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Study of Interpad-gap and inactive region of FBK (UFSD3) and HPK sensors with Transient Current Technique

Wednesday, 12 June 2019 14:00 (20 minutes)

The third production of Ultra Fast Silicon Detectors (UFSD3) from Fondazione Bruno Kessler (FBK) and Low Gain Avalanche Detectors (LGADs) from Hamamatsu Photonics K.K. (HPK), produced for CMS, include 2x2 sensors with different structural strategies, specifically with different values of narrower inactive region widths between the pads. These sensors have been designed to study specific features required for the future Endcap Timing Layer (ETL) of CMS at High-Luminosity LHC. We carry out a comparative study on the dependence of breakdown voltage with the interpad gap width for both sensor types.

We will present results from Transient Current Technique measurements performed at Helsinki Institute of Physics (HIP). The presentation will include results of measured interpad gap widths and spatial mappings within their non-active regions, as well as their dependence on temperature variation (from 25°C to -25°C). Further, we will give an insight on their effect at both high and low laser intensities.

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