The LHC is expected to reach luminosities up to 3000 fb$^{-1}$ and the innermost layer of the ATLAS upgrade plans to cope with higher occupancy and to decrease the pixel size. 3D-Si sensors are a good candidate for the innermost layer of the ATLAS pixel upgrade since they exhibit good performance under high fluences and the new designs will have smaller pixel size to fulfill the electronics expectations. Detectors located at large η angles, far from the interaction point, will receive the particles almost perpendicularly to the column. In order to have a more precise detection at those positions, thinner 3D detectors are proposed. The first production of these detectors was done on 150 μm p-type SOI wafer with a p-type backside implant, as shown on the cross section on the right side of the poster. The thickness of the active wafer can be reduced according to the requirement of the experiments.

### References:
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3D-Si single sided sensors for the innermost layer of the ATLAS pixel upgrade

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### Electrical characterizations:

We measure an increase of the reverse leakage current for the pixel geometries with smaller electrode distance. This may be due to the increase of the electric field among the electrodes for the same bias applied. In CV graphs it is clearly visible two sloping intervals: the first for the lateral and the second for full depletion.