

## Acceptor removal in silicon pad diodes with different resistivities

*Monday 20 November 2017 16:00 (20 minutes)*

Acceptor removal has been studied on a set of p-type sensors irradiated with protons up to  $7E15$  neq/cm<sup>2</sup>. Two sets of diodes were used: thin epitaxial diodes with different resistivities (10, 50, 250 and 1000 Ohm cm) and high resistivity float zone diodes with different thicknesses (100, 150, 200 and 285 um).

CV, IV and TCT measurements were performed to extract the effective doping concentration of these devices. TCT collected charge versus voltage was used to evaluate the sensor's bulk space charge.

In an annealing study on a subset of the epitaxial sensors irradiated to  $7.32E+14$  neq/cm<sup>2</sup>, evidence of type inversion was observed on some of the devices.

Defect spectroscopy was conducted using TSC technique in order to study the correlation between BiOi concentration and acceptor removal.

All collected data is used to revise the fitting of the  $N_{eff}$  vs fluence plots and extract acceptor removal rate parameters.

**Authors:** Mr DIAS DE ALMEIDA, Pedro Goncalo (FCT Fundacao para a Ciencia e a Tecnologia (PT)); GURIMSKAYA, Yana (CERN); MATEU, Isidre (CERN); MOLL, Michael (CERN); FERNANDEZ GARCIA, Marcos (Universidad de Cantabria (ES))

**Presenters:** Mr DIAS DE ALMEIDA, Pedro Goncalo (FCT Fundacao para a Ciencia e a Tecnologia (PT)); GURIMSKAYA, Yana (CERN); MATEU, Isidre (CERN)

**Session Classification:** Defects and material characterisation