## **TSC Spectra – Point- versus Cluster-Defects**

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TSC Spectra –Point- versus Cluster-Defects E. Fretwurst, E. Donegani, E. Garutti, R. Klanner Institute for Experimental Physics, University of Hamburg

Abstract:

The analysis of TSC spectra of silicon diodes after irradiation with GeV protons or neutrons rely on the knowledge of the induced defects which can be either point-like or cluster-related defects. It was found that TSC signals which are attributed to extended defects cannot be reproduced by defect parameter derived for pointlike states. It is observed that the TSC signals of extended-defects exhibit much broader peak shapes compared to isolated point defects. A very strong broadening effect has been observed in DLTS spectra for dislocation loops (DLs) in CMOS devices and explained by A. Scheinemann and A Schenk1). The model is based on the change of the local potential due to the Coulomb energy of the charged defect states at the boundary of the DLs. This model has been applied to TSC spectra containing vacancy related cluster-defects. The results obtained for epitaxial diodes after irradiation with 23 GeV protons and neutrons will be presented and discussed. 1) A. Scheinemann and A Schenk, Phys. Status Solidi A 211, No. 1, 136-142 (2014)

**Presenter:** FRETWURST, Eckhart (II. Institut fuer Experimentalphysik) **Session Classification:** Defect and Material Characterization