HI-LUMI

Progress since last meeting.

TEST BEAM at CERN SPS North Area H8: 14 – 28 June 2023 has been completed

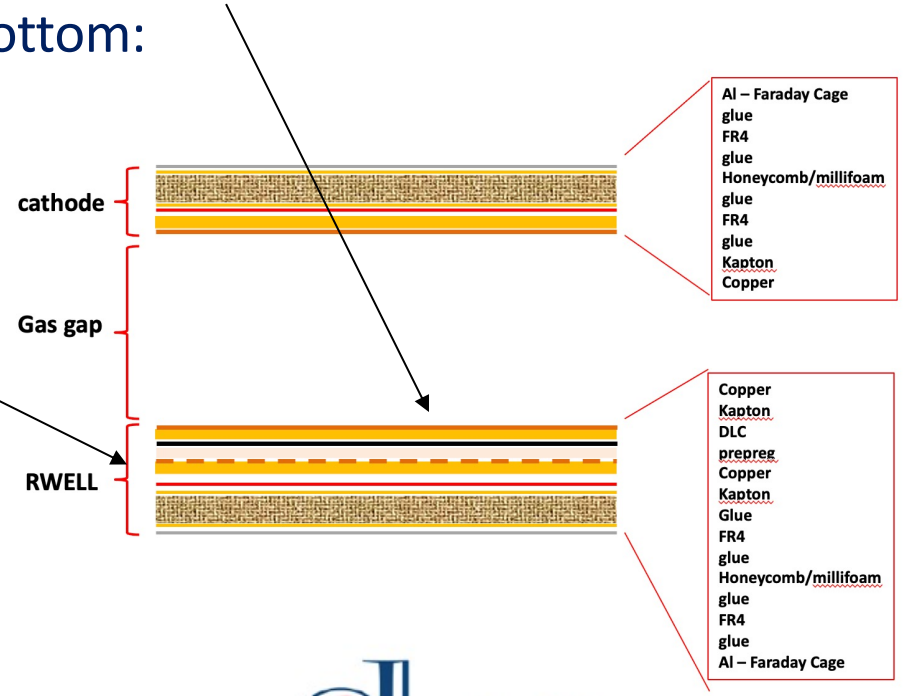
2D – readout: step by step approach

1. One prototype reads the 2-nd coordinate on the “top” copper layer

Same readout geometry on the top and the bottom:

- 780 mm pitch
- 300 mm width
- 10 x 10 cm^2 active surface
- 128 channels

The effect charge collection on the «top» layer is the object of investigation.



HI-LUMI

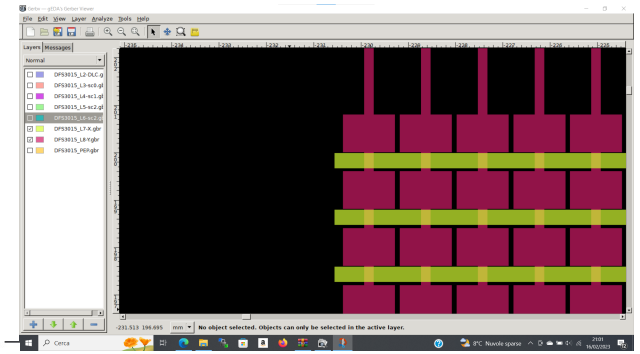
Progress since last meeting.

