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Identification of a third stable state associated with E3 center in GaAs.

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Abstract content ** ** **(Max 300 words)** **Formatting &** **Special chars**

High resolution Laplace deep level transient spectroscopy was used for the study of fine structures associated with the radiation induced bi-stable E3 center in epitaxially grown GaAs. The samples were made using n-type GaAs that were doped with silicon to doping densities of 10^{15} cm⁻³ and 10^{16} cm⁻³. To introduce the defect, the samples were subjected to MeV electrons emanating from a ⁹⁰Sr source for 113 hours at room temperature. Laplace DLTS measurements were carried out at 200 K. In addition to the two previously known states, a third stable state of the defect was also observed. It was also observed that at lower doping densities, the concentration of the third state is smaller compared to the other two but increases as the doping density is increased. From these observations, it was hypothesized that the existence of the third state could be the result of localized effects due to close proximity of the E3 and a dopant atom.

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yes

Level for award (Hons, MSc, PhD, N/A)?

PhD

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

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