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Charge collection and trapping effects in 75 µm, 100 µm and 150 µm thick n-type epitaxial silicon diodes after proton irradiation

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Epitaxial silicon pad diodes of 75 μ m, 100 μ m and 150 μ m thickness and both ST and DO n-type material have been investigated after 24 GeV/c proton irradiation (CERN PS) in an equivalent fluence range between 1e14 n/cm² and 1e16 n/cm². A new TCT setup with 670 nm laser light enabled the measurement of time-resolved electron current pulse shapes in 150 μ m thick diodes. Thus the charge correction method could be used in order to extract the trapping time constant. Moreover CCE measurements with 5.8 MeV alpha-particles will be presented and compared to simulation.

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