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Contribution ID: 239

Type: **Poster Presentation**

## Study of Current-Voltage-Temperature (I-V-T) Characteristics of Palladium Schottky contacts on n-Ge (100)

*Tuesday, 10 July 2012 17:30 (2 hours)*

### Abstract content <br> &nbsp; (Max 300 words)

Current-voltage (I-V) characteristics of palladium Schottky contacts on n-Ge (100) have been measured in the 60-300 K temperature range, and analysed in terms of thermionic emission theory by incorporating the barrier inhomogeneity concept at the metal/semiconductor interface through the Gaussian distribution function. Diode electrical parameters such as ideality factor and Schottky barrier height were consequently extracted from electrical measurements. These electrical parameters indicate a very strong temperature dependence. While ideality factor  $n$  decreases, the zero bias Schottky barrier height increases with increasing temperature. The zero-bias barrier height versus  $1/2kT$  plot has been drawn to obtain evidence of a Gaussian distribution of barrier heights. The temperature dependence of the barrier height for Pd/n-Ge (100) Schottky contacts depicts two Gaussian distributions. The Richardson constant and mean barrier height from the modified Richardson plot, were obtained as  $0.32 \text{ A cm}^{-2} \text{ K}^{-2}$  and  $0.529 \text{ eV}$ , respectively. This Richardson constant is much smaller than the reported of  $50 \text{ A cm}^{-2} \text{ K}^{-2}$ . This deviation may be attributed to greater inhomogeneities and potential fluctuations at the contact interface.

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Yes

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**Session Classification:** Poster Session

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