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Resistive Switching at Reduced Stimulus

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Abstract –

Resistive switching at a silver manganite interface is studied by means of instantaneous and remnant response to bipolar current pulses. Complementary behaviour at pulsed electrodes is found in both cases above the threshold for switching. A loop protocol is used to determine the state of the interface either in high or low resistance states. Our results suggest that the threshold for switching is determined by the actual electric field at the interface. Switching at reduced stimulus is obtained by choosing the appropriate initial state, which in turn determines the remnant resistance value. We discuss the transport mechanism in terms of oxygen vacancy detrapping.