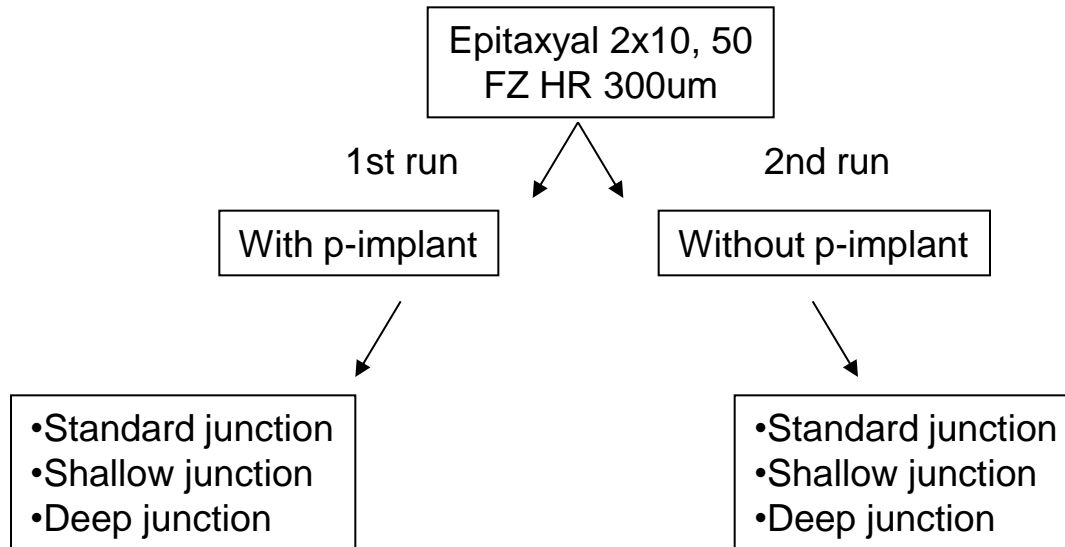


Status of RD50 projects

Giulio Pellegrini

Status of the project:

Fabrication of new p-type pixel detectors with enhanced multiplication effect in the n-type electrodes



