Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supporting Information

Human Hair Keratin for Physically Transient Resistive Switching Memory Devices

Qiqi Lin,[a‡] Shilei Hao,[b‡] Wei Hu,*[a] Ming Wang,[a] Zhigang Zang,[a] Linna Zhu,[c] Juan Du[d] and Xiaosheng Tang*[a]

[a] Key Laboratory of Optoelectronic Technology & System of Ministry of Education, College of Optoelectronic Engineering, Chongqing University, Chongqing 400044, China. *E-mail address: weihu@cqu.edu.cn and xstang@cqu.edu.cn

[b] Key Laboratory of Biorheological Science and Technology of Ministry of Education, College of Bioengineering, Chongqing University, Chongqing 400030, China.

[c] Chongqing Key Laboratory for Advanced Materials and Technologies of Clean Energy, Faculty of Materials & Energy, Southwest University, Chongqing 400715, China.

[d] State Key Laboratory of High Field Laser Physics, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, Shanghai 201800, China.

‡ Q. Lin and S. Hao contributed equally to this work.

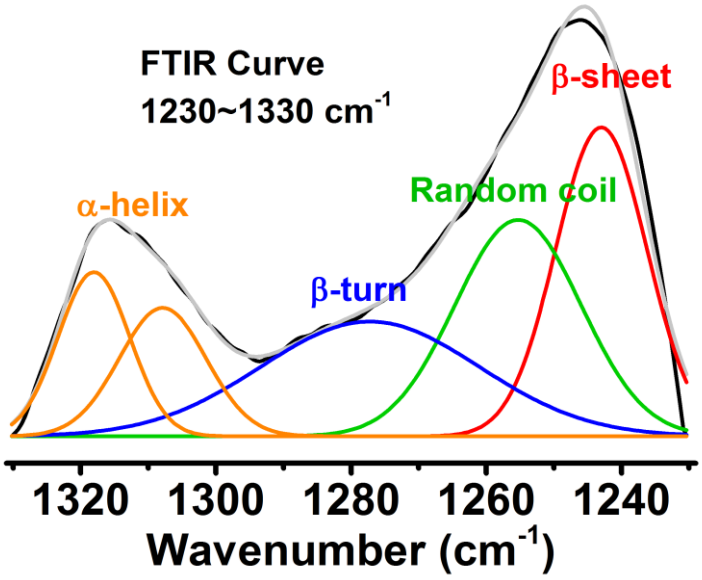

Figure S1. FTIR peak resolution of Amide III band spectra regions (1230-1330 cm^{-1}).

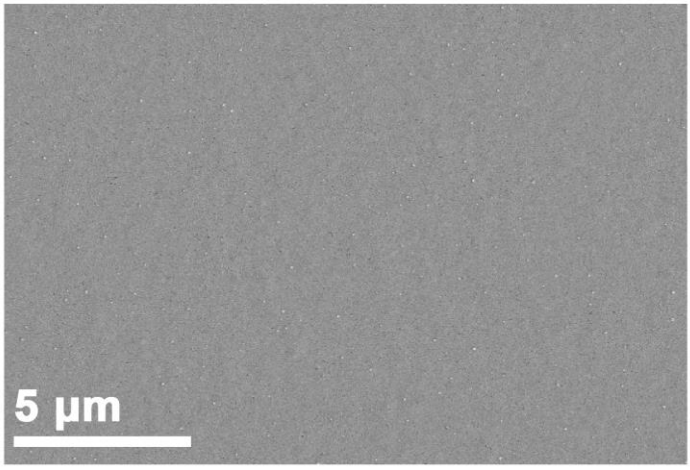

Figure S2. Top-view SEM image of the keratin thin films under low magnification.

