Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

**Microstructure of Er optical centers in the large-bandgap semiconductor GaN** DEEPU GEORGE, ALI CHARKHESHT, Virginia Tech, STEPHEN MCGILL, National High Magnetic Field Laboratory, HONGXING JIANG, Texas Tech University, JOHN ZAVADA, NYU Polytechnic, NGUYEN VINH, Virginia Tech — Photoluminescence properties at $\lambda$ =1.54 $\mu$m from Er optical centers in GaN epilayers grown by metal-organic chemical vapor deposition are investigated in magnetic fields up to 17 T and high-resolution time-resolved PL spectroscopy. The magnetic field induced splitting is observed for all the main lines of the Er-related photoluminescence spectrum. For the most intense emission line, angular dependence of the splitting is measured in the (1120) crystallographic plane of the sample. The effective g-tensor, corresponding to the difference between individual g-tensors of the lowest multiplets of the ground and the first excited states, is experimentally determined. The magneto-optical measurements, the time-resolved photoluminescence and the temperature dependence of the photoluminescence spectroscopy show that the samples have two main optical centers and they can be excited selectively under band-to-band and resonance excitations.

Vinh Nguyen
Virginia Tech

Date submitted: 14 Nov 2014 Electronic form version 1.4