

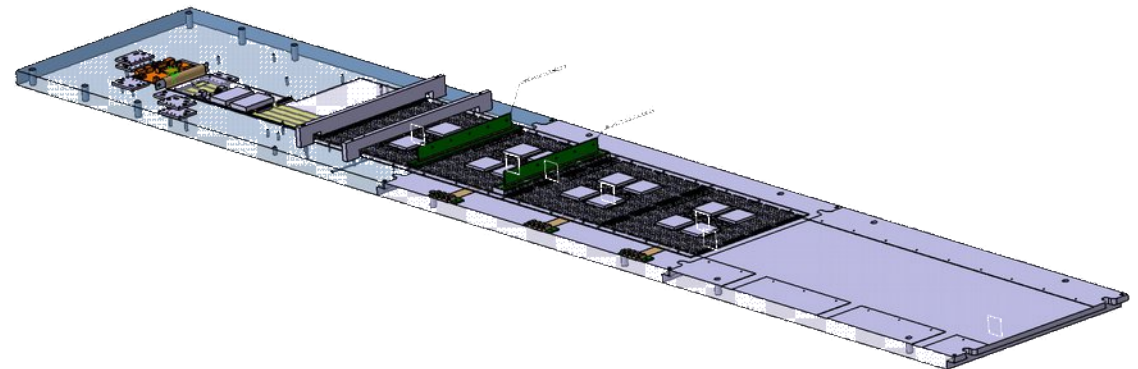
Plans for electronics long slab

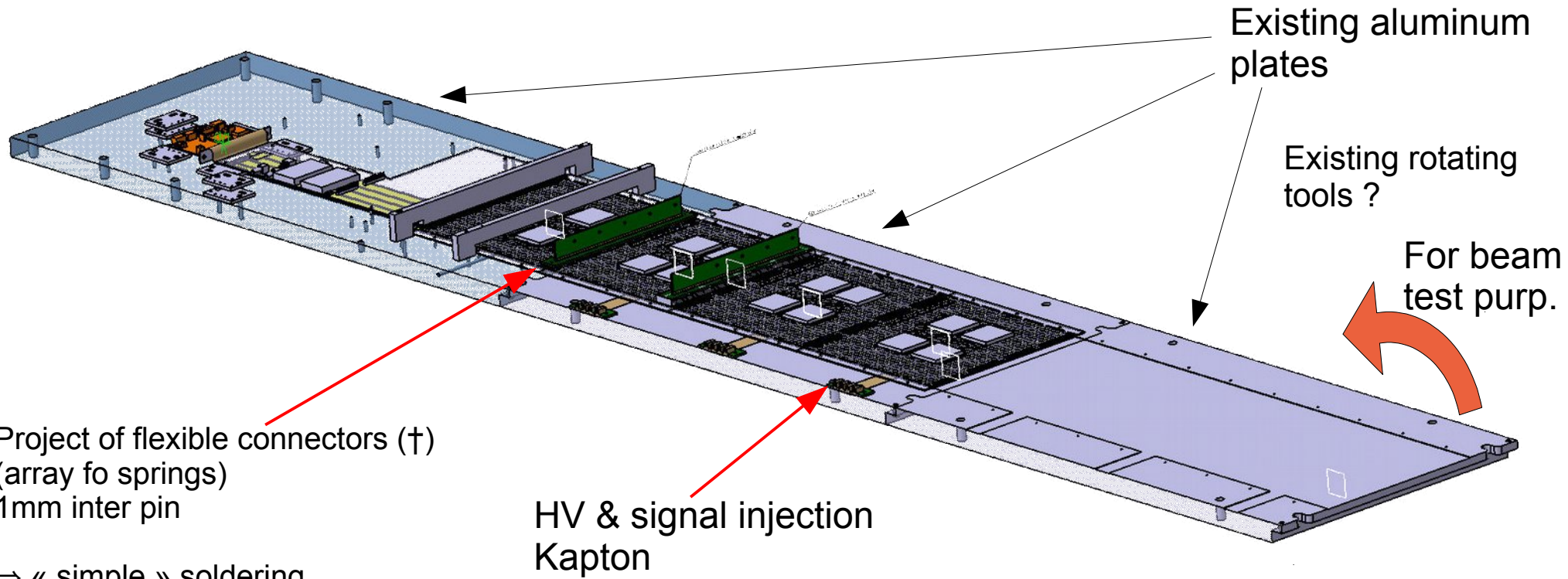
Concept

- **Build a table bench**
 - Purpose: test the conditions of the end ASU:
 - Powering
 - Signal propagation
 - Response:
 - » electronics injection
 - » wafers: cosmics, source, beam
 - 1) Disconnect mechanical from electrical studies
 - 2) Prepare a full slab (all integrated) demonstrator
- **Staged approach**
 - 2 → 4 → 6 → 8 → 10 ?
 - baby + emulated

Design

- **Open design (access to all electronics signals)**
 - Soldered connection between ASUs
 - possibility to measure currents on some lines
 - possibility to disconnect line to test ≠ power scheme
- **Connection from bottom**
 - Baby wafers + “emulated wafers”





Project of flexible connectors (†)
(array fo springs)
1mm inter pin

⇒ « simple » soldering
⇒ Resisitive soldering ?

HV & signal injection
Kapton

Emulated Wafers

Emulated Wafers ?

– Study to be done: extention of:

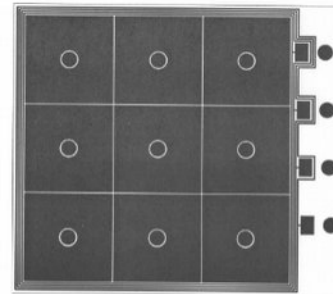
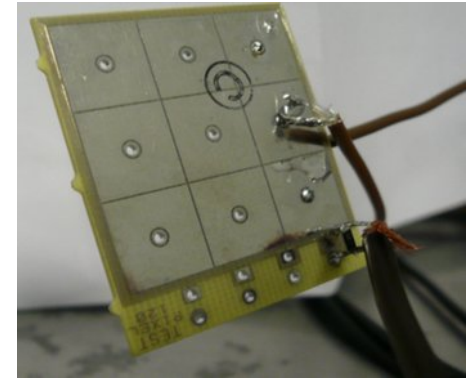
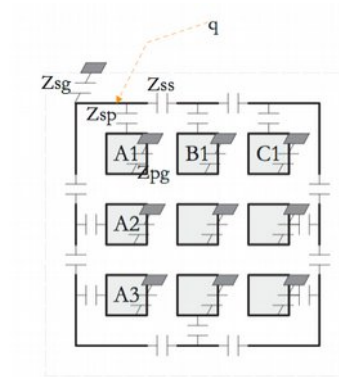