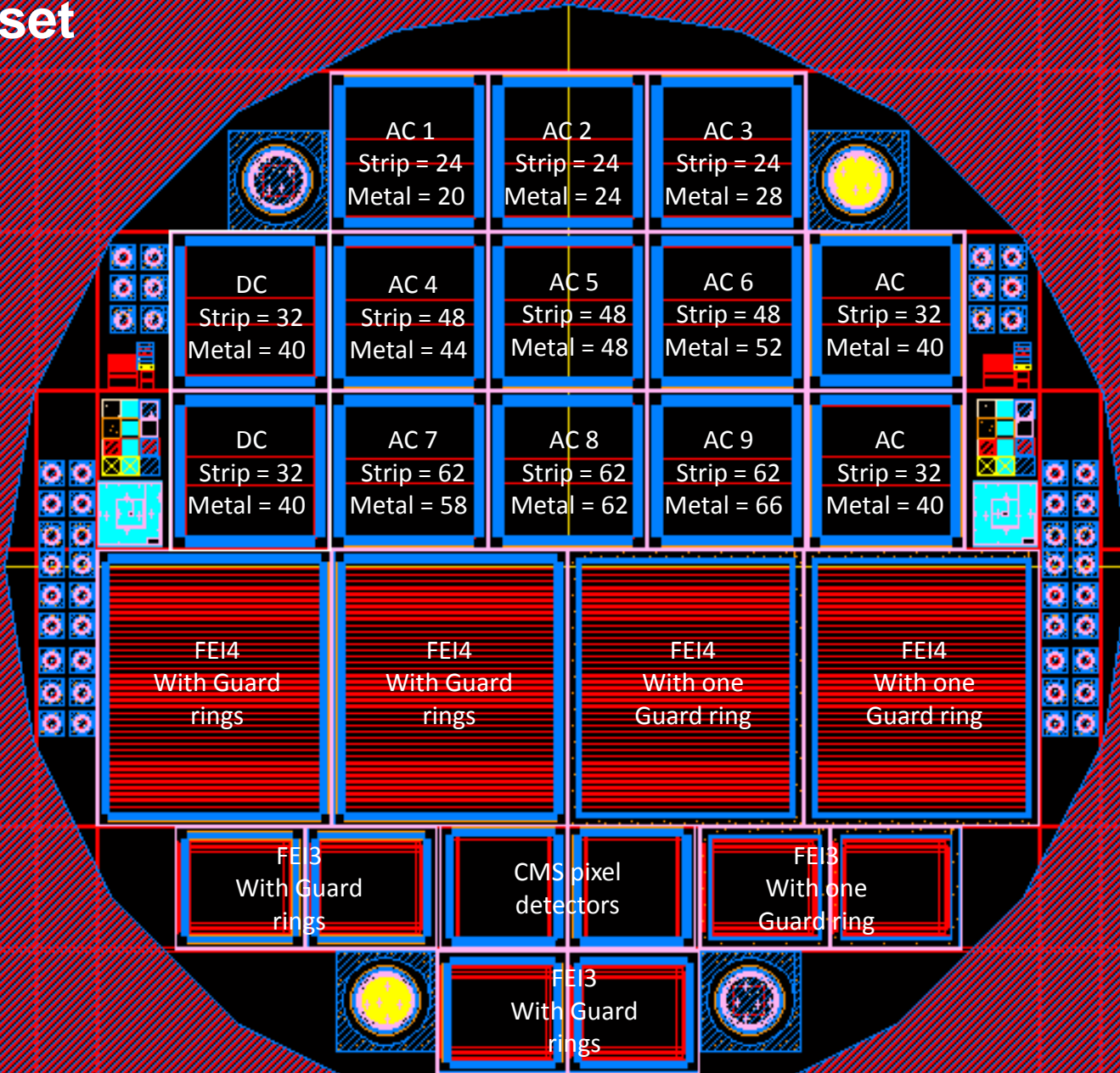
12 wafers + 2 epi without p-stop

12 wafers + 2 epi without p-stop

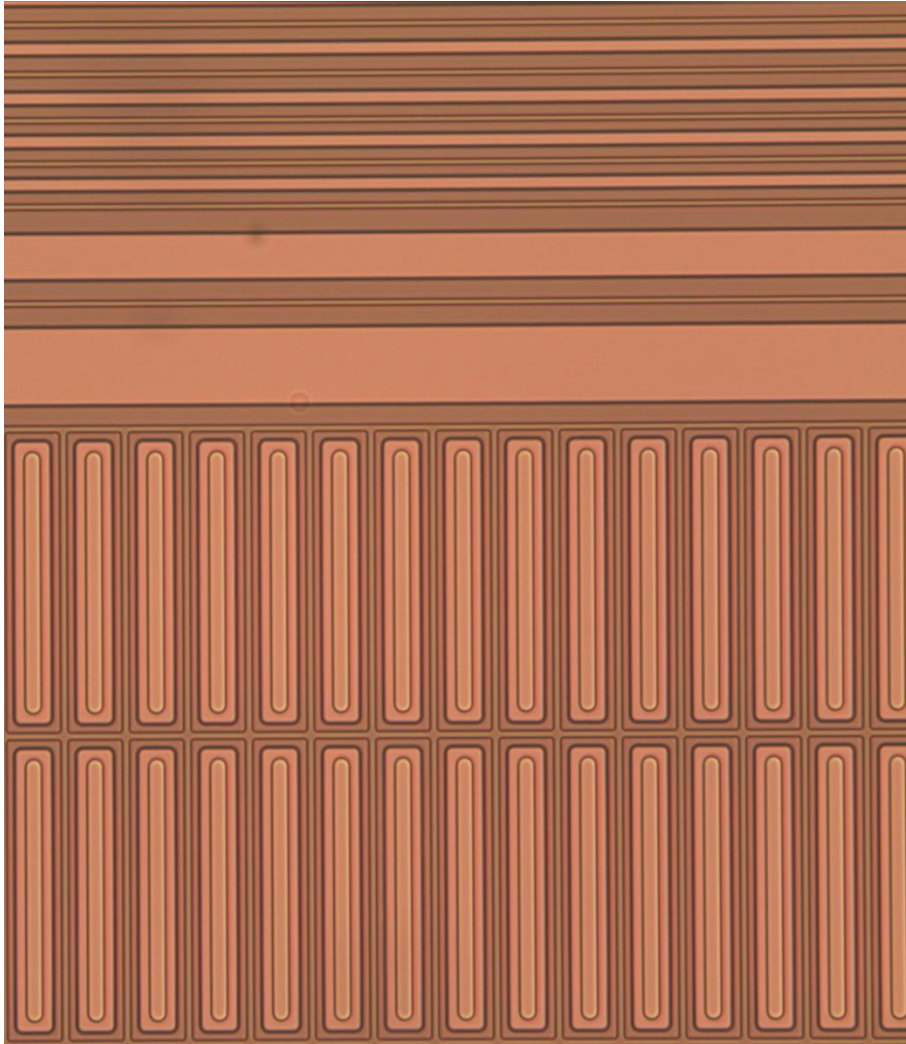
Total of 28 wafers to be fabricated.

