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Influence of material defects on the electrical properties of test-diodes for future cms tracking detectors

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A large number of silicon sensors was ordered for a comprehensive study of the radiation hardness of test structures for future CMS detectors. Of those materials the unirradiated Float Zone sensors exhibit unexpected electrical properties studied by capacitance-voltage and current-voltage characteristics (CV-IV). The properties observed in this material can be explained by material defects introduced during the production process. A characterisation of the crystal defects was carried out by means of Deep Level Transient Spectroscopy (DLTS).

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