

Updates on sensor tests

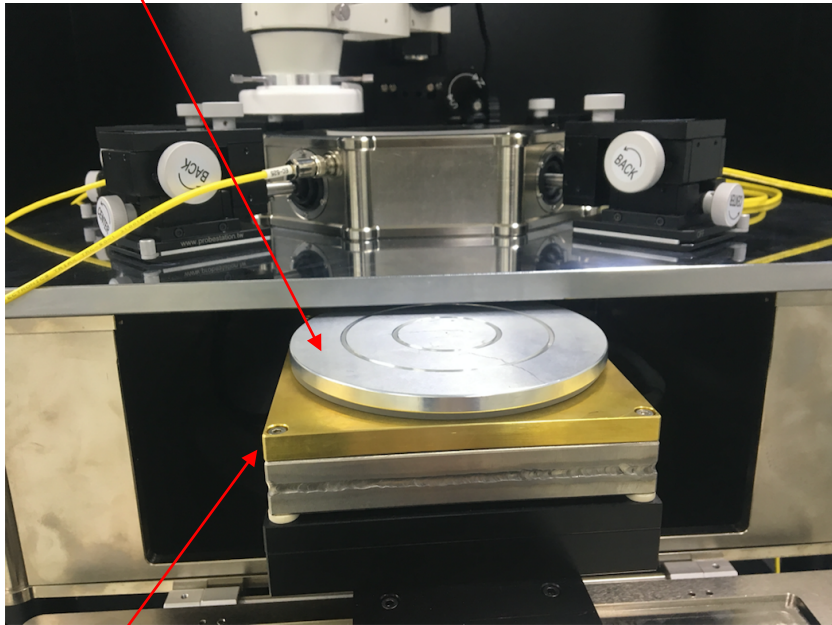
Liaoshan Shi

Mar. 28, 2019

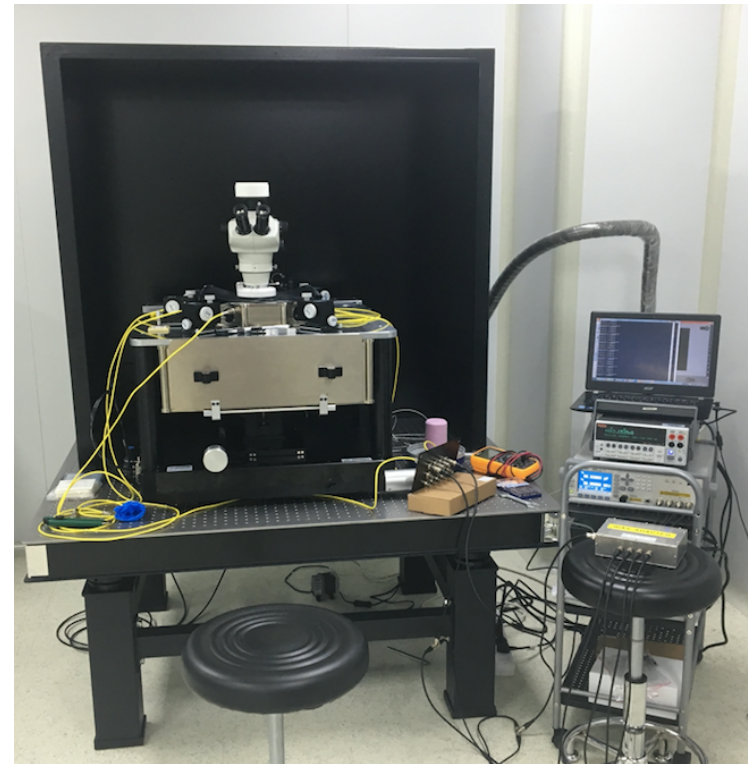
Status of the new probe station

- Installed a new isolation kit on the chunk to isolate the measurement circuit from pipes and the liquid N₂ bottle.

