

Abstract Submitted  
for the MAR05 Meeting of  
The American Physical Society

**Growth and characterization of AlGaN/GaN heterostructures by plasma-assisted molecular beam epitaxy** MING-HONG GAU, CHIA-HO HSIEH, CHUN-FAN CHEN, KUNG-YAO CHEN, JENN-KAI TSAI, WAN-TSANG WANG, JIH-CHEN CHIANG, IKAI LO, National Sun Yat-sen Univ. — Transition from 2D to 3D growth GaN epilayer was found in the intermediate Ga-stable regime for optimize N/Ga flux ratio at high temperature (i.e. 788 degree C), and the surface morphology was also sensitive to the N/Ga flux ratio. As the ratio less than transition ratio (i.e. 22.5), the slope of growth rate is 0.389, otherwise the slope is 0.140. In order to enhance the film quality, we selected AlN layer as a buffer to grow the AlGaN/GaN heterostructures under different growth conditions. These samples have been characterized in situ by reflection high-energy electron diffraction (RHEED), and ex situ by field-emission scanning electron microscopy (FESEM) and high resolution X-ray diffraction (DXRD). The electronic properties were studied by van der Pauw Hall measurement as well.

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Date submitted: 06 Dec 2004

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