Epitaxial wafer with 10um active substrate will be only fabricated with shallow junction due to the high diffusion of the dopants.

Mask set

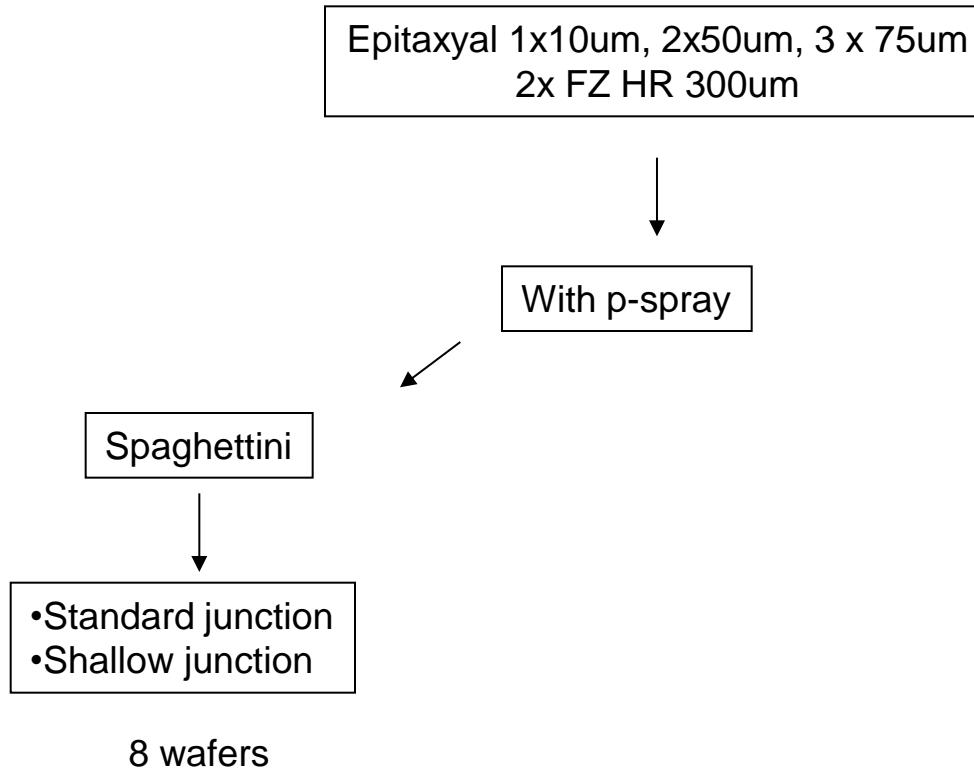


Status of the runes



First run: Doping polysilicon (56/100)
Second run: Metal deposition(50/80)

