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Charecterization of CMOS sensor using X-ray irradiation

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Recent advancements in particle physics demand pixel detectors that can withstand increased energy and luminosity in the future collider experiments. In response, MALTA, a novel monolithic active pixel detector, has been developed with a cutting-edge readout architecture. This new class of monolithic pixel detectors is found to have exceptional radiation tolerance, superior hit rates, higher resolution and precise timing resolution, making them ideally suited for experiments at the LHC. To optimize the performance of these sensors before their deployment in actual detectors, comprehensive electrical characterization has been conducted. This study also includes comparative DAC analyses among sensors of varying thicknesses, providing crucial insights for performance enhancement. For the further understanding of the effect of radiation, the sensors are being exposed to different fluence using high intensity X-ray source. These results will also be presented.

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