

Abstract Submitted
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The role of defects in the electrical properties of NbO₂ thin film vertical devices¹ TOYANATH JOSHI, West Virginia University, PAVEL BORISOV, Loughborough University, DAVID LEDERMAN, University of California, Santa Cruz — Epitaxial NbO₂ thin films were grown on Si:GaN layers deposited on Al₂O₃ substrates using pulsed laser deposition. Pulsed current-voltage (IV) curves and self-sustained current oscillations were measured across a 31 nm NbO₂ film and compared with a similar device made from polycrystalline NbO₂ film grown on TiN-coated SiO₂/Si substrate. Crystal quality of the as grown films was determined from x-ray diffractometric, x-ray photoelectron spectroscopy and atomic force microscopy data. The epitaxial film device was found to be more stable than the defect-rich polycrystalline sample in terms of current switching and oscillation behaviors.

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