Isolation kit (a quartz plate and a new chunk)



Original cold chunk (connected to liquid N₂ pipes)

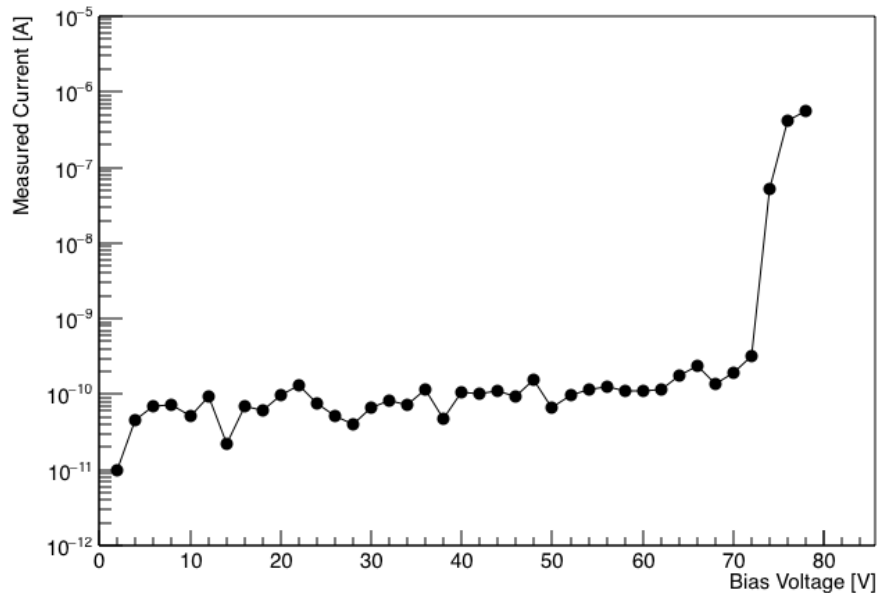


Comparison of IV results

- IV measured with the new (left) and the old (right) probe station.
- Room temperature.
- At least 0.1nA resolution can be reached.

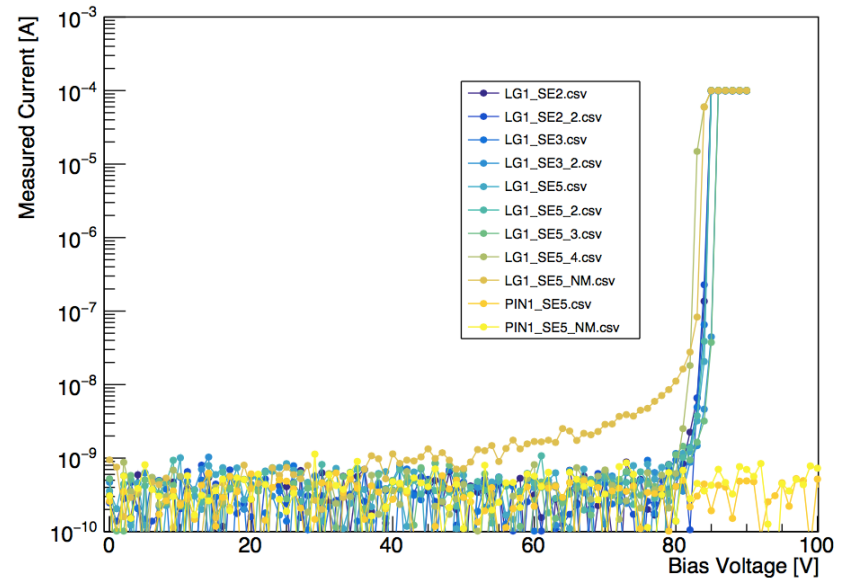
new probe station

W9_P2_SE5_IV_filter.csv



old probe station
(before we tuned the
configuration for higher
resolution)

