

TPA-Based Characterisation of Solid State Sensors Using a Tunable Femtosecond Pulsed Laser

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The Two-Photon Absorption (TPA) process provides an excellent method for the characterization of solid-state sensors due to its intrinsic 3D resolution for the excitation of electron-hole pairs when compared to the single-photon process. A Light Conversion ORPHEUS optical parametric amplifier with tuneable output wavelength across 310-16000 nm is used as the excitation source for order of 150 femtoseconds laser pulses. This broad range offers a unique opportunity to characterize devices with TPA for a wide range of solid-state devices including silicon and diamond. In addition, this set-up “developed at The Photon Science Institute (Manchester)” is also used for timing measurements. The results of the timing measurements, and energy, voltage, depth and knife-edge scans, followed by plans for improvements will be presented. First results from simulations (KDetSim) compared with experimental data will also be presented.

Type of presentation (in-person/online)

in-person presentation

Type of presentation (scientific results or project proposal)

Presentation on scientific results

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