

## Development of Edgeless Silicon Pixel Sensors on p-type substrate for the ATLAS High-Luminosity Upgrade

*Monday 2 September 2013 15:30 (20 minutes)*

In view of the LHC upgrade phases towards the High Luminosity LHC (HL-LHC), the ATLAS experiment plans to upgrade the Inner Detector with an all-silicon system. Because of its radiation hardness and cost effectiveness, the n-on-p silicon technology is a promising candidate for a large area pixel detector.

The talk reports on the joint development, by LPNHE and FBK of novel n-on-p edgeless planar pixel sensors, making use of the active trench concept for the reduction of the dead area at the periphery of the device. After discussing the sensor technology, a complete overview of the electrical characterization of the produced devices will be given. Measurements on irradiated devices will be presented too, together with results on the charge collection efficiency in the edge region.

The results will be compared to device simulations we run and to other current edgeless planar productions aimed at the ATLAS tracker upgrade for the HL-LHC.

Eventually results from beam test measurements on these edgeless sensors, such as hit-efficiency, space-point resolution and charge collection efficiency - in particular at the sensor periphery - with minimum ionizing particles will be discussed.

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