



Visual inspection of CMS pixel sensors

Matteo Centis Vignali, Tobias Lapsien, Jennifer Sibille

Setup

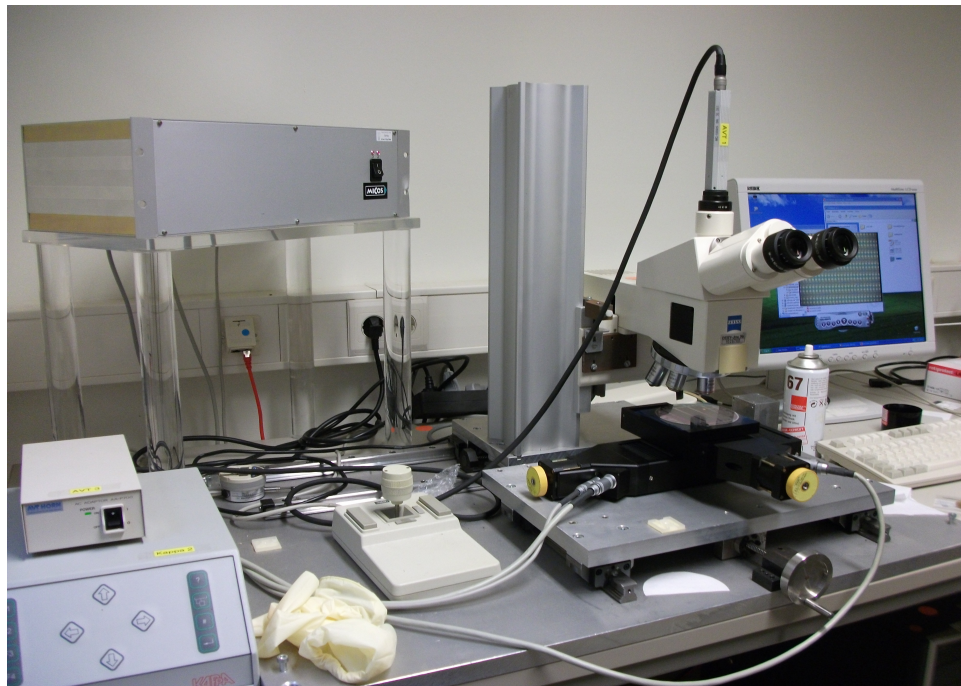
6 wafers:

- 3 sensors each wafer
- 5 good wafers
- 1 “dummy” wafer (06)
- 313207_04...09



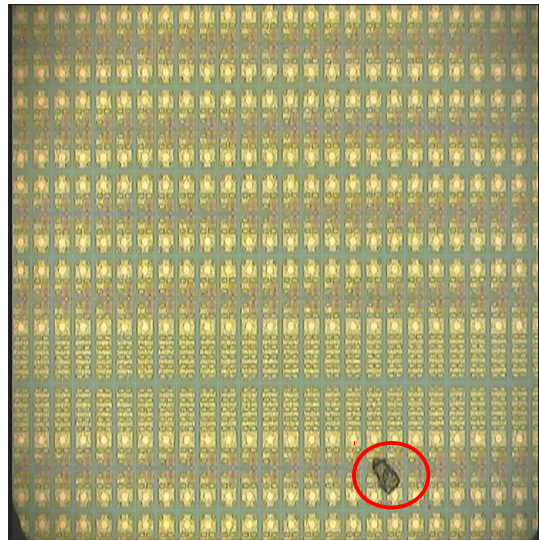
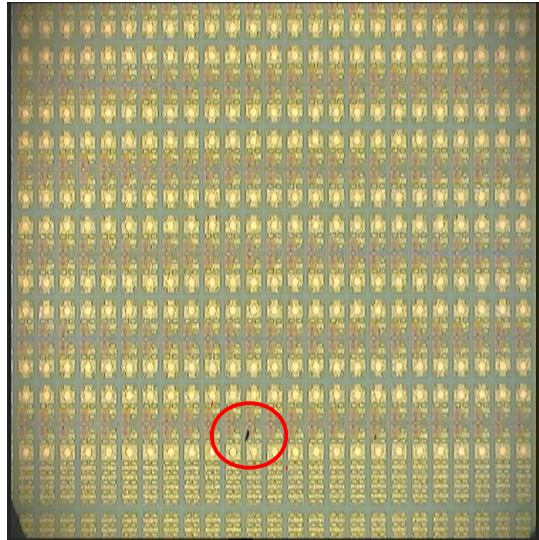
- Optical microscope
- Camera
- Moving table
- Plastic film to avoid scratches
- Inspection of the n-side
- ~45 min / sensor