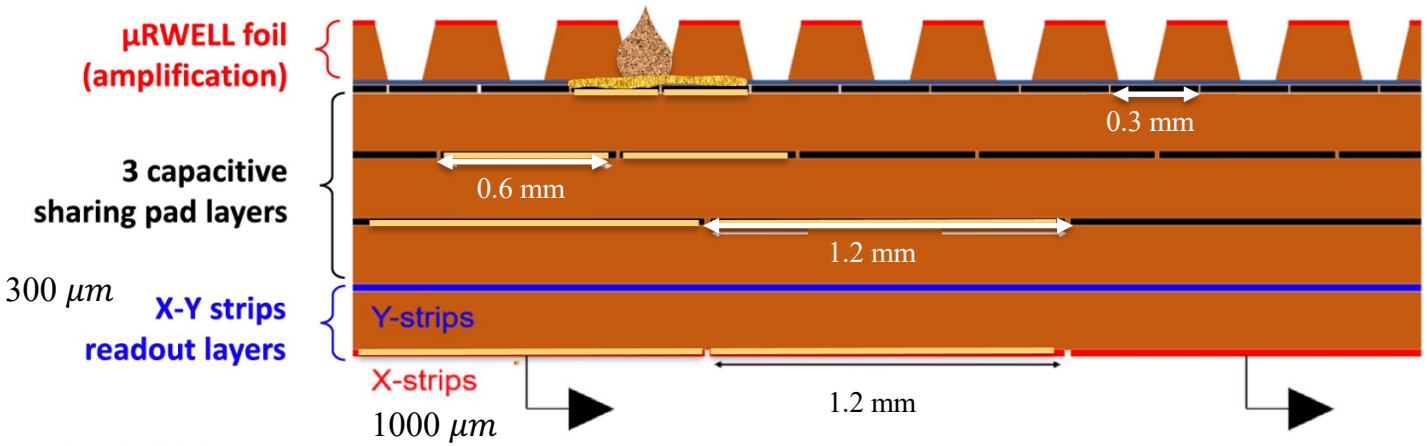
TEST BEAM at CERN SPS North Area H8: 14 – 28 June 2023

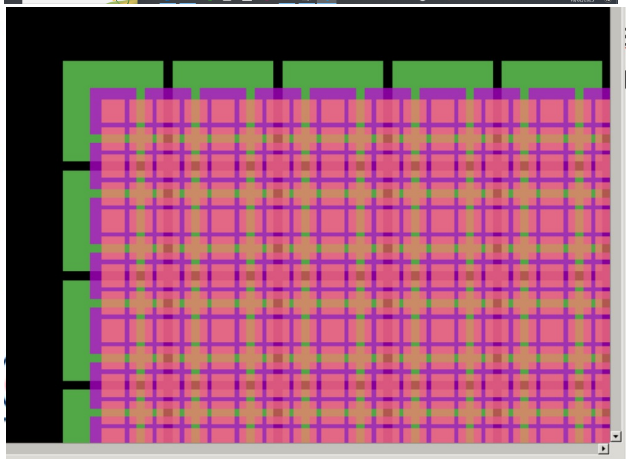
2D – readout: step by step approach

2. A second prototype reads both coordinates on the bottom in “COMPASS-like” strips configuration with capacity sharing read-out:

- 1200 μm pitch
- 300 μm vs 1000 μm strips width
- 10 x 10 cm^2 active surface
- 83 channels



