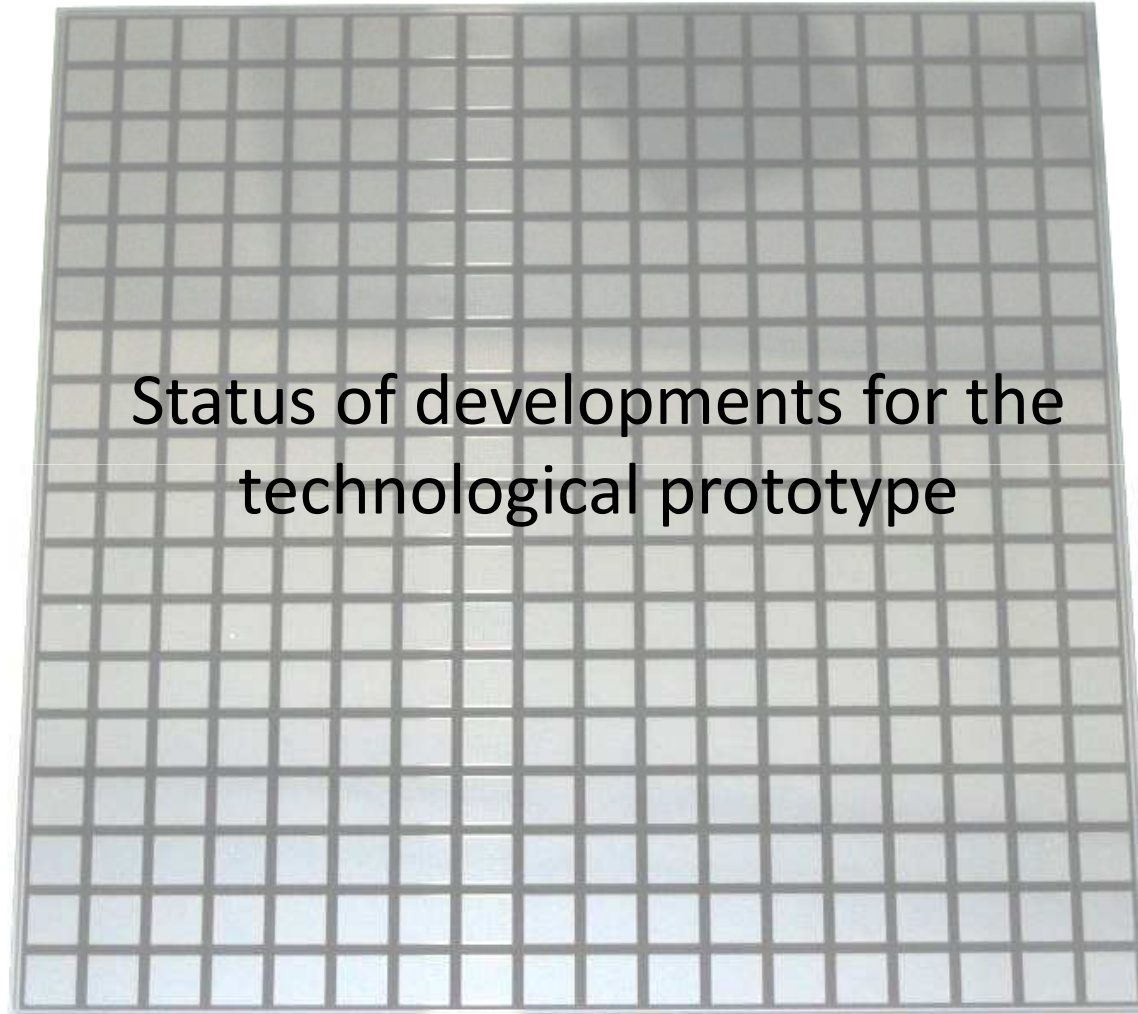
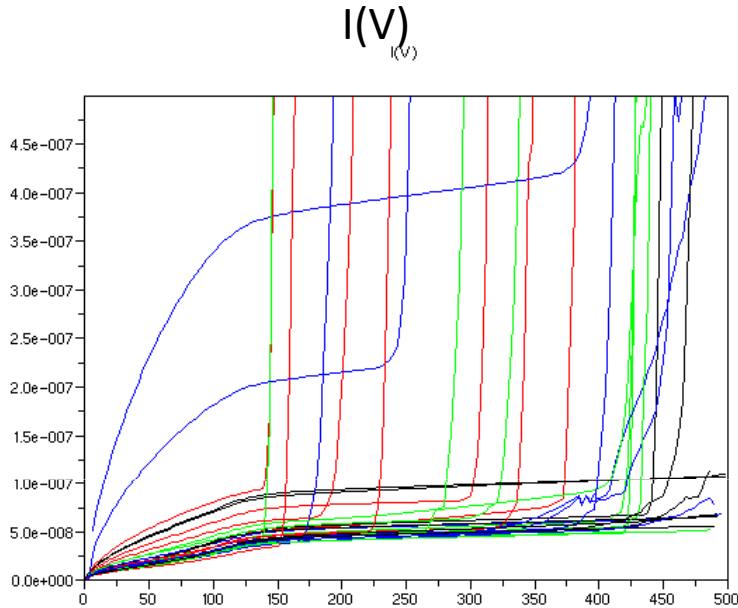


