Electric pulse induced resistance switching in oxide–metal junctions

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We investigate the electric pulse induced resistance switching in oxide–metal contacts at room temperature. Using a multiterminal configuration, we find a "complementarity" effect where the contact resistance of pulsed electrodes at opposite ends -a non volatile memory device- show variations of opposite sign. These reversible variations are further studied using different electric protocols, to show properties of each electrode. We discuss the mechanism driving the effect both on LaPrCaMnO and TiO samples contacted with Ag electrodes, based on old [1,2] and recent [3] results.

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[1] Quintero, Leyva & Levy, APL **86**, 242102 (2005)
[2] Quintero, Levy, Leyva & Rozenberg, PRL **98**, 116601 (2007).
[3] Rozenberg, M.Sánchez, Weht, Acha, G.Marlasca & Levy, PRB **81**, 115101 (2010); Ghenzi, M.Sánchez, G.Marlasca, Levy & Rozenberg, J. Appl. Phys. **107**, 093719 (2010)