

Voltage Sweep Modulated Conductance Quantization in Oxide Nanocomposite

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Supporting information

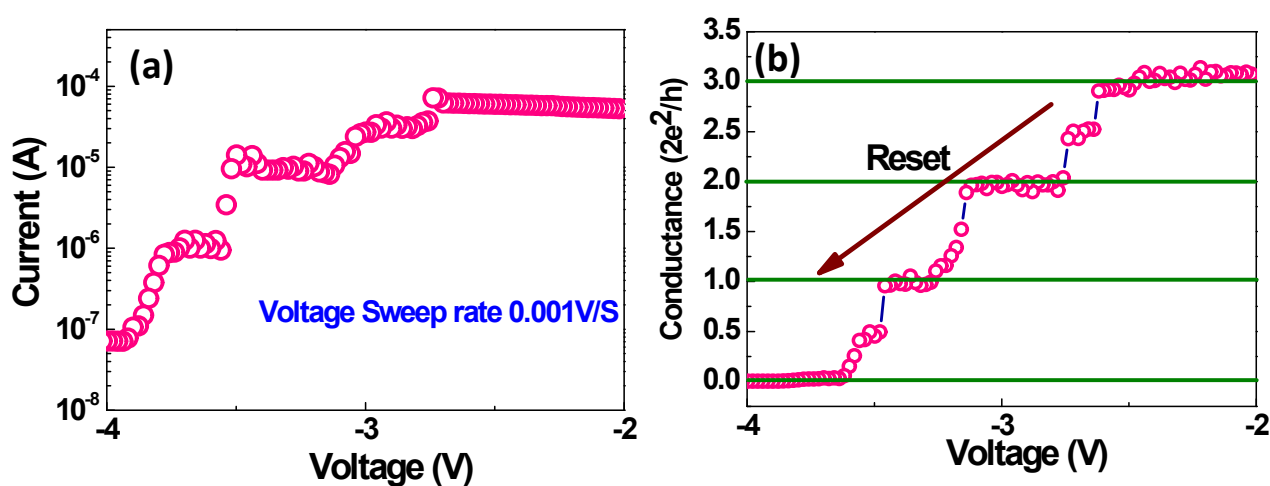


Figure S1: (a) I–V curve with voltage sweep of 0.001V/s from -2 to -4V shows multistep reset process (b) quantized conductance plateaus during reset process.

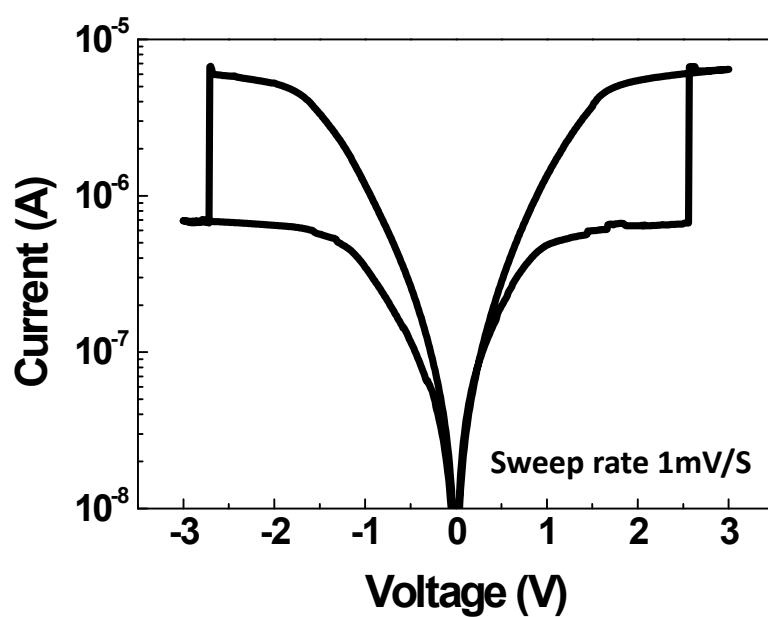


Figure S2: Typical one step set process with voltage sweep of 0.001V/s for CeO_2 nanorods based device.

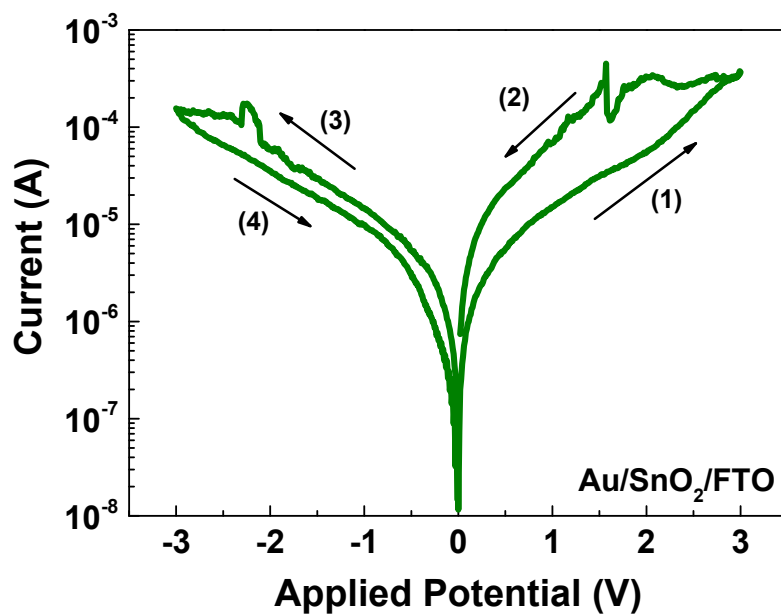


Figure S3: IV curves with voltage sweep of 0.001V/s for $\text{Au/SnO}_2/\text{FTO}$ device.

