

Calice - ILD - SiW EM calorimeter

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

Gluing robot system

PCB Metrology

Electrical tests

Quality Insurance

Industrialisation of the gluing process

Physicists ILD-Calice = 0.3 FTE

J-E. Augustin

D. Lacour

Départs 2016-2017

J. David : electronics

J-F. Huppert : computing

L. Lavergne : instrumentation

Technical staff: 01/01/2018 = 1.2 FTE

R. Cornat : instrumentation 0.1

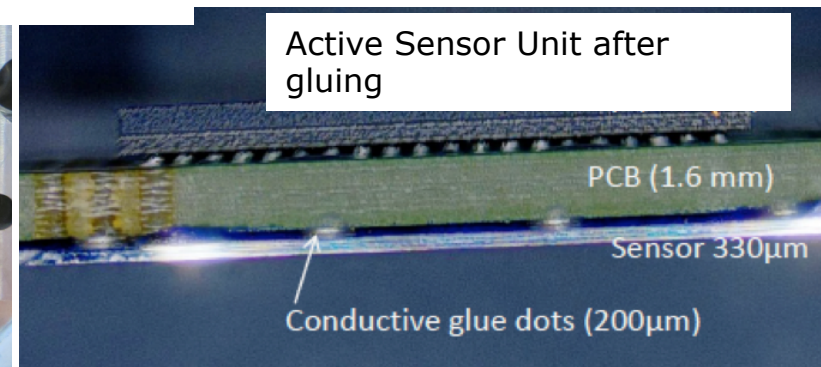
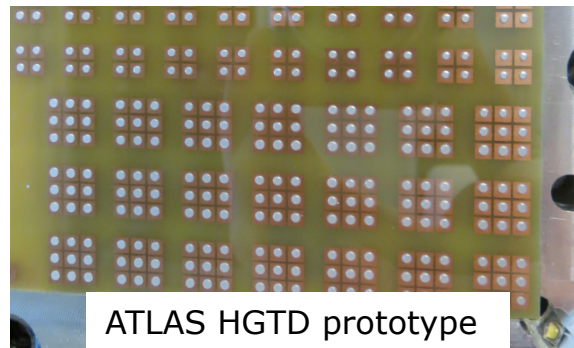
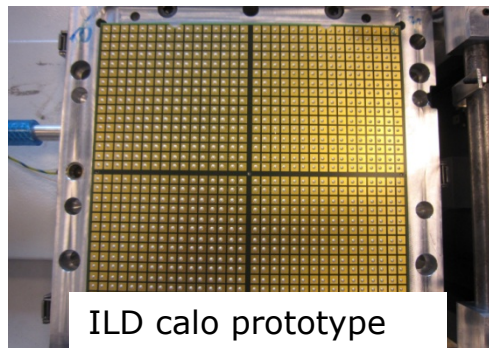
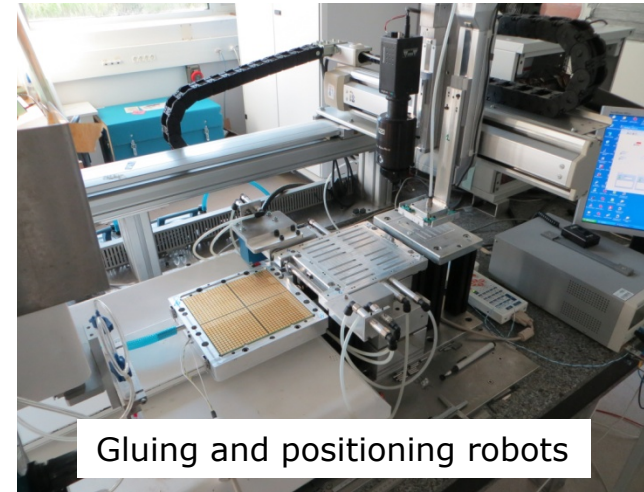
P. Ghislain : mechanics 0.5

