



SÉMINAIRE DE PHYSIQUE CORPUSCULAIRE

SUJET: **3D Laser characterization of semiconductor devices**

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RÉSUMÉ:

The time-resolved analysis of the laser-induced currents on semiconductor detectors has been proven to be a chief and versatile tool for the understanding of the effects produced by the ionising radiation on such devices. So far, all these methods and techniques, known as Transient Current Techniques (TCT), are based on the single-photon absorption process where just one photon is required to create an electron-hole pair. We have developed a new TCT system based on a simultaneous Two-Photo-Absorption (TPA) for the creation of an electron-hole pair.

This innovative TPA-TCT technique makes an important breakthrough with respect to the current state-of-the-art since it allows for the laser-induced generation of charge carriers on a very localised micrometric-scale voxel; opening a broad field of opportunities for the study of the current new generation of small-pixel devices where spatial resolution is a mandatory. The improved spatial resolution of this new measurement technique has allowed to resolve features like the Deep Implant of an HVCMOS, distinguish between drift and diffusion regions and calculate the effective doping concentration of the bulk. The technique can be used for 3D mapping of key properties of a detector, like the collected charge or electric field.

INFORMATION : <http://dpnc.unige.ch/seminaire/annonce.html>

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