

Proposed Area and Topic of Research

Name of the Candidate : SARITHA.N.R

Field of Research : NANO-ELECTRONICS

Proposed title of the work:

Performance Evaluation of High Electron Mobility Transistor for future high power and high frequency applications. To design and model GaN High Electron Mobility Transistor for high power RF applications. The main purpose of the field plate is to reshape the electric field distribution in the channel and to reduce its peak value on the drain side of the gate edge.

Novelty

High speed and high frequency applications. Introducing a field plate in AlGaIn/GaN HEMTs reduces the current collapse which in turn increases the power performance. It will increase of the breakdown voltage and a reduced high-field trapping effect. Overall the power density will be increased.

References:

- [1] F. Medjdoub, J.F. Carlin, C. Gaquière N. Grandjean and E. Kohn The Open Electrical and Electronic Engineering Journal, 2008, 2, 1-7.
- [2] Rashmi a, AbhinavKranti a, S. Haldar b, R.S. Gupta Solid-State Electronics 46 (2002) 621–63
SourabhKhandelwal and Tor A.Fjeldly IEEE Volume: 58, Issue: 10 Oct2011.
- [3] T.R.Lenka, A.K.Panda Advanced Materials Research, 159,342(2010).
- [4] Nitride Semiconductor Devices Principles and Simulation Edited by Joachim Piprek@2007
WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim.