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Study of New ADVACAM Active Edge Sensor Technology for ATLAS Inner Detector Upgrade

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Active edge planar pixel sensors are promising candidates to instrument the inner layers of the new ATLAS pixel detector for HL-LHC, thanks to its radiation tolerant properties and the increased fraction of active area due to a distance as low as 50 μm between the last pixel implants and the activated edge . This poster addresses the study of the electrical characterization of active edge n-in-p planar sensors, fabricated by ADVACAM. The study is mainly aimed to compare different designs and different thicknesses, both with two different UBMs, by investigating the operational breakdown and the full depletion voltage in order to verify the electrical performance of the different configuration of the sensors . The results of these measurements will be discussed. Moreover, TCAD simulation results that help us to understand the performance of these sensors will be shown.

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