

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Resistance Switching Behavior in Epitaxially Grown NiO S.R. LEE, J.H. BAK, Y.D. PARK, K. CHAR, Seoul National University, D.C. KIM, R. JUNG, S. SEO, X.S. LI, G -S. PARK, I.K. YOO, Samsung Advanced Institute of Technology — Reproducible resistance switching behavior has been found in NiO films prepared by a pulsed laser deposition system. The I-V measurements of epitaxially grown NiO on SrRuO₃ electrode show a bipolar resistive memory switching behavior, in contrast with a unipolar switching behavior of polycrystalline NiO on Pt electrode. In order to understand the resistive memory switching mechanism in NiO, the I-V characteristics and memory switching property of epitaxial NiO prepared under various synthesis conditions and electrodes has been investigated. The IV measurements at room temperature suggest that the interface between NiO and the electrode plays an important role on the resistive switching phenomena. To analyze the role of the interface, our efforts to control the interfaces and to measure the I-V characteristics at low temperature will be presented.

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Date submitted: 02 Dec 2007

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