Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Spatially resolved visible broad band multi-photon luminescence in GaN micro-pyramids SWEEN BUTLER, Univ of North Texas, MOHAMED FIKRY, KLAUS THONKE, Ulm University, ARUP NEOGI, Univ of North Texas, ULM UNIVERSITY COLLABORATION — Multi-photon induced visible broad band luminescence was observed in position controlled m-polar GaN hexagonal micro-pyramids using a tunable near-infrared femtosecond laser source at room temperature. The GaN micro-pyramids were grown by metal-organic chemical vapor deposition using the epitaxial lateral overgrowth method. Excitation wavelengths corresponding to near band gap and below band gap energies were used. Spatially resolved optical characterization from a single micro-structure was achieved using multi-photon microscopy and spectroscopy. We observed broad band luminescence in the range of 400 nm to 600 nm for both near band gap and below band gap excitations. Power dependent excitation dependence confirms the origin of broad band visible emission as multi-photon induced luminescence (MPL). Band width of broadband visible light emission due to MPL can be controlled by selective spatial excitation of the GaN micro-pyramid.

Sween Butler
Univ of North Texas

Date submitted: 14 Nov 2014 Electronic form version 1.4