3rd run with Spaghetini

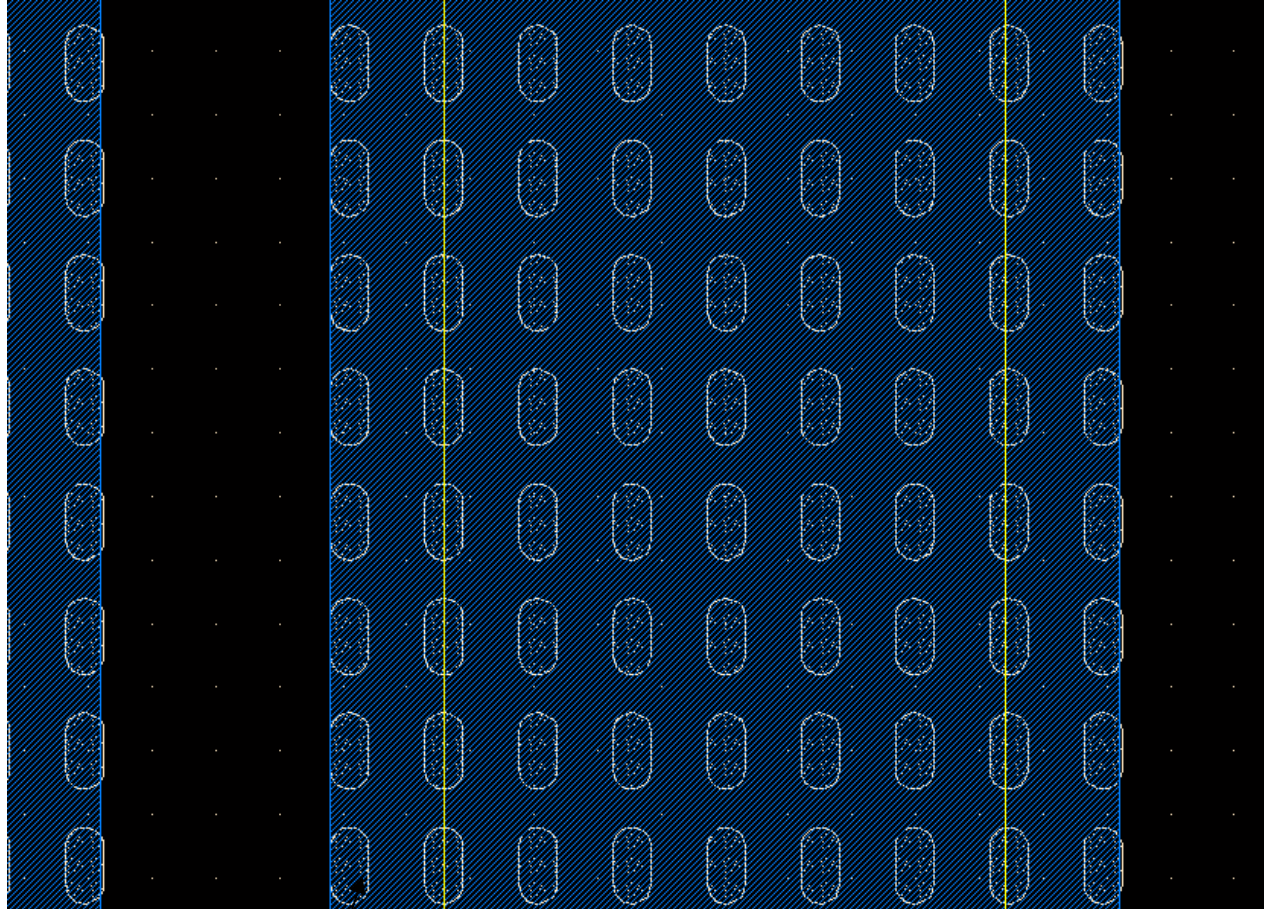


Total of 8 wafers to be fabricated.

Epitaxial wafer with 10um active substrate will be only fabricated with shallow junction due to the high diffusion of the dopants.

Run is ready to start.