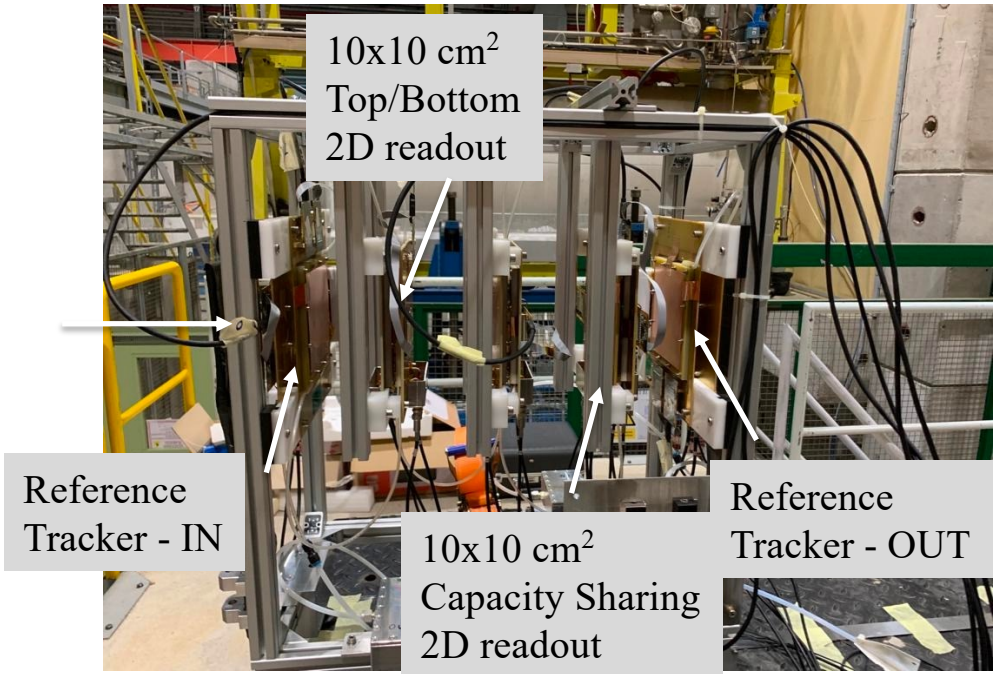




Progress since last meeting.

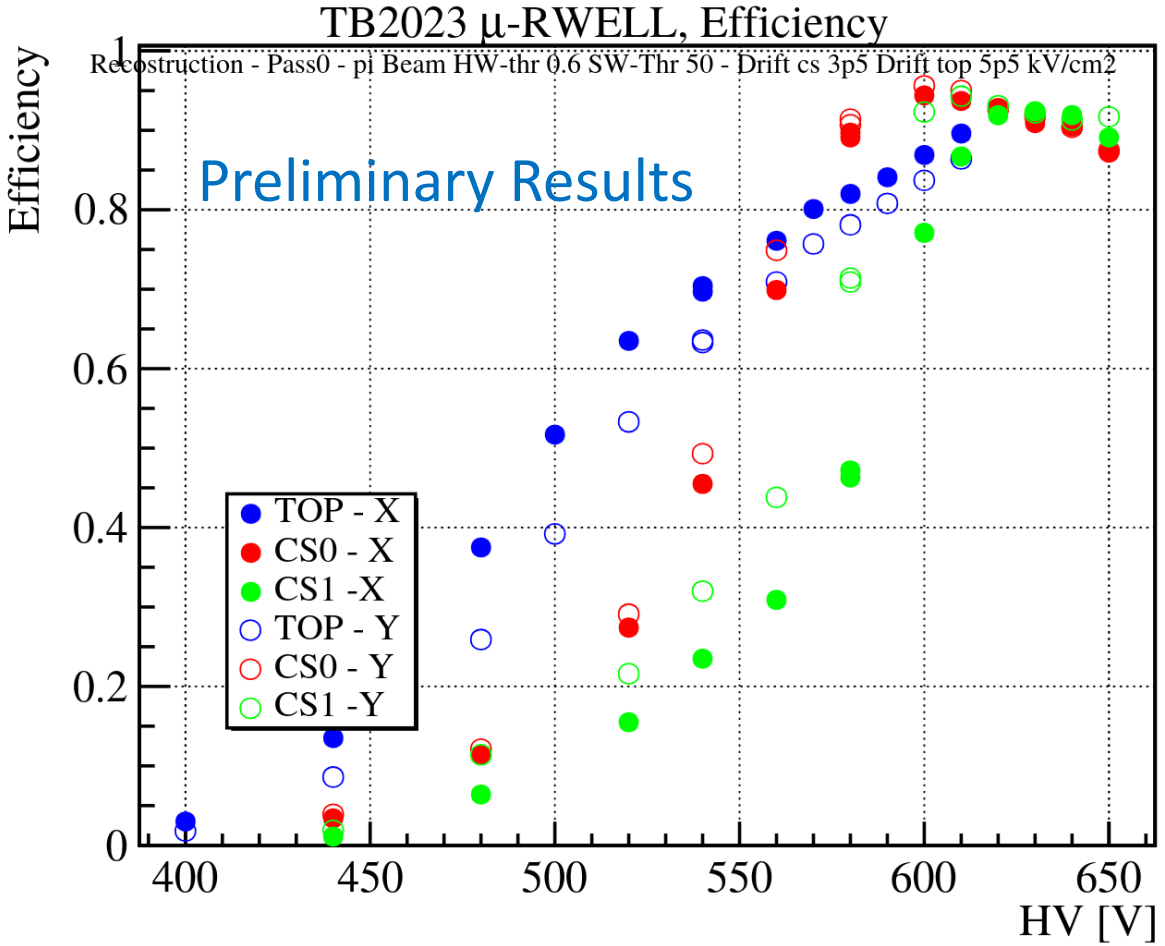
TEST BEAM at CERN SPS North Area H8: 14 – 28 June 2023

