

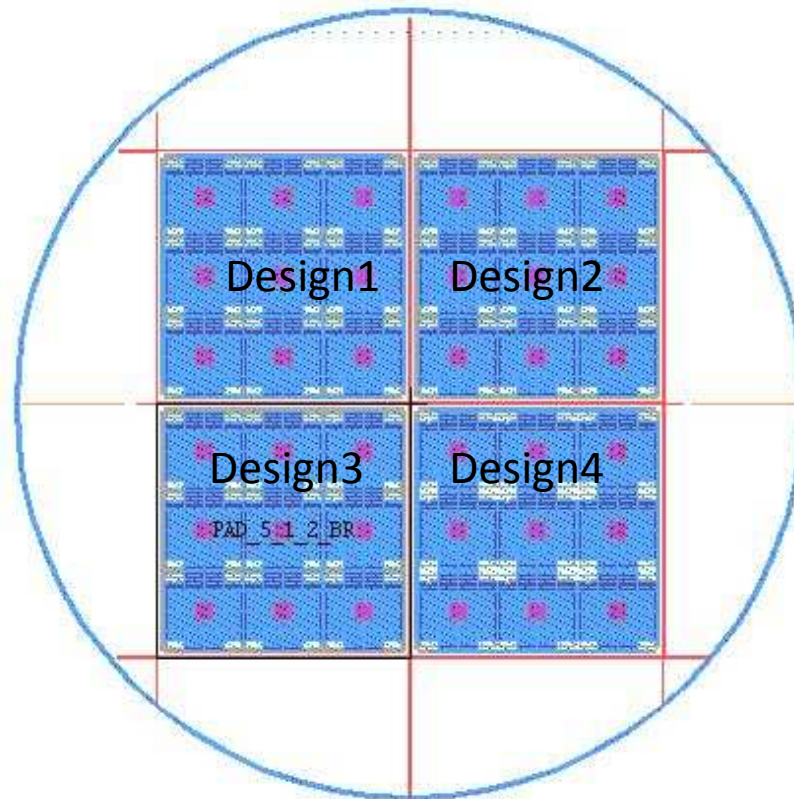
Silicon pad detectors for studying
cross talk effects
(In collaboration with Remi Cornat)

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Design

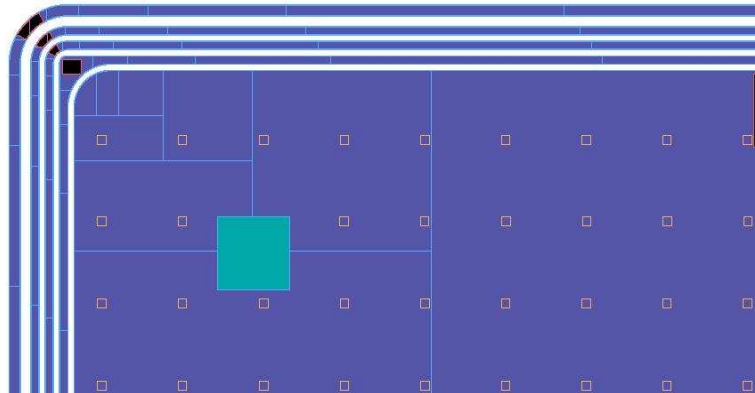
- 3x3 matrix of pads (10 mm x 10 mm) enclosed in four guard rings (GR)
- Four types of design
 - without split GR and without internal GR
 - with split GR – GR 1&2 with split distance of 10mm & internal GR
 - with split GR – GR 1&2 with split distance of 3mm & internal GR
 - with split GR – GR 1&2 and GR 3&4 with split distance of 10mm & internal GR

