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The excel file contains raw data for the paper. The detailed description are below:

Figure 1. (b) Electroforming process of the bilayer TiN/ZrO_{1.8}/ZrO₂/TiN device with a CC of 1 mA. (c) I-V characteristics of the device after forming. (d) The endurance characteristics of the bilayer device.

Figure 2. (a) Electroforming process of the bilayer TiN/ZrO_{1.8}/ZrO₂/TiN device with a CC of 1 mA. (b) I-V characteristics of the device for after forming. The endurance (c) and the retention (d) characteristics of the bilayer device.

Figure 3. Cumulative probability graphs of (a) VSET and VRESET and (b) HRS and LRS for both the positive bipolar (PB) mode and negative bipolar (NB) mode on the bilayer TiN/ZrO_{1.8}/ZrO₂/TiN device.

Figure 4. I-V characteristics and the SET process I-V curves in double-logarithmic plots of the (a) single layer TiN/ZrO₂/TiN device and (b) bilayer TiN/ZrO_{1.8}/ZrO₂/TiN device formed with a CC of 1 mA.

Figure 5. I-V characteristics and the SET process I-V curves in double-logarithmic plots of the bilayer TiN/ZrO_{2-x}/ZrO₂/TiN devices with the composition of the top ZrO_{2-x} layer being (a, d) ZrO_{1.2}, (b, e) ZrO_{1.5} and (c, f) ZrO_{1.8} electroformed under a CC of 1 mA.

Figure 6. XPS spectra and their Gaussian fittings of the Zr 3d for (a) ZrO_{1.2}, (b) ZrO_{1.5}, (c) ZrO_{1.8} and ZrO_{2.0} films, respectively. Doublets are fitted with the spin-orbit splitting between the 3d_{5/2} and 3d_{3/2} peaks fixed to be 2.4 eV.

Date of data collection: from 2015-2016

Information about geographic location of the data collection: University of Southampton

Date the file was created: 15/03/17