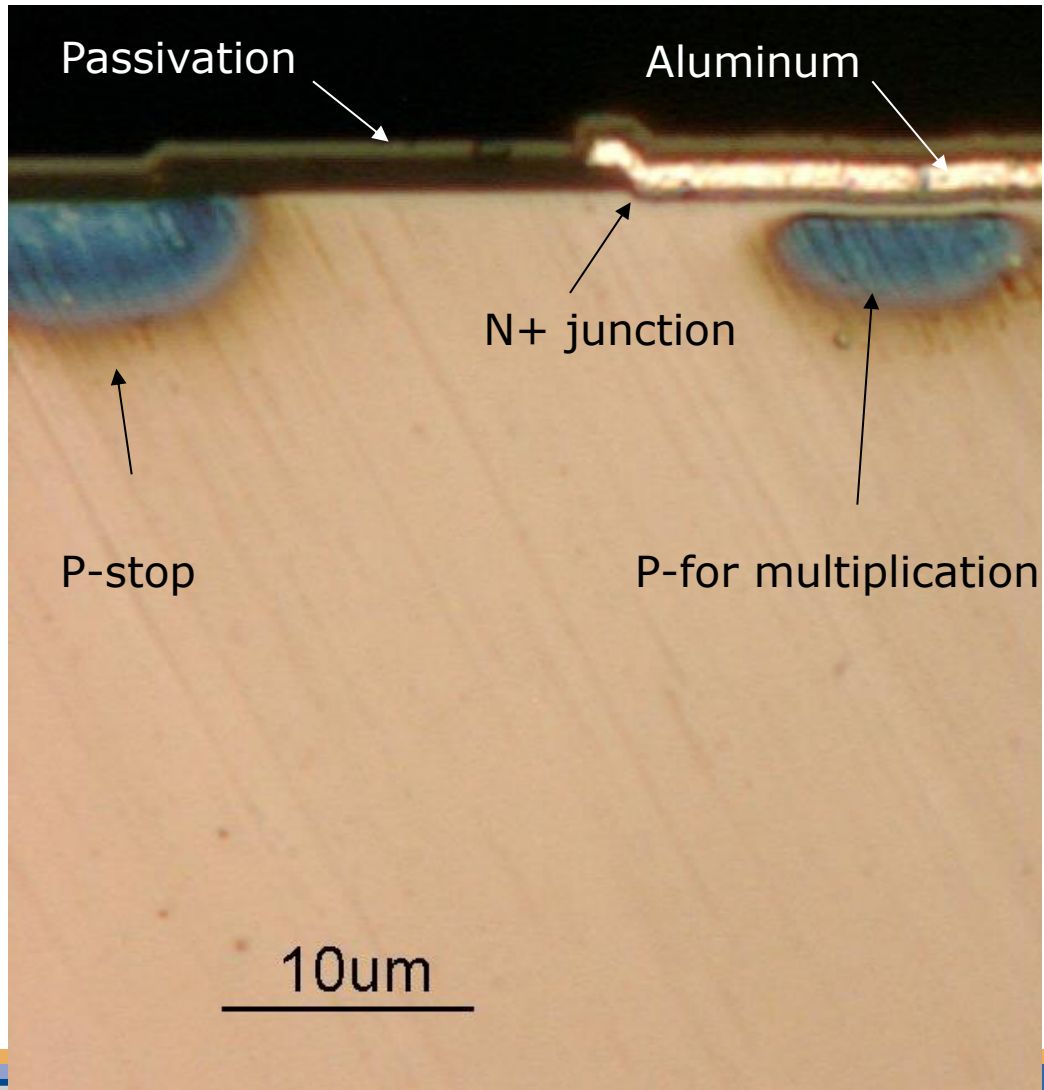
Spaghetтини (strips and pixels)



N+ diffusion ($3 \times 6 \mu\text{m}^2$), pitch $4 \mu\text{m}$.

Idea from Gregor's talk: Charge collection studies on heavily irradiated "spaghetti" diodes

Technology



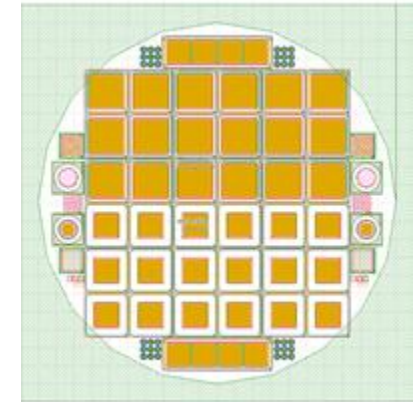
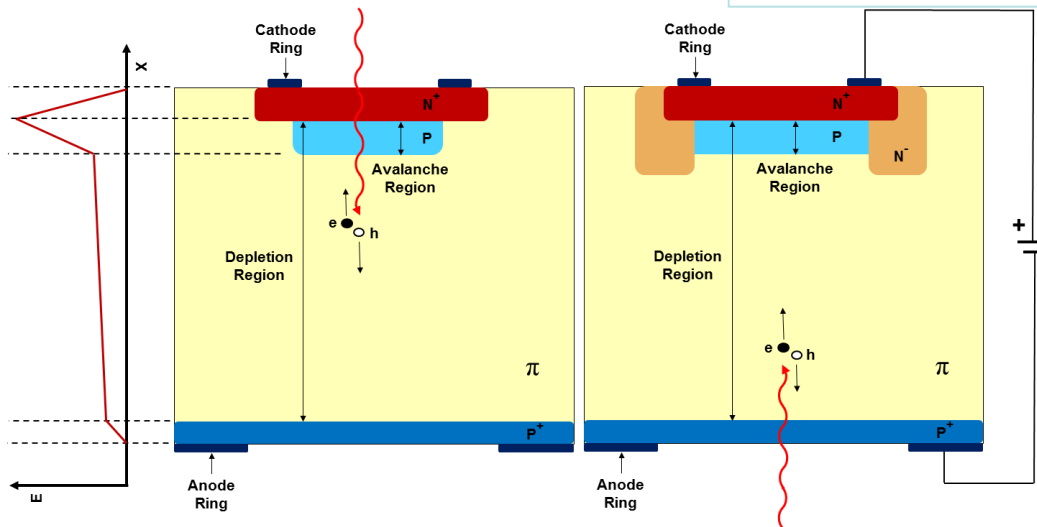
The n+ implant does not diffuse much into the bulk, $<1\mu\text{m}$. The "spaghettini" are separated by $4\mu\text{m}$ in order to avoid the short of the implants. The p+ diffuse quite a lot, 5-6 μm so it is not compatible with this geometry.

