

Abstract Submitted  
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**Field emission characteristics of GaN nanorods on self-implanted (111) Si<sup>1</sup>** H.W. SEO, X.M. WANG, Q.Y. CHEN, Dept. of Physics & Texas Center for Superconductivity, University of Houston, Texas, USA., L.W. TU, Y.J. TU, C.L. HSIAO, M. CHEN, Dept. of Physics & Center for Nanoscience and Nanotechnology, National Sun Yat-Sen University, Taiwan, Republic of China., O. LOZANO, D.H. KIM, P.V. WADEKAR, WEI-KAN CHU, Dept. of Physics & Texas Center for Superconductivity, University of Houston, Texas, USA. — Periodic arrays of GaN nanostructures have been fabricated by MBE growth on self-implanted (111) Si substrates. Nano-capillary condensation was found to be an effective catalytic process fostering the formation of epitaxially aligned GaN nanorods supported by a thin film matrix. Changes of Si substrate surface morphology as a result of ion bombardments prior to the thin-film deposition are responsible for the enhanced nanorod growth. The density of nanorods in relation to implanted ion dosages was studied. Field emission measurement was performed to understand the physical characteristics of functional devices based on such nanostructures. Experimental details and their implications for the future development of nanostructure and nano-device fabrications will be presented.

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