## **Supplementary information**

## Synthesis and non-volatile electrical memory characteristics of triphenylamine-based polyimides with flexibility segments

Yanhua Yang,<sup>1</sup> Jing-Cheng Xia,<sup>2</sup> Youxuan Zheng,<sup>2</sup> Yingzhong Shen,<sup>1\*</sup> Gaozhang Gou<sup>3\*\*</sup>

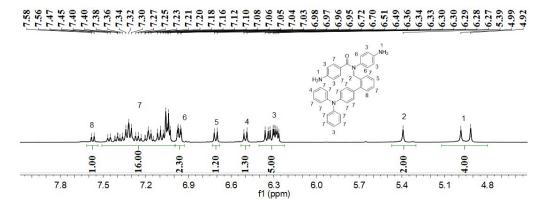
- <sup>1</sup> Applied Chemistry Department, School of Material Science & Engineering, Nanjing University of Aeronautics & Astronautics, Nanjing, 210016, P. R. China.
- <sup>2</sup> State Key Laboratory of coordination chemistry, College of Chemistry and Chemical Engineering, Nanjing University, Nanjing, 210093, P. R. China.
- <sup>3</sup> Key Laboratory of Natural Pharmaceutical & Chemical Biology of Yunnan Province, College of Science, Honghe University, Mengzi, 661100, P. R. China.

## Content

Figure S1. <sup>1</sup> H NMR spectrum of compound (4) in DMSO-d <sub>6</sub>	2
Figure S2. <sup>13</sup> C NMR spectrum of compound (4) in DMSO-d <sub>6</sub>	2
Figure S3. FT-IR spectrum of compound (4)	2
Figure S4. C-H HSQC spectrum of compound (4) in DMSO-d <sub>6</sub>	
Figure S5. Relationship between the ON/OFF ratio of current and the the applied voltage	

<sup>\*</sup> Corresponding author, E-mail address: yz\_shen@nuaa.edu.cn (Y.-Z. S.).

<sup>\*\*</sup> Corresponding author, E-mail address: hhxylxyhxx@126.com



**Figure S1**. <sup>1</sup>H NMR spectrum of compound (4) in DMSO- $d_6$ .

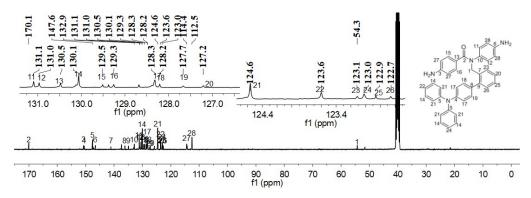


Figure S2.  $^{13}$ C NMR spectrum of compound (4) in DMSO- $d_6$ .

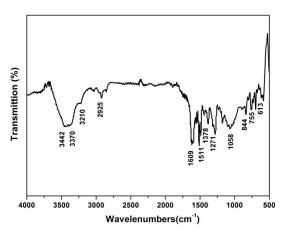


Figure S3. FT-IR spectrum of compound (4).

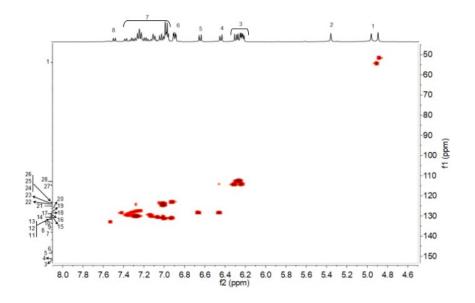
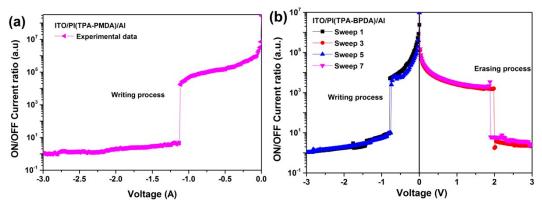


Figure S4. C-H HSQC spectrum of compound (4) in DMSO- $d_6$ .



**Figure S5.** Relationship between the ON/OFF ratio of current and the applied voltage for ITO/PI(TPA-PMDA)/Al and ITO/PI(TPA-BPDA)/Al, respectively.