π/μ



Set-up

HI-LUMI

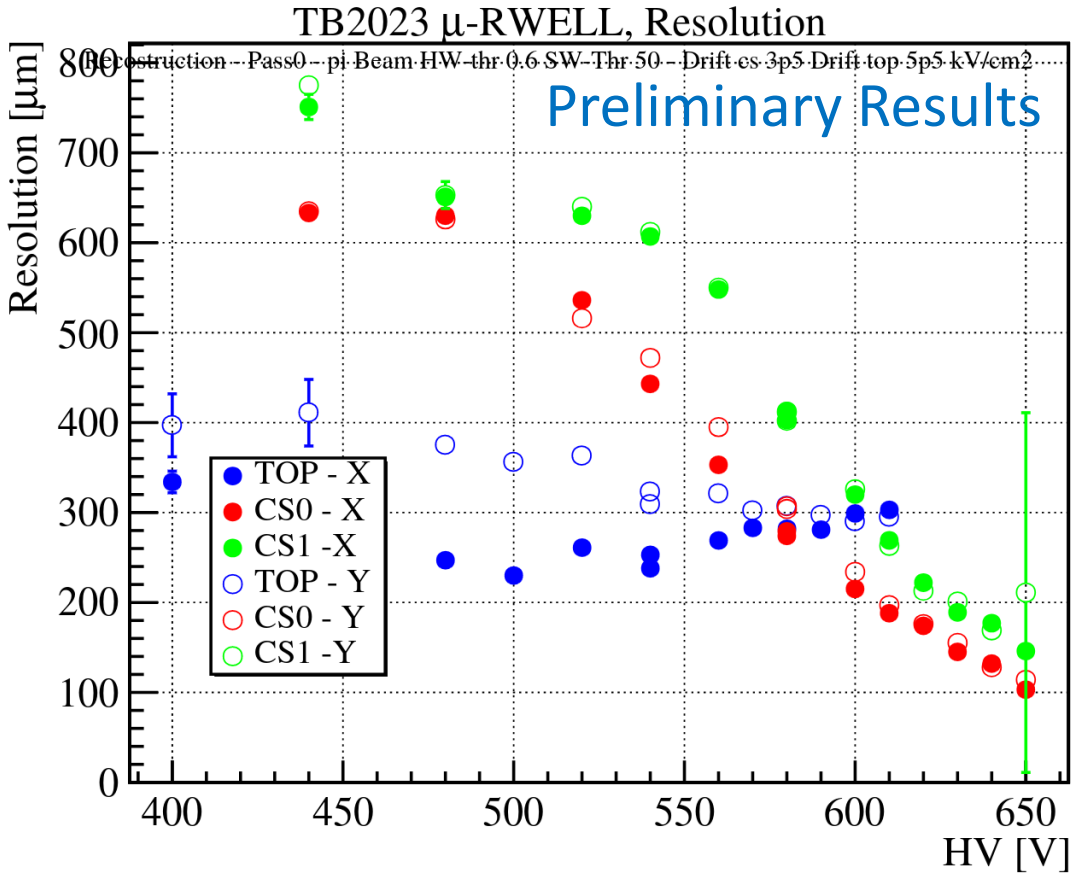


Efficiency

- CS readout reaches a plateau at higher HV values than standard readout scheme.
- TOP readout is not yet at plateau at 600 V