Mask design of the wafer



Corner of pad detector showing various GR structures

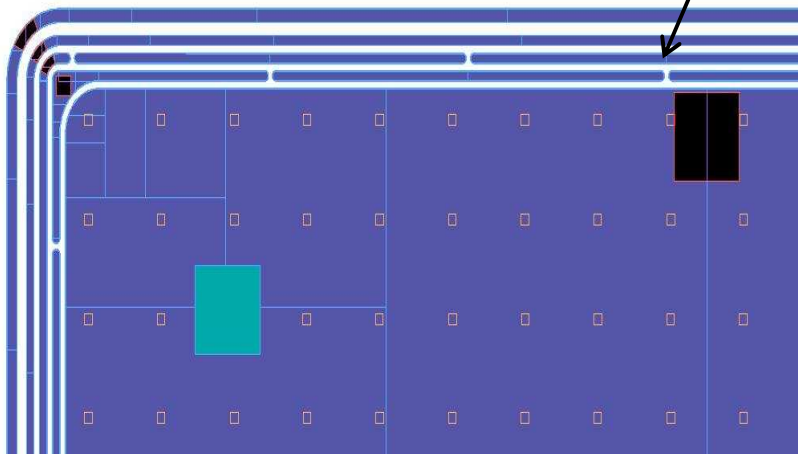
Without split



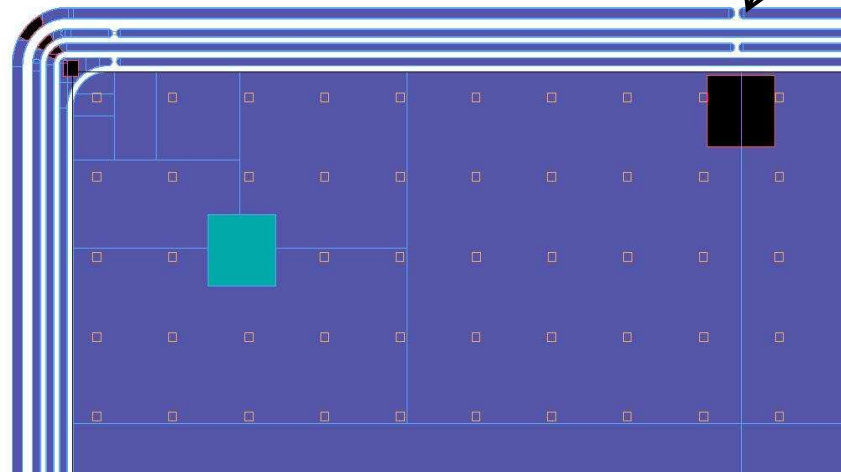
With 1-2 split of 10mm



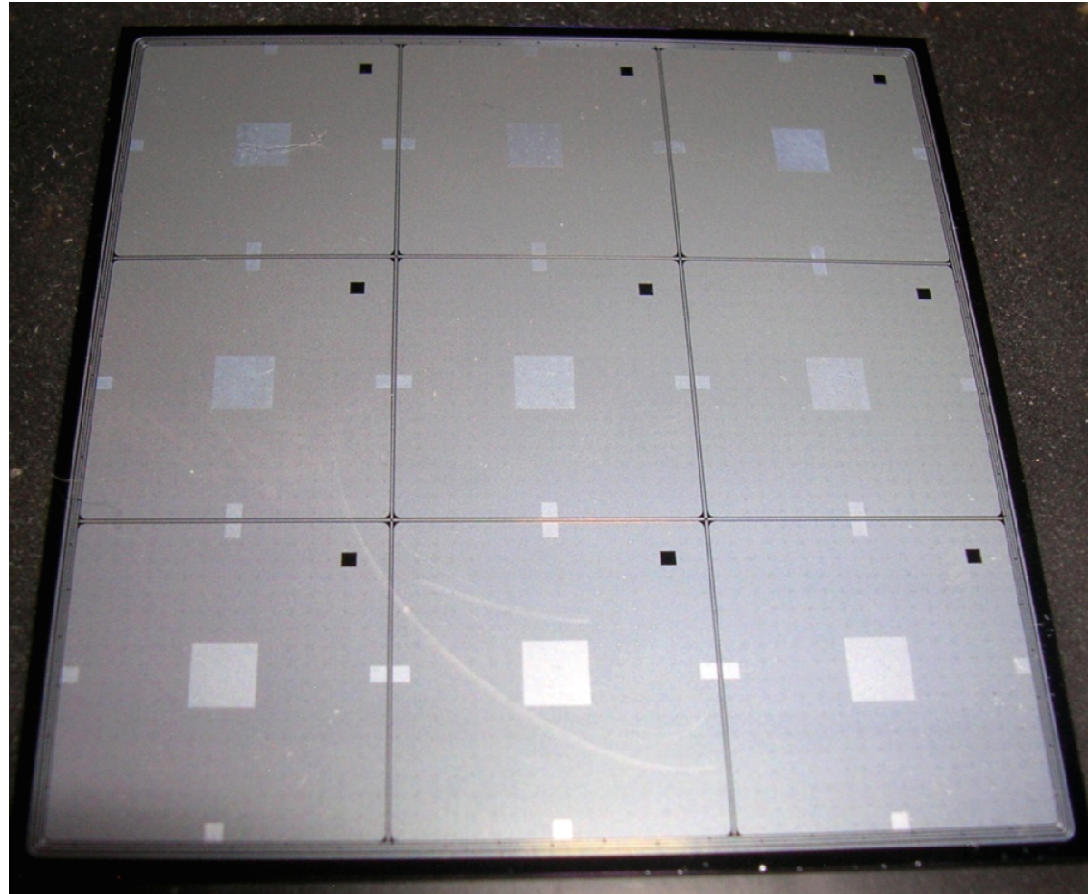
With 1-2 split of 3mm



With 1-2 & 3-4 split of 10 mm



Fabricated pad detector



Characterization of pad detectors

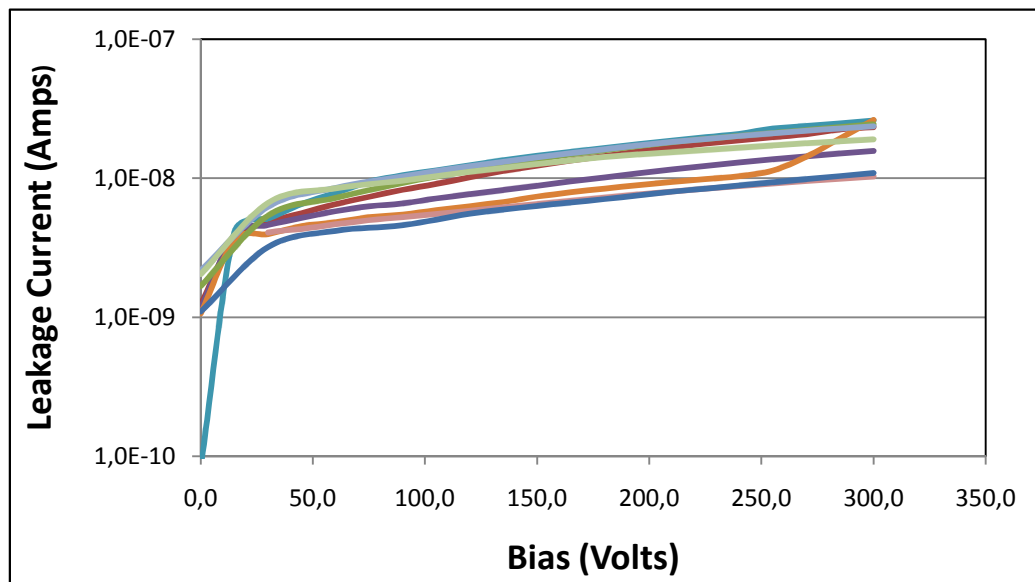
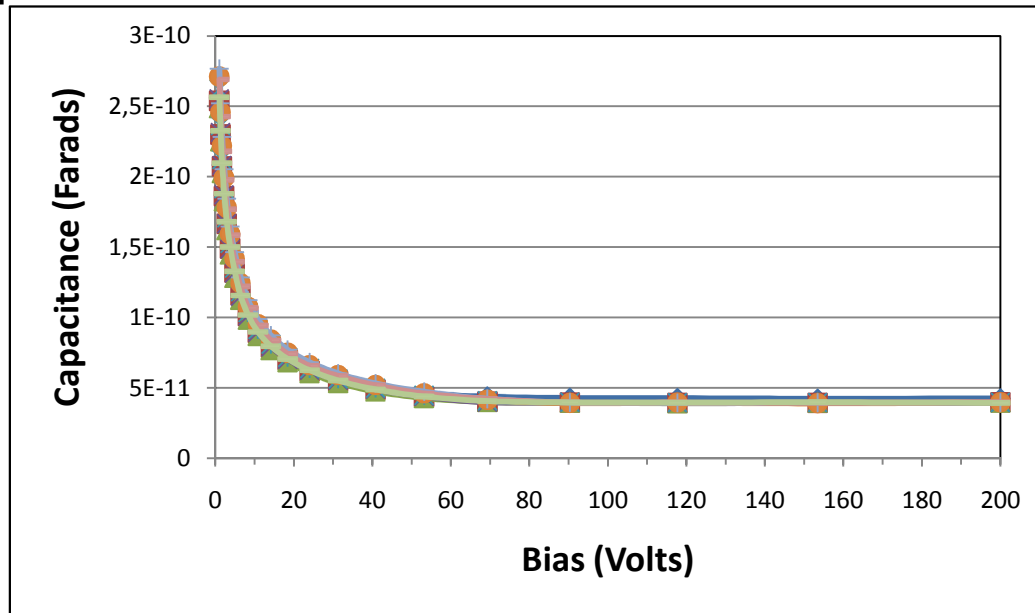
- IV measurements for each pad using wafer prober by grounding the neighbors up to 300V
- CV measurements up to 200 V

Test setup

- Keithley 6487 for sourcing voltage and measuring leakage current
- HP4284 for CV measurements and Keithley 237 for sourcing voltage
- Suss MicroTech wafer prober (PM5 & PM8)

Probe-jig for simultaneously contacting all pads is under development

Typical CV and IV characteristics



Future plan

Cross talk studies will be carried out using the setup developed at LPC Clermont-Ferrand