Supplemental Material
Low Operation Voltages Macromolecular Composite Memory Assisted by Graphene Nanoflakes

Ying-Chih Lai, Di-Yan Wang, I-Sheng Huang, Yu-Ting Chen, Yung-Hsuan Hsu, Tai-Yuan Lin, Hsin-Fei Meng, Ting-Chang Chang, Ying-Jay Yang, Chia-Chun Chen, Fang-Chi Hsu, and Yang-Fang Chen

a Graduate Institute of Electronics Engineering, National Taiwan University, Taipei 106, Taiwan
b Department of Chemistry, National Taiwan Normal University, Taipei 116, Taiwan
c Department of Physics, National Sun Yat-Sen University, Kaohsiung 804, Taiwan
d Institute of Physics, National Chiao Tung University, Hsinchu 300, Taiwan
e Institute of Optoelectronic Sciences, National Taiwan Ocean University, Keelung 202, Taiwan
f Center for Emerging Material and Advanced Devices, National Taiwan University, Taipei 106, Taiwan
g Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei 106, Taiwan
h Department of Materials Science and Engineering, National United University, Miaoli 360, Taiwan
i Department of Physics, National Taiwan University, Taipei 106, Taiwan
E-mail: yfchen@phys.ntu.edu.tw
**Electrical properties of memory device fabricated with different GNFs concentrations:**

Figs. S1(a) and (b) show the electrical properties of ITO/GNFs-PVA/Ag devices containing 11.8% and 10.3% GNFs, respectively. There are no apparent rewritable characteristics for those devices, instead they exhibit a write-once-read-many-times type memory effects.\(^1\)

Fig. S1 Electrical properties of ITO/GNFs-PVA/Ag devices containing (a) 11.8% and (b) 10.3% GNFs.

**References**