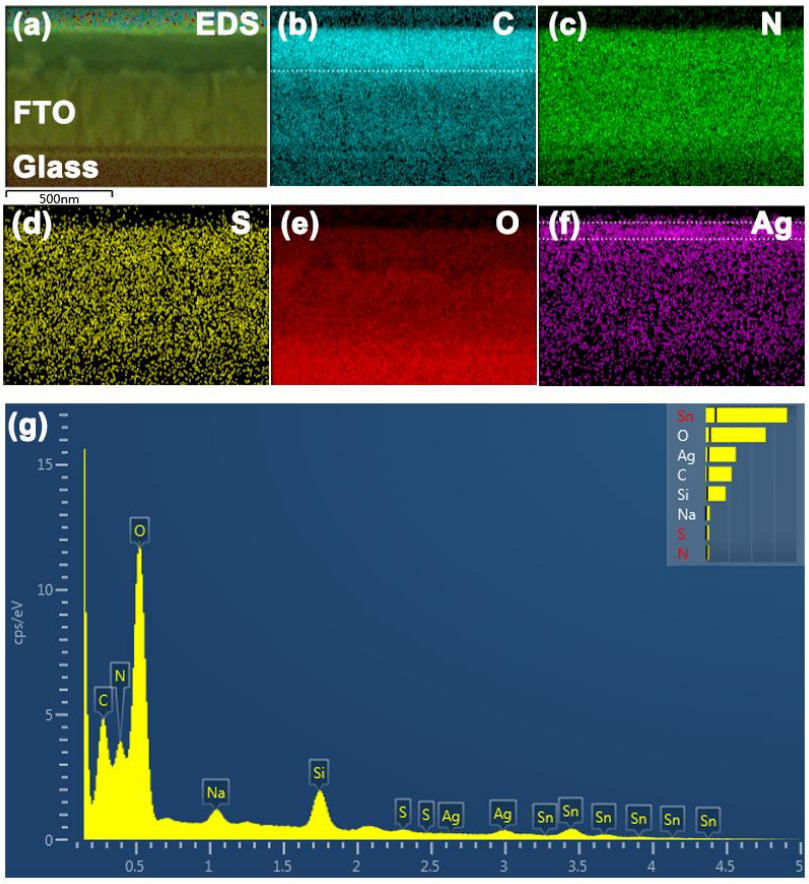

Figure S3. (a) Cross-section layered electronic image of the memory structure. (b)-(f) Cross-sectional mapping images of the Ag/Keratin/FTO memory device after the electrical measurements. (g) Energy dispersive spectra of the Ag/Keratin/FTO memory device.

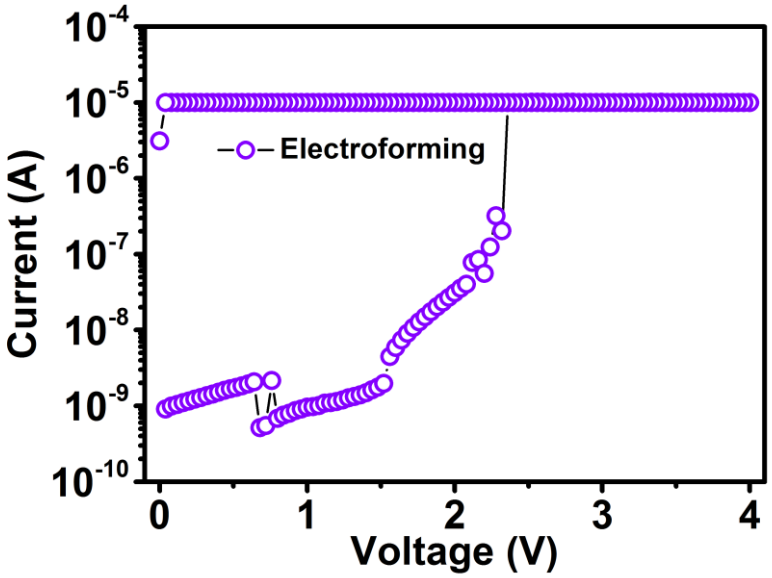

Figure S4. Typical I-V curves of the electroforming process of the Ag/Keratin/FTO memory device.

