

Thin Edgeless Silicon Pixel Sensors on Epitaxial Wafers

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The demand for minimizing the material budget of tracking detectors, especially those closer to the interaction region, has been addressed by fabricating pixel sensors on 100 μm thin epitaxial material. After processing, the thick, heavily doped substrate can be thinned down, leaving only a very thin layer, necessary for properly terminating the depletion region. In order to reduce the insensitive (dead) area at the sensor periphery, the 'active edge' technique has been exploited, surrounding the devices by deep, heavily doped DRIE-etched trenches. An overview of the key technological steps and of the first electrical characterization of the fabricated devices will be given.

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