



Contribution ID: 3

Type: **not specified**

Characterization and identification of defects in Si-pixel and CdTe detectors using scanning laser-TCT

Thursday 13 June 2019 09:40 (20 minutes)

Pixel detectors, made of Si and CdTe, were characterized by raster scanning the detector surfaces with laser-TCT setup. The detectors were manufactured using aluminum oxide (Al_2O_3) thin films grown by atomic layer deposition (ALD) as dielectric and field insulator. From the TCT-maps we measure signal shaping within the bulk, locate defects, and evaluate their impact to the charge collection efficiency. By separating the maps in time domain, we can study the uniformity of the rise time and the signal duration in the pixels. Further, by combining these resulting frames in a stack with intensity matching, a 3d-projection can be made by using the intensity value as Z-coordinate. We present some selected results on the detector scans, where we locate and identify various types of defects using the current transients.

Author: Dr KALLIOKOSKI, Matti (Ruđer Bošković Institute (HR))

Co-authors: Dr KARADZHINOVA-FERRER, Aneliya (Ruđer Bošković Institute); Dr HÄRKÖNEN, Jaakko (Ruđer Bošković Institute); BHARTHUAR, Shudhashil (Helsinki Institute of Physics); GOLOVLEVA, Maria (Helsinki Institute of Physics (FI)); GÄDDA, Akiko (Helsinki Institute of Physics); LUUKKA, Panja (Helsinki Institute of Physics (FI)); OTT, Jennifer (Helsinki Institute of Physics (FI))

Presenter: Dr KALLIOKOSKI, Matti (Ruđer Bošković Institute (HR))

Session Classification: Defects and Material Characterization