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Conductance measurement of GaN nanorods[1] O. LOZANO, H.W. SEO, 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., D.H. KIM, P.V. WADEKAR, WEI-KAN CHU, Dept. of Physics & Texas Center for Superconductivity, University of Houston, Texas, USA. — GaN nanorods have been grown by molecular beam epitaxy over a thin-film GaN matrix on Si substrate. We have studied the conductance behaviors of a single nanorod and clusters nanorods. Transport measurement of internal emission of electrons from nanorod-clusters was carried out with metallic contacts over the nanostructure. Vacuum tunneling of externally emitted electrons from individual nanorod was measured using a scanning tunneling microscope-first in constant voltage mode to locate the more conductive nanorods, which was then followed by measurements at various applied voltage. Observations are made to distinguish thin film matrix from the nanorods by their efficiencies of electron emission. The characteristics of I-V curves will be reported and the applications of these nanorods to electron-emission devices will be discussed.

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