- Inspection of 5 sensors:
- 3 on the “dummy” wafer
 - 2 on the 09 wafer

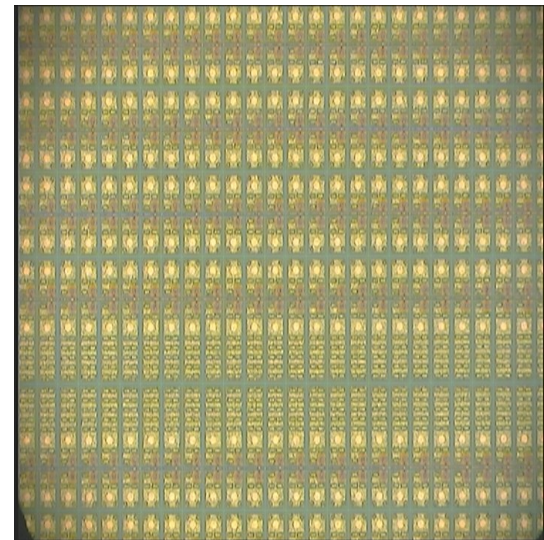



Dust

Dust particles appear as black objects, that can be blown away

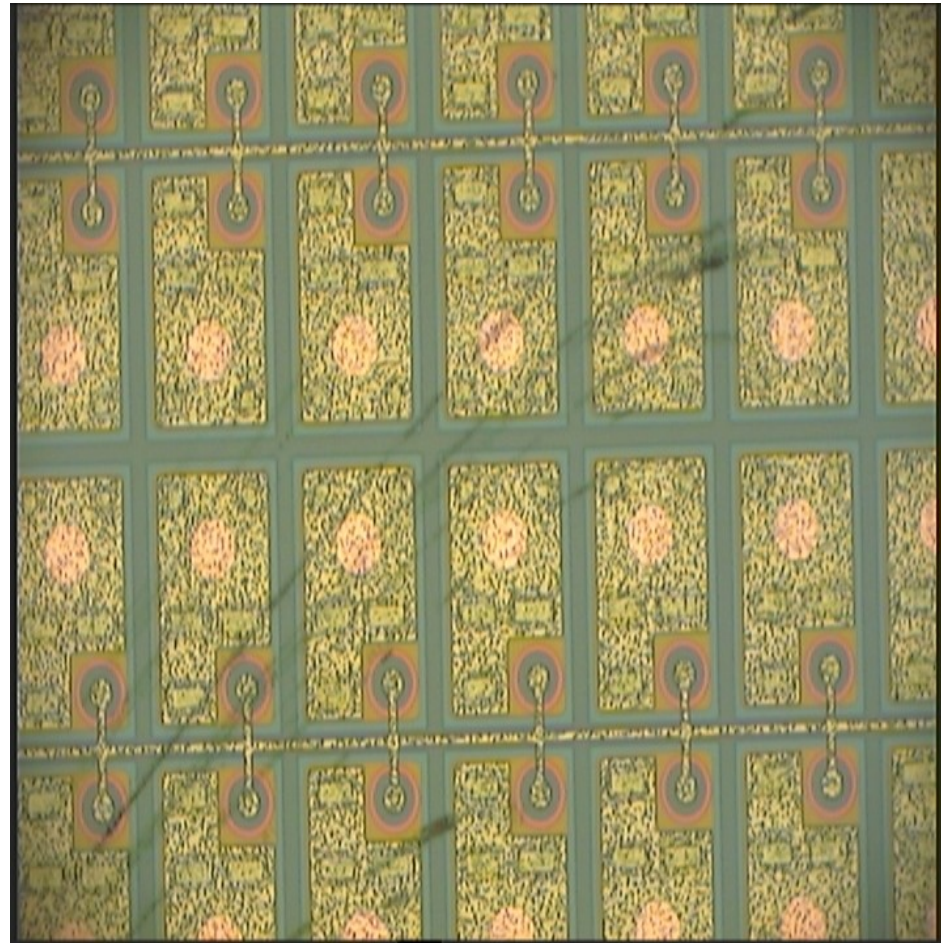
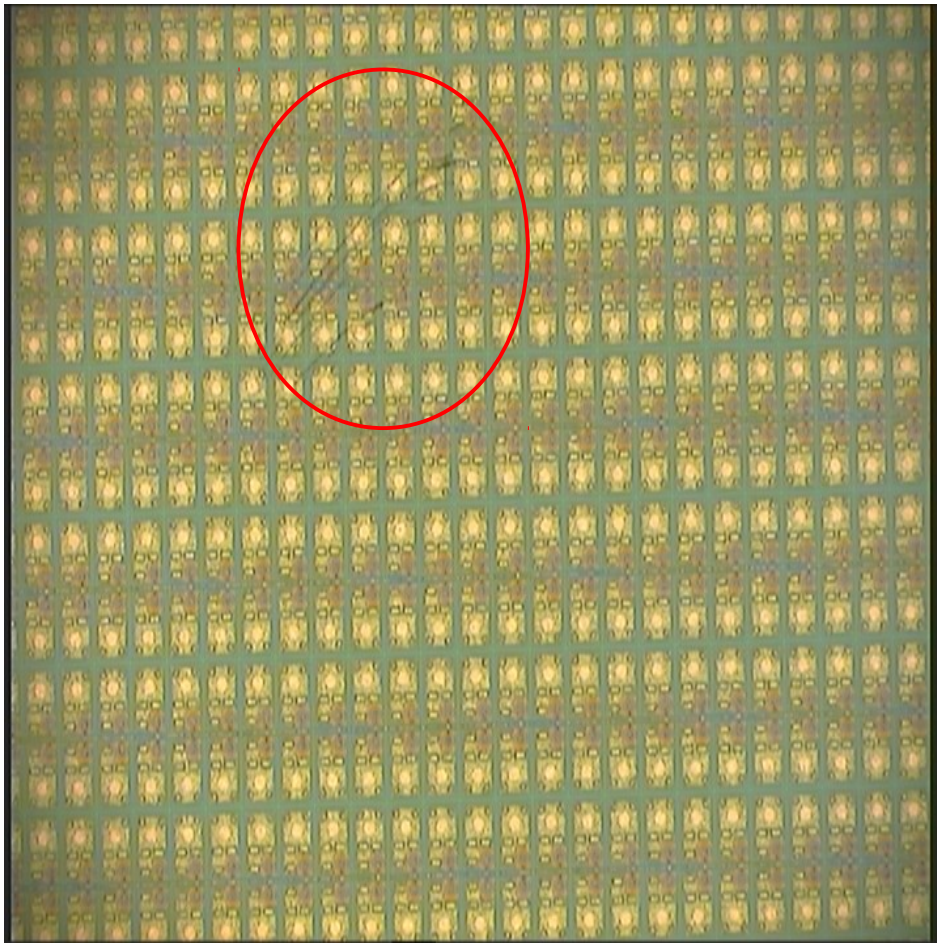