New RD50 funding request

Title of project: Fabrication of 200um thick p and n- type pad detectors with enhanced multiplication effect.

Request to RD50: 10.000€ (12.500 CHF)
Total project cost: 20.000 € (25.000CHF)

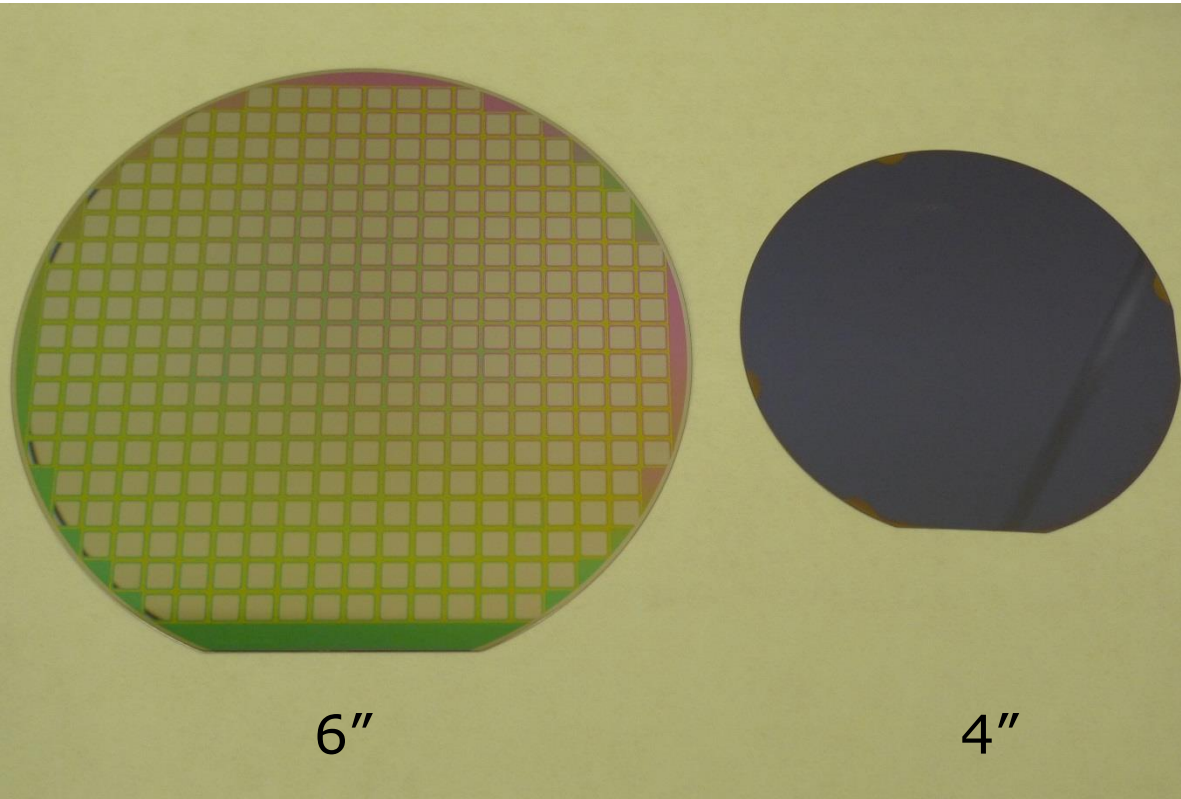
n-type wafers => h^+ multiplication
p-type wafers => e^- multiplication



This fabrication run will be also used to understand and to improve the relatively low yield of the first fabrication of diodes with multiplication

- Pixel detectors applications
- Future linear collider

Future work: 6" wafers fabrication



N-p diodes $5 \times 5 \text{mm}^2$
300um thick
p-spray isolation
Mask made by stepper
At metallization step,
ready at the end of July.