

Electronic Supplementary Material (ESI) for RSC Advances.

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## Supplementary Information

### **Flexible, Transferable and Conformal Egg Albumen based Resistive Switching Memory Devices**

J. X. Zhu,<sup>a</sup> W.L. Zhou,<sup>b</sup> Z. Q. Wang,<sup>\*a</sup> H. Y. Xu,<sup>a\*</sup> Y. Lin,<sup>a</sup> W. Z. Liu,<sup>a</sup> J. G. Ma,<sup>a</sup>  
and Y. C. Liu<sup>a</sup>

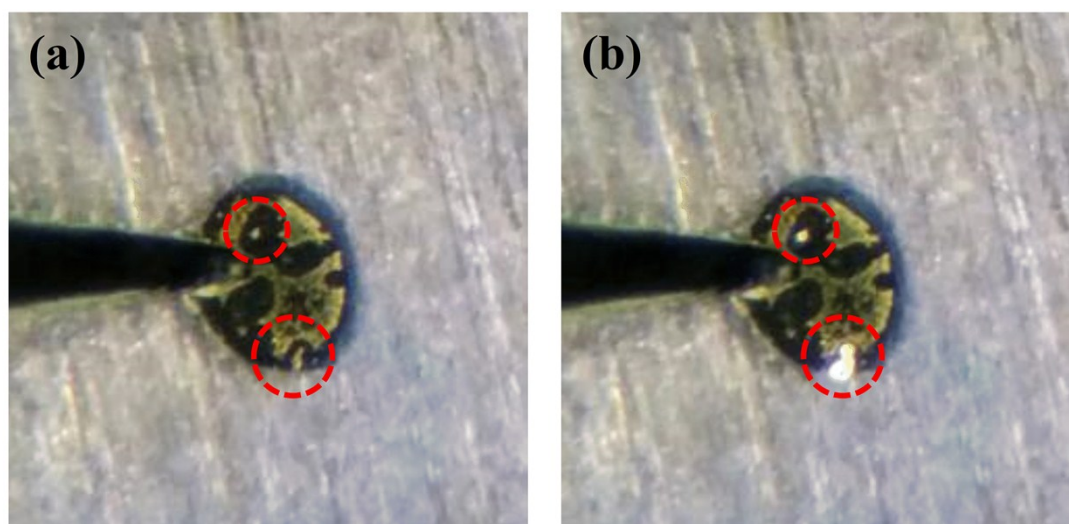
<sup>a</sup>*Centre for Advanced Optoelectronic Functional Materials Research, and Key  
Laboratory for UV Light-Emitting Materials and Technology (Northeast Normal  
University), Ministry of Education, 5268 Renmin Street, Changchun, China*

<sup>b</sup>*Department of Pediatrics, The First Hospital of Jilin University, 71 Xinmin Street,  
Changchun, China*

\*Authors to whom correspondence should be addressed. Electronic addresses:  
wangzq752@nenu.edu.cn and hyxu@nenu.edu.cn

## 1. The migration of Ag from TE to albumen film

Figure S1 (a) and (b) show the photographs of Ag/egg albumen/ ITO/PET memory cell before and after first set process. As shown in Figure S1 (a), a probe tip pressed in the Ag TE and there were some black regions on the TE surface due to its partial oxidation in the ambient air. After performing a set process, some highlight regions appeared on the TE surface (as shown in Figure S1 (b)), which clearly indicated that Ag was oxidized and migrated into the albumen film. The evolution of Ag migration in detail was recorded by camera (see Supplementary Movie S).



**Figure S1** Photographs of Ag/egg albumen/ ITO/PET memory cell (a) before and (b) after the set process.

## 2. The temperature dependence of HRS

As shown in Figure S2, there was no apparent temperature dependence of the HRS, indicating an electrical characteristic of insulator.

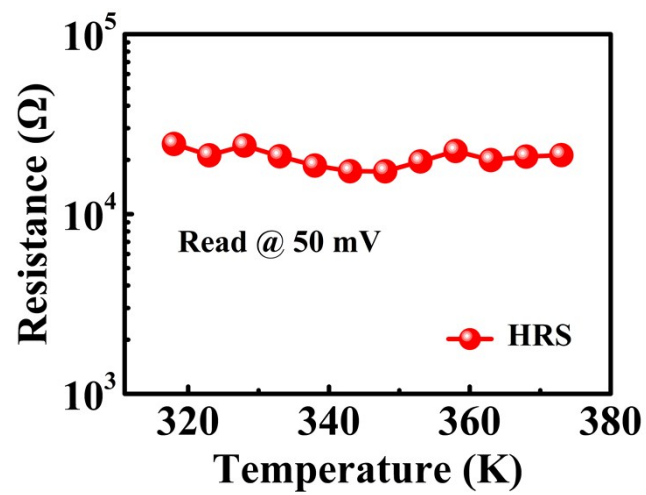
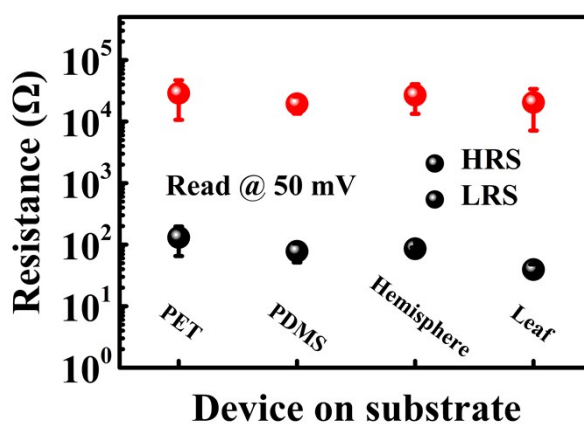


Figure S2 Temperature dependence of the HRS.

### 3. The variation of HRS and LRS towards transferable devices

As shown in the Figure S3, the resistances of HRS and LRS were collected from 50 RS cycles towards transferable devices based on different substrates (including PET, PDMS, 3D glass dome hemisphere and leaf). There were no apparent differences occurred about HRS and LRS between those transferable devices, indicating their reproducible RS performance with acceptable fluctuation.



**Figure R3** The variation of HRS and LRS towards transferable devices based on different substrates: PET, PDMS, 3D glass dome hemisphere and leaf.