- CIN-008 Crosstalk measurements on PCB models of Si-W ECAL sensors with different design options", M. Benyamna, R.Cornat, F. Morisseau, 29/09/08

- + leakage currents
 - » (inverse diodes ?)
- + possibility to inject
 - » Δ noise!
 - » \Rightarrow Filtering ?

- Single ASICs ?
- Single Wafers
- 4 wafers ?

– Connection to ASU ?

- Gluing ?



Production Planning

Production of chips

- packaging of 160+ SK2
- packaging of 100 SK2a

Production of PCB

- 20 FEV12 in metrology (LPNHE)

Production of ASU

- cabling FEV12 + 16 SK2
 - ⇒ test of FEV12 on Flex Bench (July)
- cabling FEV12 + 16 SK2a
 - ⇒ test of FEV12 on Flex Bench (July)
- Gluing 1 baby wafer on of FEV12+SK2
 - Sept ?

Design of Set-up

- Sept/Oct ?

Prod support / FEV

- Nov/Dec

Signals

Cosmics

- MIP ~ 125 keV, 1/400 Hz/cell

Radio-active sources

- ^{90}Sr ($T_{1/2} \sim 30\text{a}$)
- $\text{Ba}133$ ($T_{1/2} \sim 10\text{a}$)
- ^{57}Co ($T_{1/2} \sim 0.7\text{a}$) \leftarrow also test of short SLABs
 - $\epsilon \sim 1\%$ in $300\mu\text{m}$ Si, through the PCB

Beam

- PHIL 3 MeV electrons (0,78cm in Si)
 - need a collimator for pencil beam.
- DESY.
- CERN

