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Analysis of temperature dependent I-V characteristics of Pd/n-4HSiC Schottky barrier diodes and the determination of the Richardson constant in a wide temperature range

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The current-voltage characteristics of Pd/n-4H-SiC Schottky barrier diodes in the 300-800 K temperature range have been analysed . Barrier height and ideality factor were found to be highly temperature dependent. Barrier height increases whilst ideality factor decreases with an increase in temperature and the conventional activation energy plot showed some deviation from linearity. This was attributed to barrier in-homogeneities at the metal semiconductor interface which resulted in a distribution of barrier heights at the interface. From the modified Richardson plot, the Richardson constant, A** was found to be 155 Acmˆ-2Kˆ-2 in the 300-525 K range and 87 A cmˆ-2Kˆ-2 in the 550-800 K temperature range.

Apply to be
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Yes

Level for award
 (Hons, MSc,
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PhD

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

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Yes

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