



Contribution ID: 274

Type: Poster Presentation

Characterization of Temperature Dependence of the Electron Capture Cross Section of E-Center in Sb-Doped Germanium

Wednesday, 9 July 2014 17:10 (1h 50m)

Abstract content (Max 300 words) http://events.saip.org.za/getFile.py/a?target=_blank **Formatting & Special chars**

The temperature dependent capture cross section of the E-center in Ge after intentionally irradiating the sample by alpha particle has been investigated. Ohmic contact and Schottky diodes were deposited on n-type Sb-doped Ge by resistive evaporation. DLTS measurements were made by high resolution Laplace DLTS. From an Arrhenius plot, we found that the thermal emission of the E-center had activation energy of (0.370 ± 0.001) eV and an apparent capture cross section of $2.22 \times 10^{-15} \text{ cm}^2$. For a constant filling pulse width, the height of the DLTS peak due to the E-centre increased with increasing temperature. This is the evidence that the E-center has a temperature activated capture cross section. The capture barrier energy and true capture cross section of Ge E-center have been determined to be (0.052 ± 0.003) eV and $(2.25 \pm 0.05) \times 10^{-17} \text{ cm}^2$ respectively.

Apply to be considered for a student award (Yes / No)?

Yes

Level for award (Hons, MSc, PhD)?

PhD

Main supervisor (name and email) and his / her institution

Prof. W. E. Meyer
wmeyer@up.ac.za
University of Pretoria

Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

No

Primary author: Mr OMOTOSO, Ezekiel (University of Pretoria)

Co-authors: Prof. AURET, Danie (University of Pretoria); Mr NGOEPE, Phuti (University of Pretoria); Mr COELHO, Sergei (UP); Prof. MEYER, Walter (University of Pretoria)

Presenter: Mr OMOTOSO, Ezekiel (University of Pretoria)

Session Classification: Poster2

Track Classification: Track A - Division for Physics of Condensed Matter and Materials