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

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**Abstract content** (Max 300 words) [http://events.saip.org.za/getFile.py?target=\\_blank](http://events.saip.org.za/getFile.py?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  $(0.370 \pm 0.001)$  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  $(0.052 \pm 0.003)$  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**

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

No

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