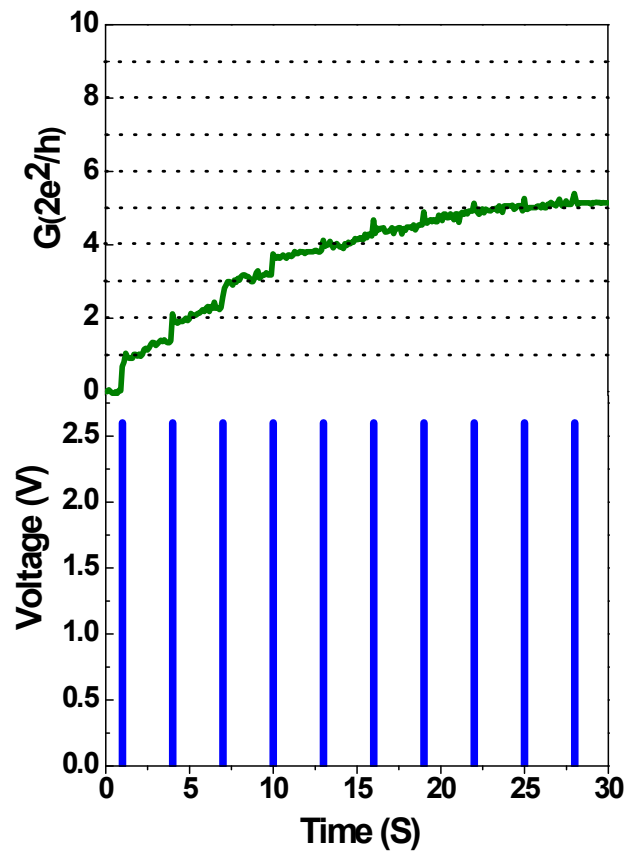


Figure S4: Conductance quantization behaviour under 3V fixed voltage pulse (interval between pulses is 3 S) with varying pulse widths (from 50 μ S to 100 μ S, in increments of 5 μ S).

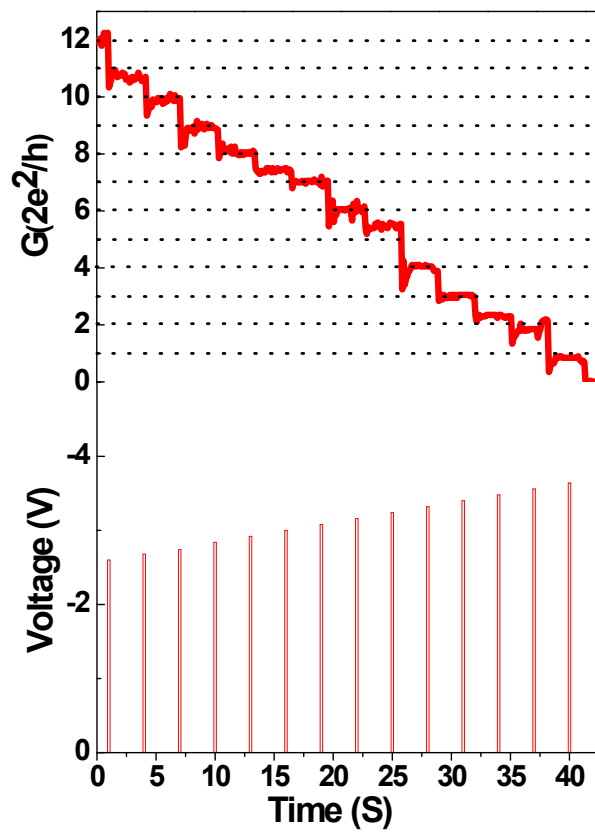


Figure S5: Quantized conductance characteristics in the SnO₂-CeO₂ nanocomposite memory cell by applying negative voltages pulses with a width of 10 ns at intervals of 3 S. The pulse amplitude was varied from -2.6 V to -3.7 V in increments of -0.08 V. Quantized conductance step can be observed with slight fluctuations.

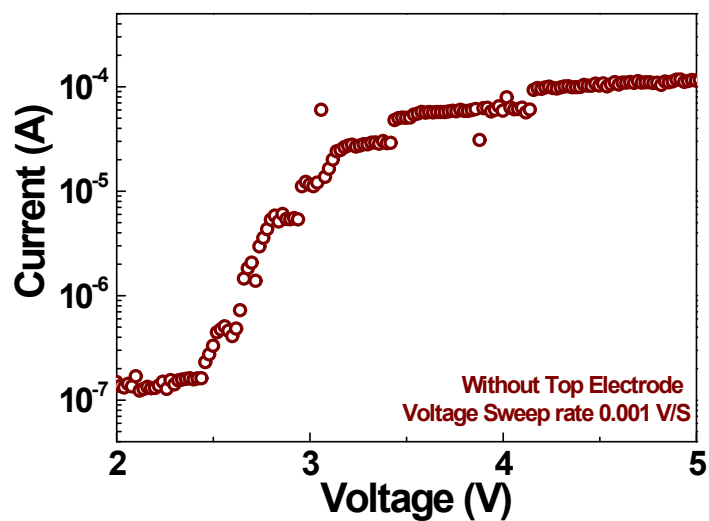


Figure S6: I-V measurements of SnO₂-CeO₂/FTO device without gold top-electrode at voltage sweep rate of 0.001V/s.