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Effects of Voltage Pulse Characteristics on Some Performance Parameters of Li_xCoO_2-based Resistive Switching Memory Devices

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Abstract : In the field of Nanoelectronics, a major research activity is being developed towards non-volatile memories. To face the limitations of existing Flash memory cells (endurance, downscaling, rapidity…), new approaches are emerging, among them resistive switching memories (Re-RAM). In this work, we analysed the behaviour of LixCoO2 oxide thin films in electrode/film/electrode devices. Preliminary results have been obtained concerning the influence of bias pulses characteristics (duration, value) on some performance parameters, such as endurance and resistance ratio (ROFF/RON). Besides, Conducting Probe Atomic Force Microscopy (CP-AFM) characterizations of the devices have been carried out to better understand some causes of performance failure, and thus help optimizing the switching performance of such devices.

Keywords : non volatile resistive memories, resistive switching, thin films, endurance
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