Contribution ID: **715** Type: **Parallel session talk**

Radiation damage investigation of epitaxial p-type silicon using Schottky and pn-junction diodes

Thursday, May 27, 2021 10:42 AM (18 minutes)

Focus of this RD50 project is the investigation of trap energy levels introduced by radiation damage in epitaxial p-type silicon. Using 6-inch wafers of various boron doping concentrations (1e13, 1e14, 1e15, 1e16, and 1e17 cm-3) with a 50 µm epitaxial layer, multiple iterations of test structures consisting of Schottky and pn-junction diodes of different sizes and flavours are being fabricated at RAL and Carleton University.

Details on the initial fabrication phase of devices on high resistivity wafers will be given. IV and CV scans of test structures have been performed and cross-checked between institutes, the results of which will be presented.

Samples of both Schottky and pn-junction diodes have been further investigated using Deep-Level Transient Spectroscopy (DLTS) and Thermal Admittance Spectroscopy (TAS) to characterise trap energy levels in unirradiated devices.
The findings as well as plans for measurements of irradiated samples will be discussed.

TIPP2020 abstract resubmission?

No, this is an entirely new submission.

Funding information

Primary author: VILLANI, Enrico Giulio (Science and Technology Facilities Council STFC (GB))

Co-authors: KLEIN, Christoph Thomas (Carleton University (CA)); KOFFAS, Thomas (Carleton University (CA)); ALLPORT, Philip Patrick (University of Birmingham (UK)); GONELLA, Laura (University of Birmingham (UK)); KOPSALIS, Ioannis (University of Birmingham (GB)); MANDIC, Igor (Jozef Stefan Institute (SI)); TARR, Garry (Carleton University (CA)); VANDUSEN, Robert (Carleton University (CA)); WILSON, Fergus (Science and Technology Facilities Council STFC (GB)); ZHU, Hongbo (IHEP (CN))

Presenter: KLEIN, Christoph Thomas (Carleton University (CA))

Session Classification: Sensors: Solid-state sensors for tracking

Track Classification: Sensors: Sensors: Solid-state position sensors