

Supporting Information

Analog and Digital Bipolar Resistive Switching in Solution-Combustion-Processed NiO Memristor

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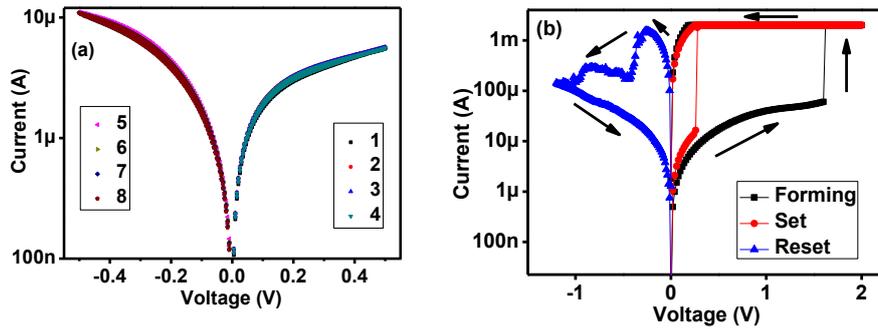


Figure S1. (a) the analog resistive switching characteristics [where 1, 2, 3, and 4 are the current-voltage (I - V) curves of the NiO memristor under consecutive four positive voltage sweeps ($0\text{ V}\rightarrow 0.5\text{ V}\rightarrow 0\text{ V}$), and 5, 6, 7, and 8 are the current-voltage (I - V) curves of the NiO memristor under consecutive four negative voltage sweeps ($0\text{ V}\rightarrow -0.5\text{ V}\rightarrow 0\text{ V}$). During the measurement, the bias was applied to the Ag top electrode and the bottom was grounded.], and (b) the digital resistive switching characteristics of the memristor with the NiO annealed at 250°C .

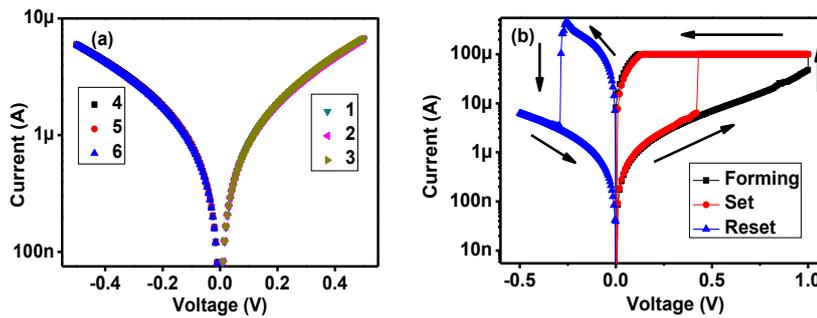


Figure S2. (a) the analog resistive switching characteristics [where 1, 2, and 3 are the current-voltage (I - V) curves of the NiO memristor under consecutive three positive voltage sweeps ($0\text{ V}\rightarrow 0.5\text{ V}\rightarrow 0\text{ V}$) and 4, 5, and 6 are the current-voltage (I - V) curves of the NiO memristor under consecutive three negative voltage sweeps ($0\text{ V}\rightarrow -0.5\text{ V}\rightarrow 0\text{ V}$)] During the measurement, the bias was applied to the Ag top electrode and the bottom was grounded.], (b) the digital resistive switching characteristics of the memristor with the NiO annealed at 300°C .

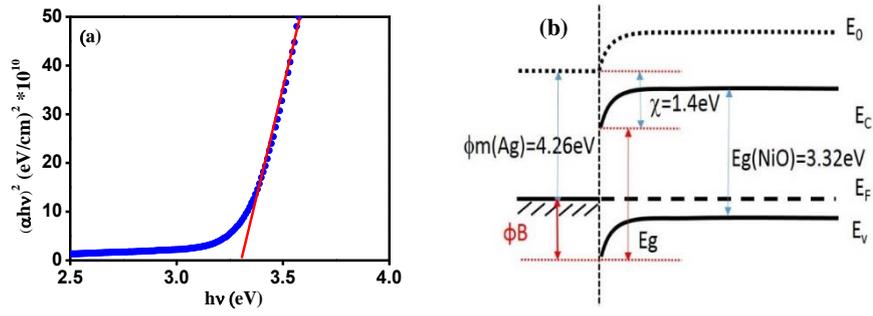


Figure S3. (a) $(\alpha h\nu)^2$ vs $h\nu$ for the NiO thin film, (b) Energy-band diagram of the Ag/P-NiO junction.