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Advanced TCT Techniques

Transient Current Technique with a narrow laser beam impinging perpendicularly to the detector edge (Edge-TCT) is a powerful method for investigating properties of silicon detectors. It produces localized ionization in the detector volume. IR light (λ = 1064 nm) has a long penetration depth in silicon and charge carriers are released along the beam path. Drift of electrons and holes can be studied by observing induced current with wide bandwidth amplifier. Initial rise of signal probes the electric field, while the integral of the signal measures collection of charge carriers generated at known depth of the detector.. Results obtained with non-irradiated and irradiated strip detectors and with a laser beam directed perpendicular and parallel to the strips will be presented. Measurements with CMOS sensors will also be reported.

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