Contribution ID: **32** Type: **not specified**

Defect characterization studies on gamma-irradiated p-type Si diodes

Tuesday 21 June 2022 11:20 (20 minutes)

Boron-doped silicon devices used in high radiation environment like the HL-LHC show a degradation in device performance due to the radiation induced deactivation of the active boron dopant. This effect is known as the so-called Acceptor Removal Effect and depends on particle type, energy and radiation dose. Here we present defect characterization studies using TSC (thermally stimulated current technique) and DLTS (Deep Level Transient Spectroscopy) to correlate radiation induced changes in the macroscopic device properties with the formation of microscopic defects. The defect spectroscopy techniques provide us information about defect characteristics such as activation energy, capture cross section and defect concentrations, and were performed on 60Co gamma-irradiated B-doped silicon EPI-diodes of different resistivity.

Authors: HIMMERLICH, Anja (CERN); LIAO, Chuan (Hamburg University (DE)); FRETWURST, Eckhart (Hamburg University (DE)); PINTILIE, Ioana; SCHWANDT, Joern (Hamburg University (DE)); MOLL, Michael (CERN); CASTELLO-MOR, Nuria (Universidad de Cantabria, CSIC, Instituto de Fisica de Cantabria IFCA, (ES)); SUBERT, Vendula (Hamburg University (DE)); GURIMSKAYA, Yana (CERN)

Presenter: HIMMERLICH, Anja (CERN)

Session Classification: Defect and Material Characterization