

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Blue and Green light InGaN/GaN Multiquantum-Well grown by plasma-assisted molecular beam epitaxy¹ CHIA-HSUAN HU, IKAI LO, CHENG-HUNG SHIH, WEN-YUAN PANG, CHENG-DA TSAI, YU-CHIAO LIN, Department of Physics, Center for Nanoscience and Nanotechnology, National Sun Yat-Sen University, Kaohsiung 80424, Taiwan, R. O. C. — High-efficiency red, green and blue light-emitting diodes (LEDs) can be used in the construction of full color display. We have grown green and blue light InGaN/GaN multiquantum-well (MQW) thin film on sapphire substrate with GaN buffer by using plasma-assisted molecular beam epitaxy. The optical properties of the samples were analyzed by photoluminescence measurement in room temperature. Under constant nitrogen flux condition, we obtained the blue and green emitting bands from different samples by modified the Indium and Gallium flux ratio in MQW. In high nitrogen flux condition, the wavelength shifts to 560nm, which provides an effective way to reach high Indium incorporation LED. In order to improve the quality, we can control the growth temperature and InGaN/GaN thickness. There are more than five order satellite peaks in Double Crystal X-ray Diffraction data. Smooth surface morphology has been verified in our samples by scanning electron microscope.

¹This project is supported by National science council of Taiwan (NSC 101-2112-M-110-006-MY3).

Chia-Hsuan Hu
Dept of Physics, Center for Nanoscience and Nanotechnology,
National Sun Yat-Sen University, Kaohsiung 80424, Taiwan, R. O. C.

Date submitted: 12 Nov 2012

Electronic form version 1.4