Silicon Sensors



R&D on segmented guard rings



Yield (Breakdown >250V)

- Continuous: 100%
- 1 cm: 85%
- 3 mm: 40%
- Mixed: 70%

2 conferences

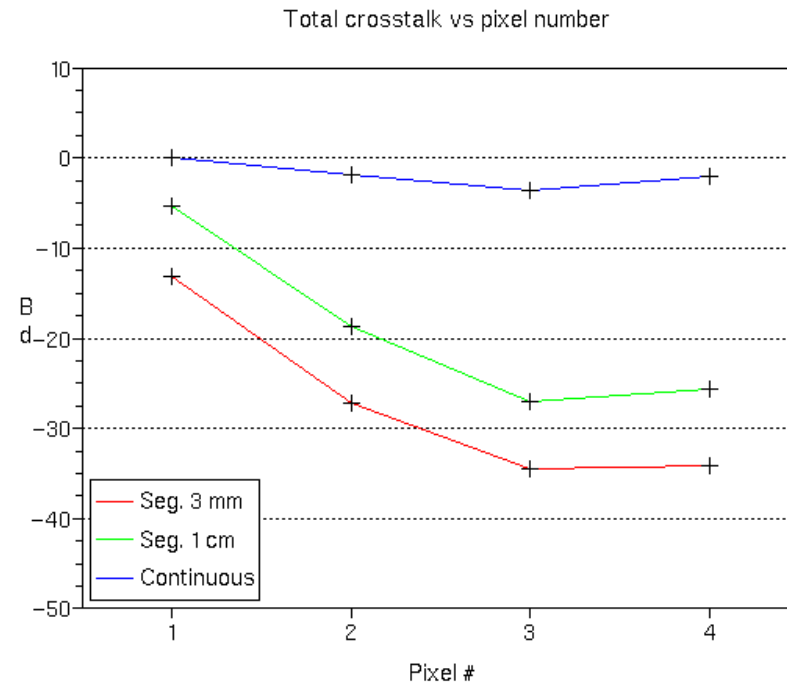
IEEE NSS'09

IEEE Sensors'09

Sum of GRs contribution

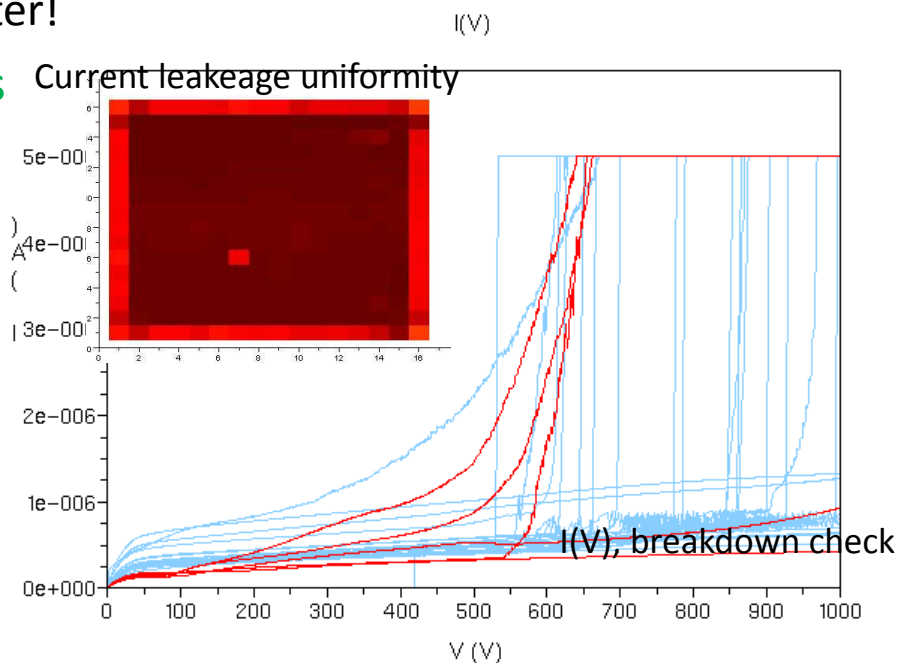
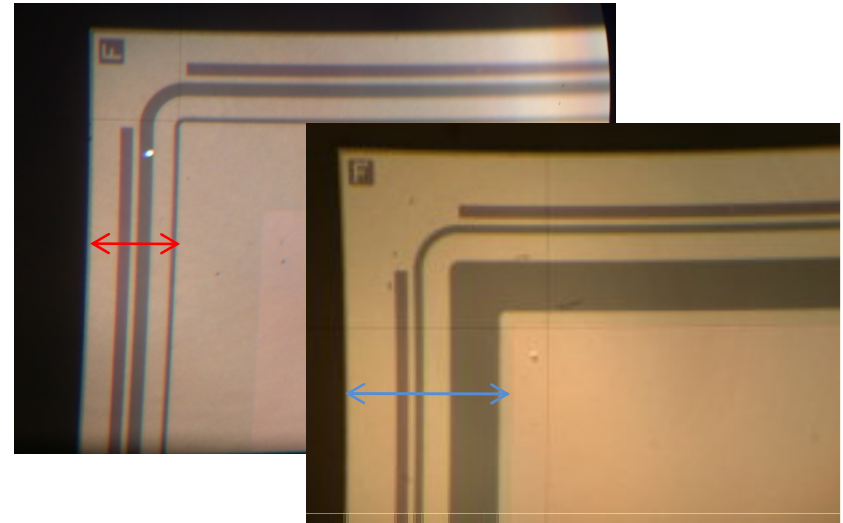
Xtalk lowered by a factor 80 (with 3 mm segments (measurements made at LPC))

NEW ! Similar study made by Anita Topkar (BARC), see her slides



Hamamatsu sensor V2

- **Dead area decreased to 750 μm** (1200 μm previous)
- Leakage current issue seen at Hamamatsu
 - Level: x 5-10 wrt previous sensors , bad uniformity
 - They developed a new test setup : better!
- 5 samples + **production batch of 35 pcs** (received this week)
- Breakdown ok but seems to be slightly lower
- Have 40 sensors to start EUDET SLAB assembly (160 needed)



Tech. Prototype

- 40 (-1 broken) Hamamatsu sensors
 - 9 ASUs + 3 sensors as spare
- 40-50 others could be ordered (2010-2011)
 - 40-50 k€ (institute funds)
 - Not « optimized »
 - Wait for checking up in testbeam using previous ones or new dev.
- CALICE collaborators : few tens ?
 - MOU with ???
 - EHWA ?
- 40-50 optimized (low edges wideness) : 2012-2013
 - Costfull R&D (~100-150 k€), not funded
 - RTB program (50 k€) « Standard Tech. R&D » : CEA-LETI

Future Developments

- (Subcontract) with CEA-LETI
 - Simulation of guard rings
 - Tests with single diode prototypes
 - Small batch a full sensors
 - Specifications of the industrial process
 - « Open » : results can be transferred to any third party (ONsemi, ST, ...)
 - 200 mm wafers = 4 6x6 cm² wafers with thin edges
 - Yield
 - 500 um thick
- MOU Korea
- ONsemi

*Might be partly funded by
CALIIMAX ANR (30 k€)*