Canned
air



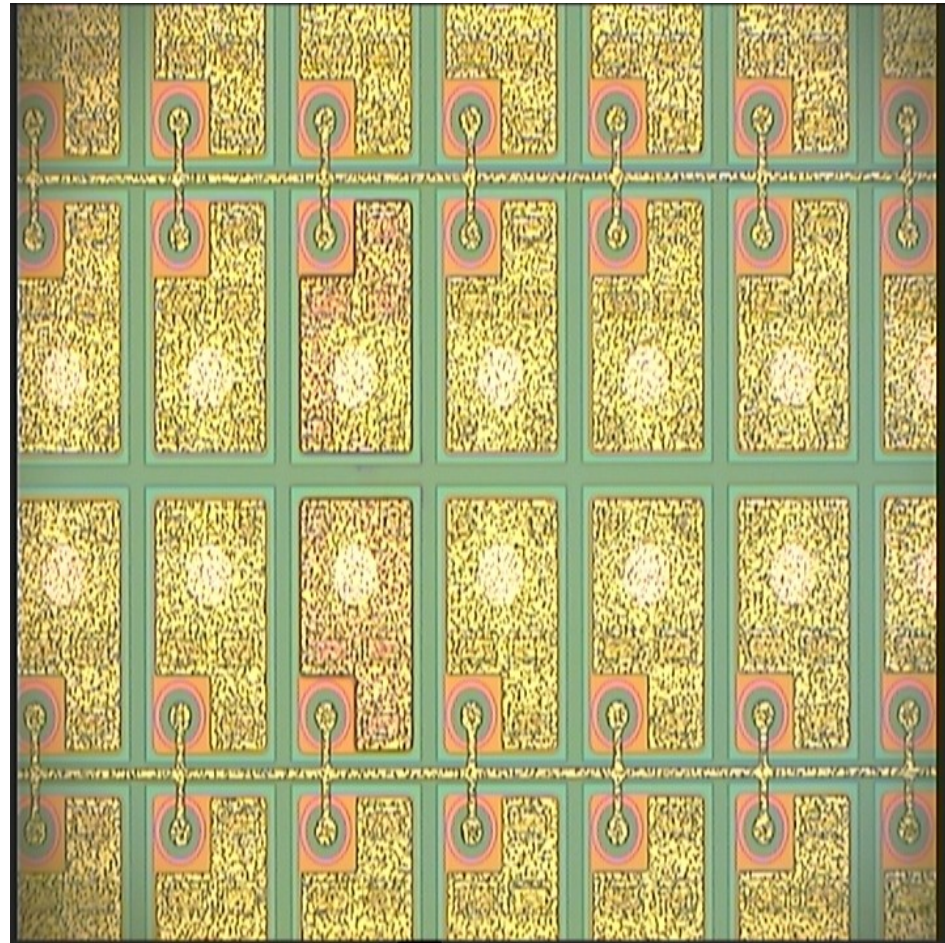
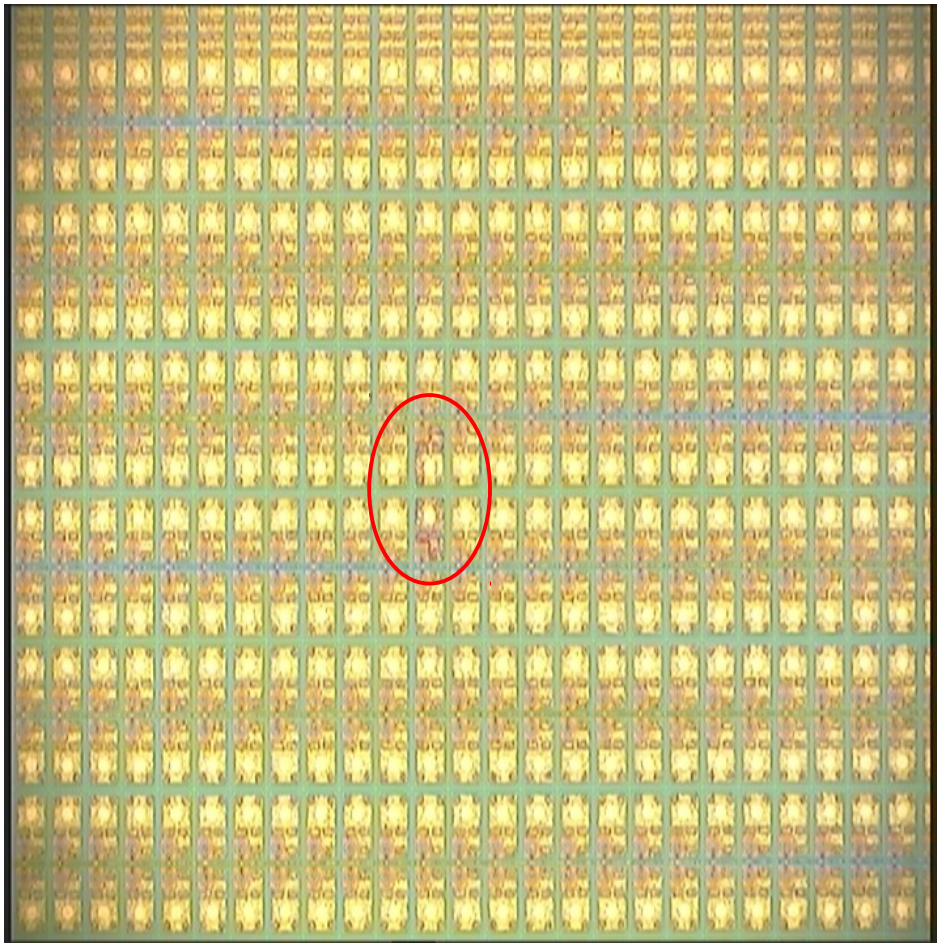
Scratches

