

Abstract Submitted
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A Physical Model for Resistive Switching In Metal-Oxide Interface NILANJAN DAS, STEPHEN TSUI, YAQI WANG, YUYI XUE, Department of Physics, University of Houston and TCSUH, CHING-WU CHU, Department of Physics, University of Houston, TCSUH, LBNL, California and HKUST, Hong Kong — Resistive switching in metal-oxide interface has been studied extensively and different models have been proposed. We have investigated the switch in metal-PCMO ($\text{Pr}_{0.7}\text{Ca}_{0.3}\text{MnO}_3$) sample. Interface R and C, both have been found to be frequency independent almost up to 10 MHz. Also the activation energy for both the states (High and Low) are almost the same with bulk as found in R(T) plot. The physical picture will be very shallow potential wells, which may not be enough for retention observed. A pure electronic process (trapping and de-trapping in defects) of carrier only, as suggested earlier, will not be correct answer.

Nilanjan Das
Department of Physics, University of Houston and TCSUH

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