J-M. Parraud : electronics 0.5

D. Vincent : mechanics 0.1

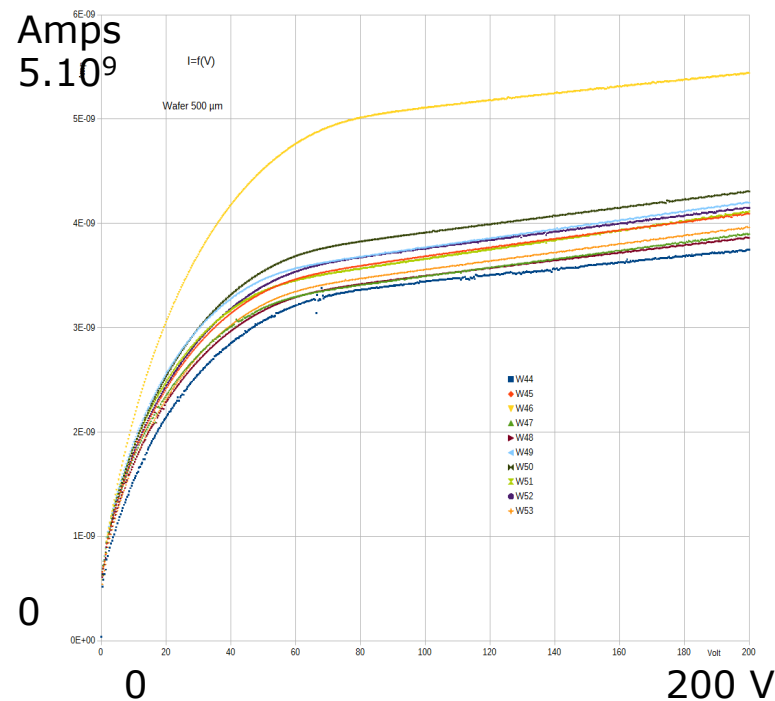
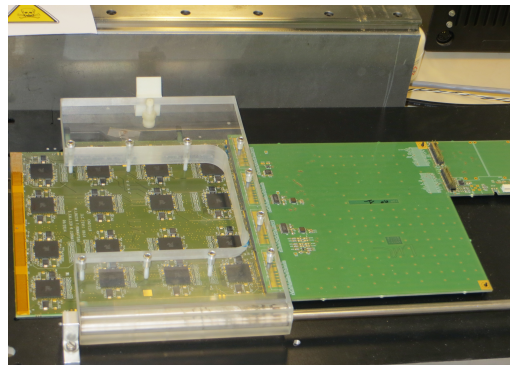
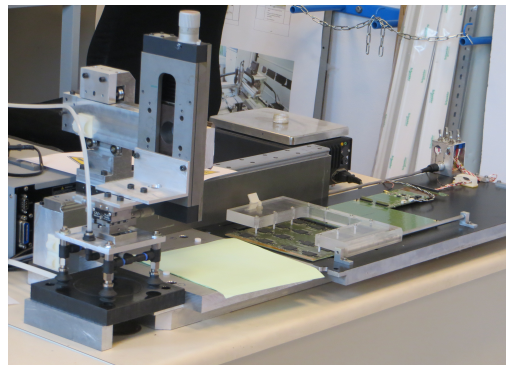
Calice activities

- Assembly done with gluing and positioning robots: automated system developed in the framework of the Calice R&D program for ILD SiW EM calorimeter and for ATLAS high granularity timing detector
- Electrical test to control the sensors before gluing, to check the short cuts immediately after gluing, to measure the I(V) curves
- PCB Metrology using a coordinate measuring machine (tri-dim machine): squaring, parallel edges, size, thickness flatness
- Gluing test with glass plates

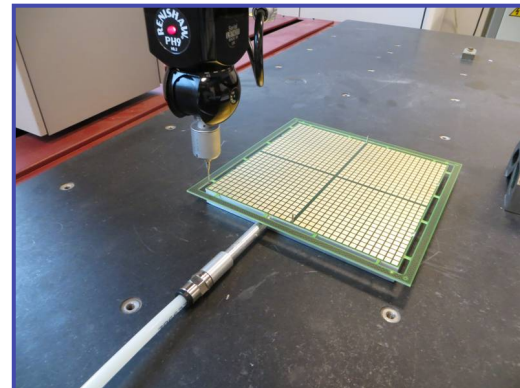


- 7 layers assembled for 2015 test beam ILD prototype – 5 layers for 2016 test beam
- Industrialization of the process considered – preliminary contacts with Eolane company
- New motor aiming at reducing mechanical play of gearing

Measurements are compliant with HPK data
 Monthly survey has started – Wafers kept in a dry cabinet



Metrology: Latest FEV12 batch (24 boards) is 100% within tolerances



Pyrame tested for IV measurements of wafers
 Plans to add a full DAQ system for testing after gluing

Demande de moyens

- Fournitures et équipements scientifiques : 4000
 Sécurisation du robot de collage ; Qualité optimum du collage des wafers
- Missions, déplacements colloques et communications : 9000
- Informatique (portables, serveurs de manip) : 2000
- Salaires (stagiaires) : 3 mois, étudiant instrumentaliste, type M1 ou L3 : 1500
- Total : 16500 euros