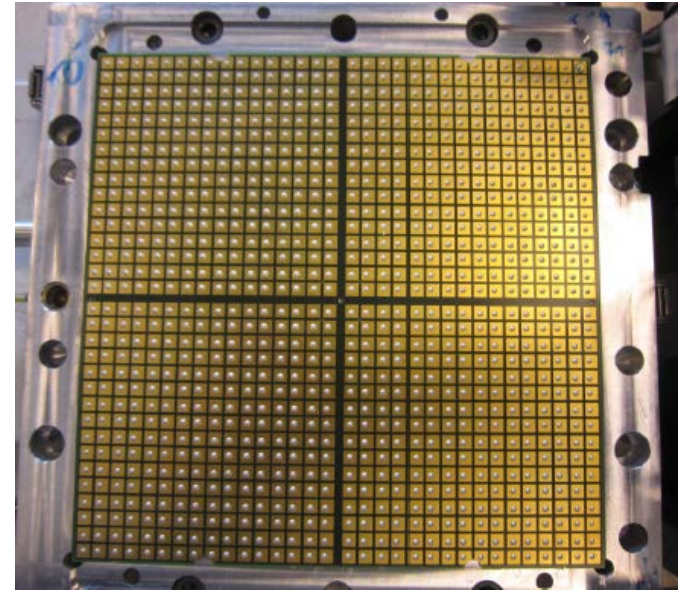


Waiting for LLR'2016 batch (same design)

Conclusion

Facilities at LPNHE are up and running
Operators keep training

Would need plans for next steps :
I(V) & production of slabs



Feature improvements depending on
availability of GDCC & SW