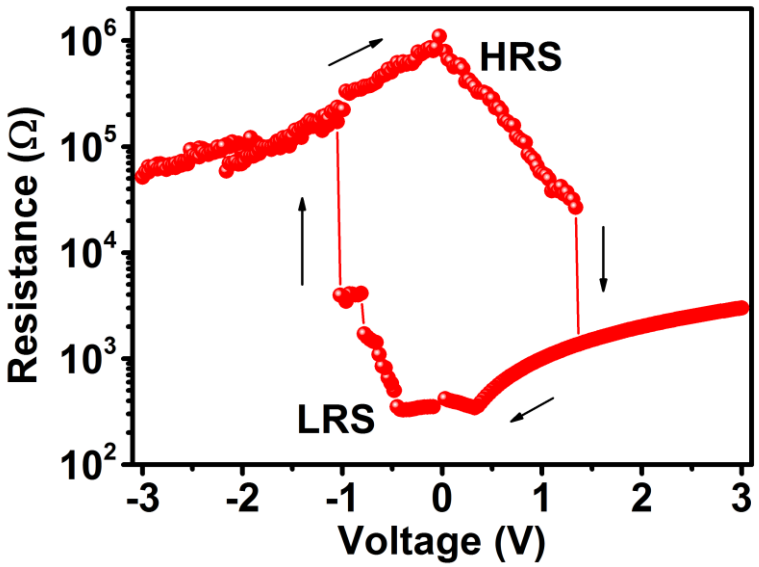

Figure S5. R-V loops at room temperatures of the Ag/Keratin/FTO memory device.

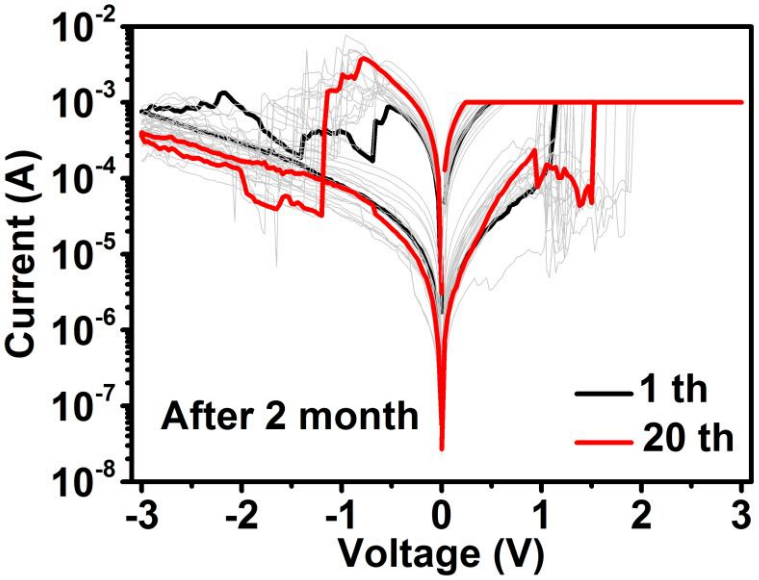

Figure S6. I-V curves of 20 successive switching cycles obtained after 2 month.

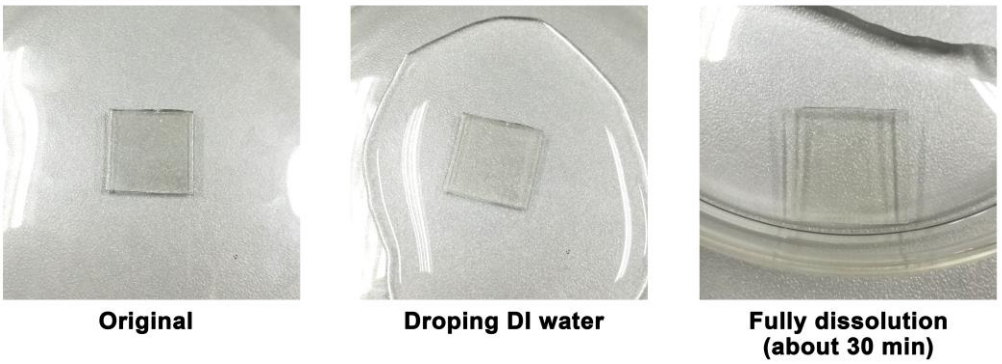

Figure S7. Digital photographs illustrating the time sequence of dissolution of the keratin thin films in DI water at room temperature.