

Irradiation study of different silicon materials for the CMS tracker upgrade

Wednesday 5 June 2013 09:00 (20 minutes)

The aim of the CMS tracker upgrade campaign is to find a new radiation hard sensor material for the HL-LHC upgrade of the CMS tracker. Different test structures and sensors were implemented on a variety of silicon materials with different thicknesses by Hamatsu Photonics, Japan. Samples have been irradiated to fluences up to $3E15$ with protons at Karlsruhe and the CERN PS and with reactor neutrons at Ljubljana.

To find a radiation hard sensor material we investigated current characteristics (I-V), capacitance characteristics (C-V) and characteristics of charge collection (TCT).

This talk will present the results concerning dark current, effective doping concentration and charge collection efficiency and their annealing, key parameters in defining a material well suited for the upgrade of the CMS tracker.

Author: ERFLE, Joachim (Hamburg University (DE))

Presenter: ERFLE, Joachim (Hamburg University (DE))

Session Classification: Session 5: Detectors and Full Detector Systems