Figure S1. I-V characteristics of Au/Ni-Au NPs/Au device.

For reviewer’s comments, another two Au/Ni-Au NPs/ITO and Au/Ni-Au NPs/NSTO devices were fabricated and 4-5 curves for each temperature are showed below:

Figure S2. Resistive switching behaviors of Au/Ni-Au NPs/ITO device at room temperature.
**Figure S3.** Resistive switching behaviors of Au/Ni-Au NPs/ITO device at 250 K.

**Figure S4.** Resistive switching behaviors of Au/Ni-Au NPs/ITO device at 200 K.

**Figure S5.** Resistive switching behaviors of Au/Ni-Au NPs/NSTO device at room
temperature.

**Figure S6.** Resistive switching behaviors of Au/Ni-Au NPs/NSTO device at 250 K.

**Figure S7.** Resistive switching behaviors of Au/Ni-Au NPs/NSTO device at 200 K.