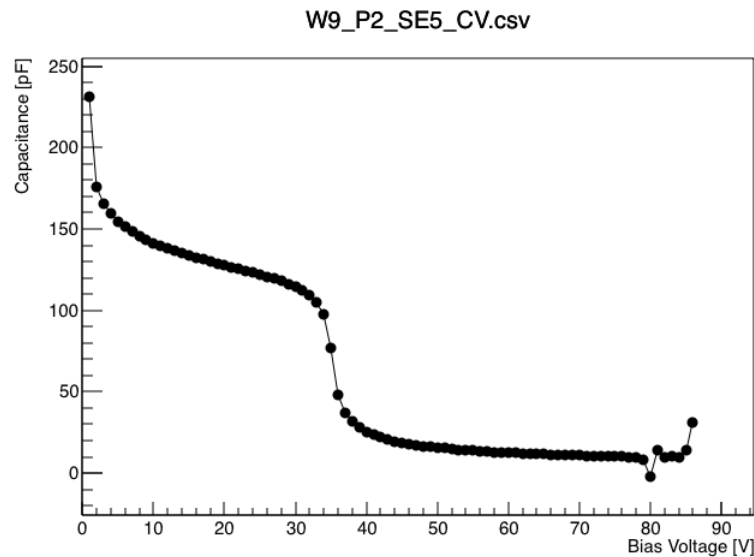
EXX28782-WNo9_Single_Set-P2



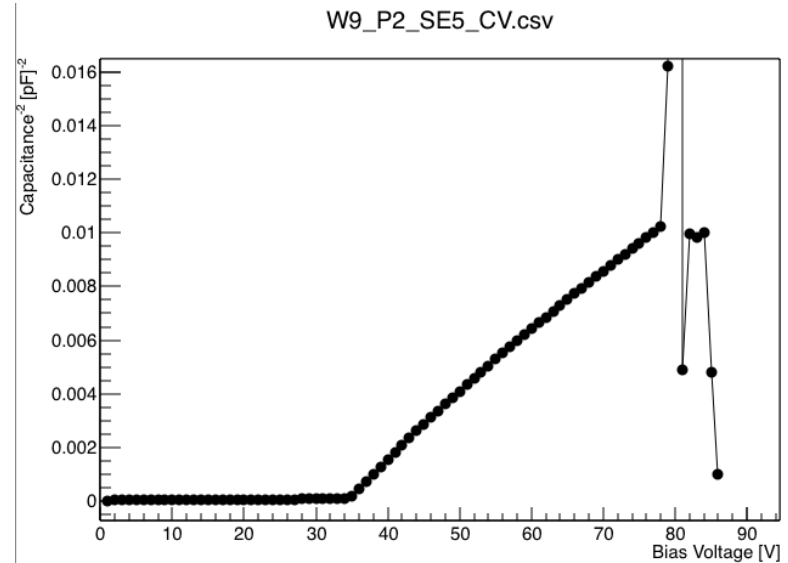
CV measured with the new probe station

- Wafer 9 single pad (breakdown voltage $\sim 80\text{V}$).

C-V



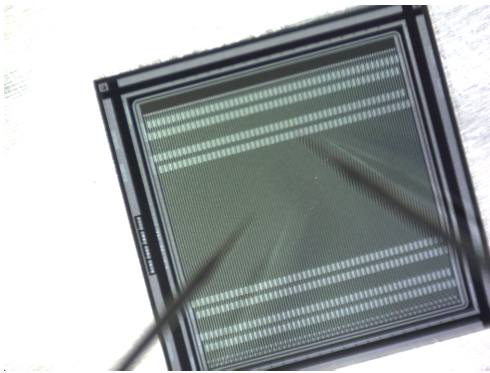
$1/C^2$ -V



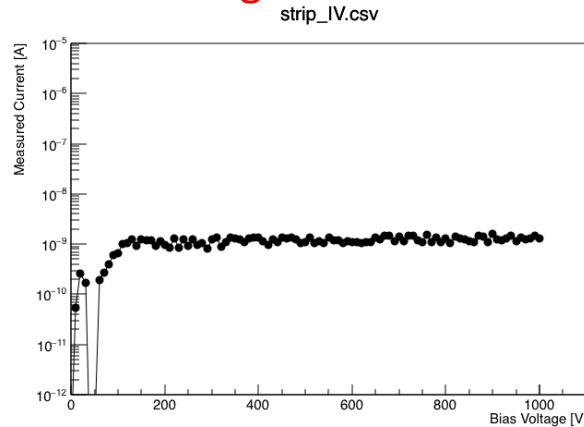
Preparation towards X-ray irradiation studies

- Prepare a reference sensor whose performance after irradiation is known.
- Measure IV and CV of both the test sensors and the reference sensor before X-ray irradiation.

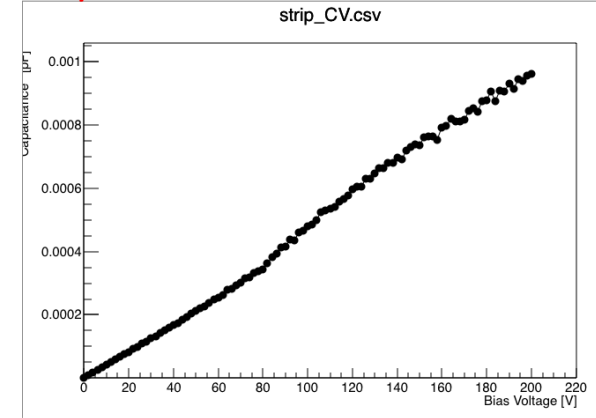
strip as reference



IV: leakage current 1nA



$1/C^2$ -V: similar to a diode



- Plan to irradiate both the reference sensor and a few HPK single pad sensors, and measure IV and CV again.