Wafer 313207_09 , sensor 2, chip 09, columns 17...21



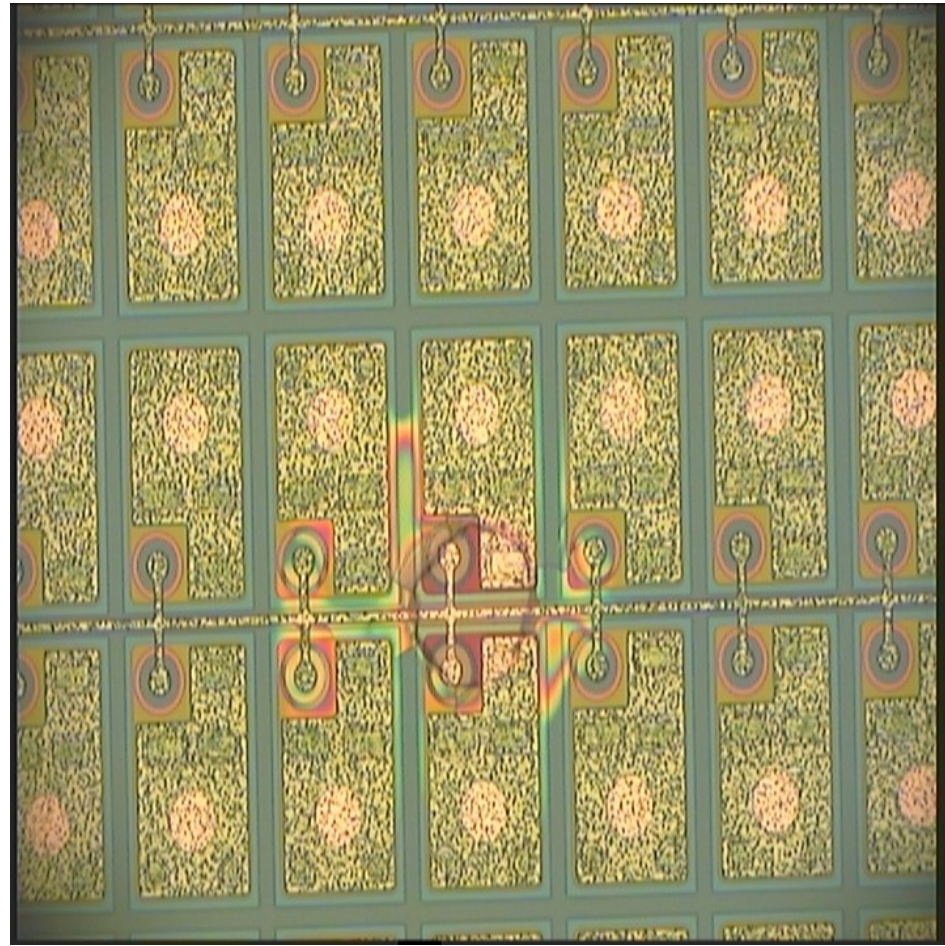
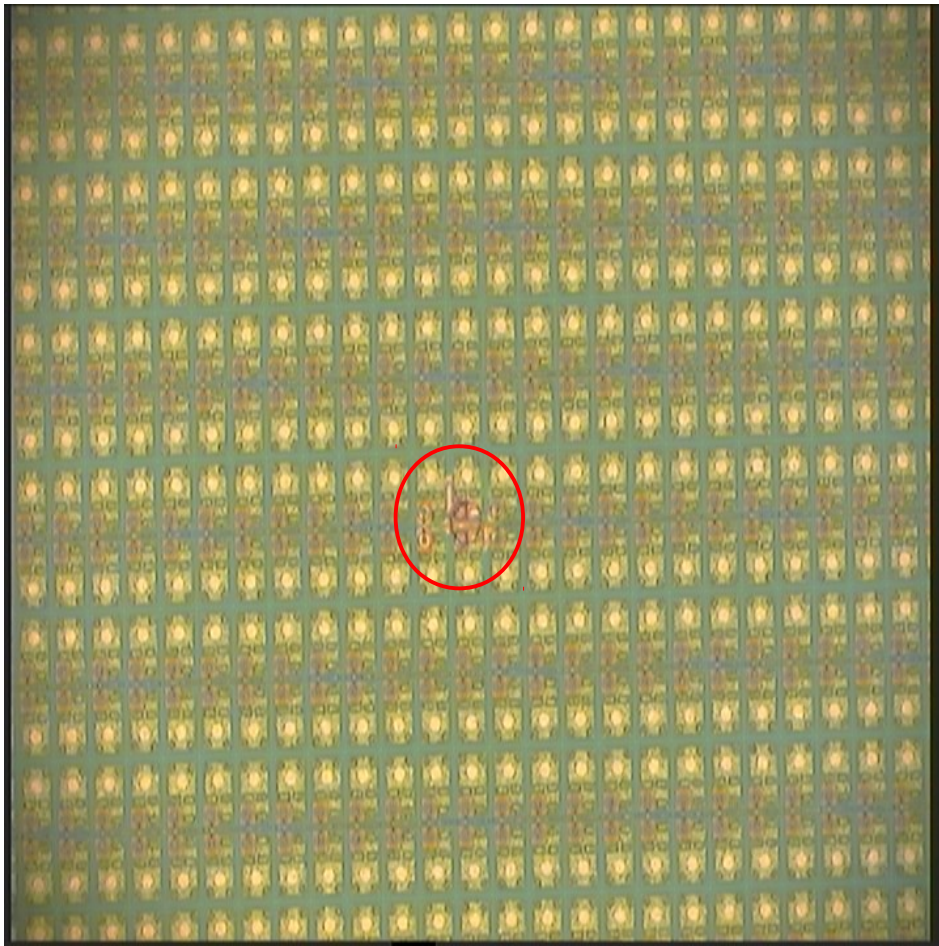
“Strange color” pixels I

“Dummy” wafer, sensor 2, chip 0, columns 5 and 6



“Strange color” pixels II

Wafer 313207_09 , sensor 2, chip 03, columns 36 and 37



Inspection of the n-side of 5 sensors on the “dummy” and 09 wafers:

- Dust
- 1 scratch
- Pixels with strange colors
- ~45 min / sensor
- 18 sensors → ~13.5 hours



Backup

