

**Characteristics of Optical Properties of the Interrupt Growth Method
on InGaN/GaN MQW Structures**

C. F. Lin^a, C. K. Shu, W. H. Lee, T. C. Wen, C. F. Chu,

J. Y. Fang, W. K. Chen, W. I Lee and S. C. Wang

*Institute of Electro-Optical Engineering, National Chiao Tung University,
Hsinchu, Taiwan 30050, R.O.C.*

The growth method and material properties of InGaN/GaN multiple quantum well (MQW) structures were studied in this experiment. The InGaN/GaN-MQW structure were deposited above the 2 μ m-thick high quality GaN layers (with background carrier concentration was about 3.2×10^{16} cm⁻³) on Al₂O₃ substrates. The interrupt growth time was 10 sec between GaN barrier layer and InGaN well growth at 720°C. The stronger intensity and sharper photoluminescence (PL) spectra was observed from the interrupt growth MQW structures. During the growth temperatures was reduced, the PL spectra of MQW structures were shift from 400nm to 441nm and the sharper peak width exhibited the high quality of optical confinement. The mean deviation of the PL peak position was lower than 1% by using the interrupt growth MQW structures at difference growth temperature. The PL spectra was become broaden and weaker by reducing the interrupt time during InGaN/GaN growth. The thickness of one pair InGaN/GaN was also identified by DCX-ray measurement and the growth rate InGaN layer was also calculated in this experiment.

^a Corresponding author: Dr. C. F. Lin

Telephone: +886-3-5712121-55673

FAX: +886-3-5724241

E-mail: cfjlin@ms32.hinet.net

