

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Self-confined GaN hetero-phased quantum wells YU-CHI HSU, IKAI LO, CHIA-HO HSIEH, WEN-YUAN PANG, Department of Physics, National Sun Yat-Sen University, Kaohsiung 80424, Taiwan, MITCH M.C. CHOU, Department of Materials and Optoelectronic Science, National Sun Yat-Sen University, Kaohsiung 80424, Taiwan, YEN-LIANG CHEN, CHENG-HUNG SHIH, YING-CHIEH WANG, Department of Physics, National Sun Yat-Sen University, Kaohsiung 80424, Taiwan — Wurtzite/zinc-blende/wurtzite GaN hetero-phased quantum wells (QWs) were grown by plasma-assisted molecular beam epitaxy. A self-assembling mechanism was used to simulate the hetero-phased QW, in which a wurtzite/zinc-blende phase transition was created by rotating the threefold symmetric N-Ga vertical bond of wurtzite 60° . From the cathodoluminescence measurement, we observed an additional peak (energy $\sim 3.2\text{eV}$) associated with GaN zinc-blende phase. From the transmission electron microscopy images and selective area electron diffraction patterns, we confirmed the formation of hetero-phased quantum wells with a transition of wurtzite/zinc-blende GaN [1].

[1] I. Lo, Y.-C. Hsu, C.-H. Hsieh, W.-Y. Pang, M. M.C. Chou, Y.-L. Chen, C.-H. Shih, and Y.-C. Wang, *Appl. Phys. Lett.* **96**, 222105 (2010).

Yu-Chi Hsu
Dept of Physics, National Sun Yat-Sen University,
Kaohsiung 80424, Taiwan

Date submitted: 02 Dec 2010

Electronic form version 1.4