(HV was chosen to to be raised to higher values)

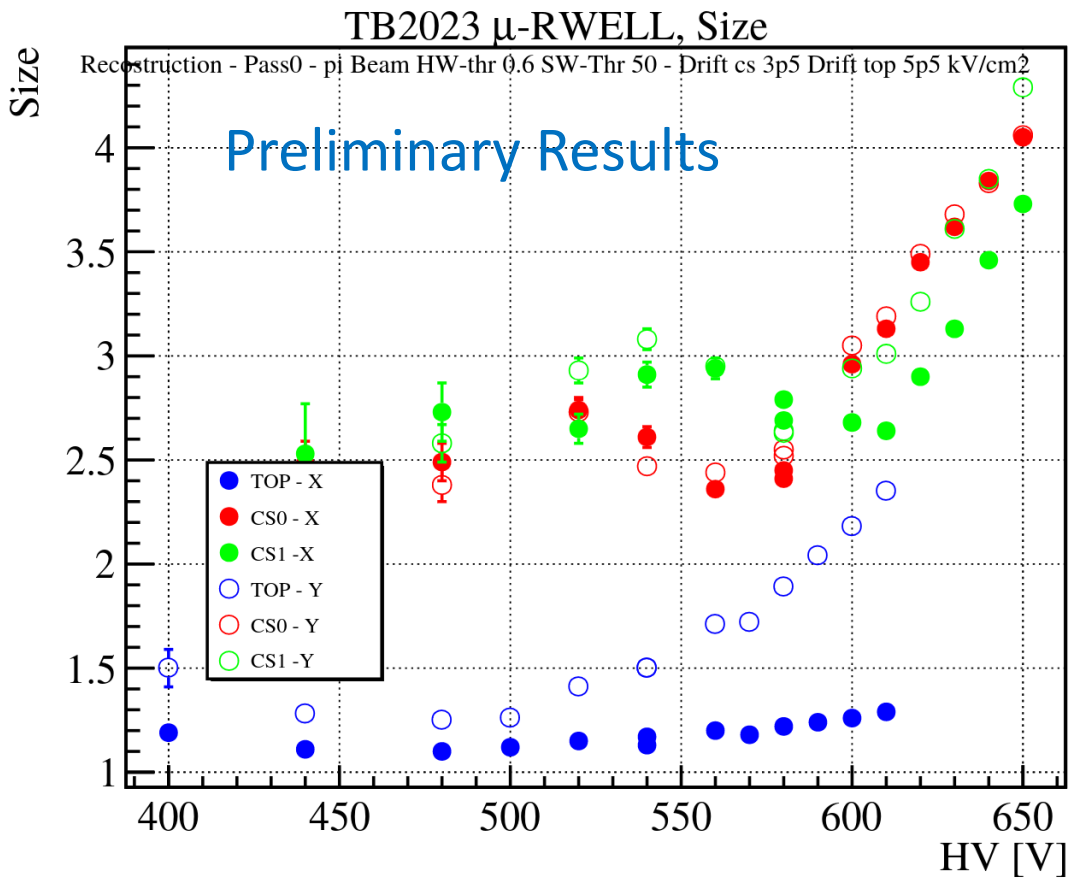
HI-LUMI



Resolution

- CS readout reaches 100 μm resolution at highest HV values (starting from 1200 μm pitch)
- TOP readout resolution is fixed at 250-300 μm (pitch is 780 μm)

HI-LUMI



Cluster Size

- CS readout Cluster Size is not lower than 2.5 strips and increases to 4 at higher HV.

- higher cluster size → better resolution

- TOP readout cluster size is fixed at 1.3
- Bottom readout cluster size increases from 1.5 to 2.3 with HV

NEXT STEP

- Test the 40x46 cm2 prototype!

with X-RAYS and cosmics