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## Electrical characterization of two metastable defects introduced in GaN by Eu-ion implantation

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Defects introduced by 300 keV Eu ions in HVPE grown Si-doped GaN were investigated by means of deep level transient spectroscopy (DLTS). After implantation, the samples were annealed at 1000 °C and Ti/Al/Ni/Au ohmic and Ni/Au Schottky contacts were deposited. The Schottky contacts were found to be of high quality, with leakage current at 1 V reverse bias of below 10<sup>-8</sup> A.

Two peaks in the DLTS spectrum showed metastable behaviour. They were labelled E1 and E2 and had activation enthalpies of 0.20 eV and 0.28 eV respectively. Laplace analysis showed that the E1 was due to a single exponential decay, while the E2 consisted of the sum of three exponential decays. We found that the E1 and E2 defects are metastable, and that the E2 defect may be reversibly transformed to the E1 defect by a zero bias. We found that the transition between these defects is not described well by a single exponential decay, but rather by the integral over a range of exponential decays.

**Level (Hons, MSc, PhD, other)?**

N/A

**Consider for a student award (Yes / No)?**

No

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

Yes

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