

Progress on the Two-Photon-Absorption TCT technique

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After the first proof-of-concept of the TCT technique based on the Two-Photon-Absorption process using a 1300nm femtosecond laser on non-irradiated silicon diodes. we aim to complete the feasibility study of the TPA-TCT technique on irradiated sensors. As it is well known, irradiation creates localized deep energy levels (DL) inside the semiconductor's forbidden gap between the conduction and valence bands. The radiation-induced DLs will enhance the photon absorption cross-section of the single photon absorption process (SPA) and two-step photon absorption process (TSPA). This project aims to quantify this increase of the SPA and TSPA cross-section in irradiated sensors with respect to the TPA cross-section.

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