Supporting Information

Changing molecular conjugation with phenazine acceptor for small molecule-based organic electronic memory performance

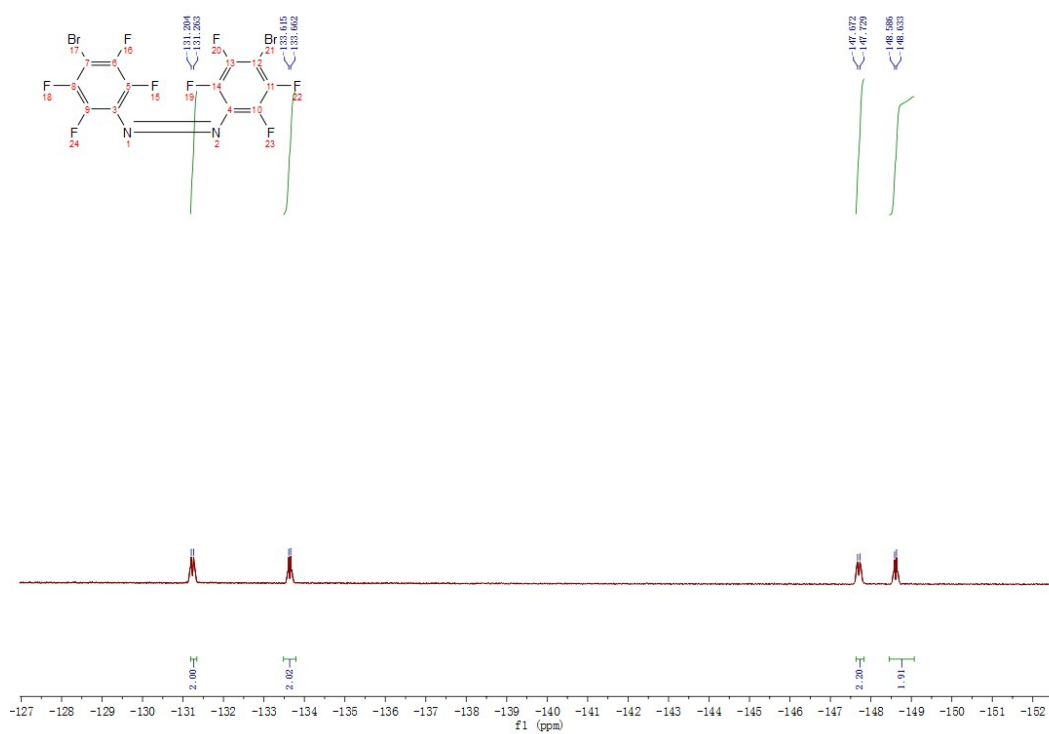*Quan Liu, *[a] Caibin Zhao,[a] Guanghui Tian[a] and Hongguang Ge[a]*

a.   Shaanxi Province Key Laboratory of Catalytic Foundations and Applications, School of Chemical and Environmental Science, Shaanxi University of Technology, Hanzhong, 723001, China

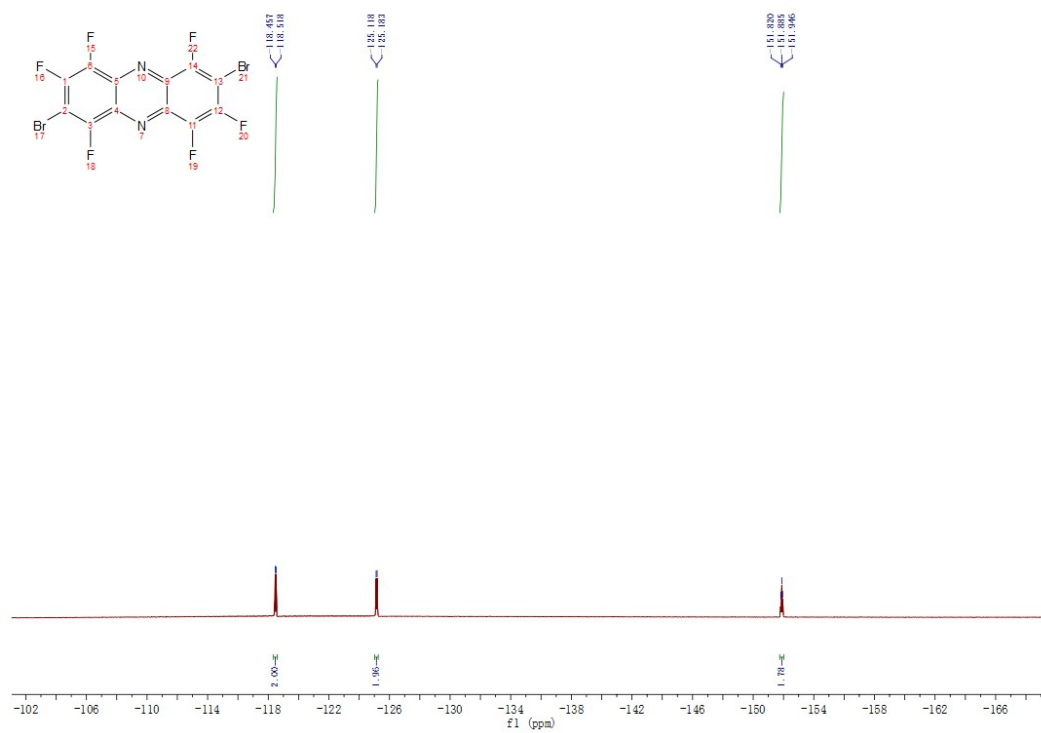*Tel: +86 916 2641660; E-mail: liuq@snut.edu.cn*

Contents

¹⁹F NMR of compound 1

¹⁹F NMR of compound 2

¹H NMR of compound *TPA-azo-TPA*

7.405 7.384 7.325 7.306 7.262 7.203 7.183 7.168 7.150 7.133 7.117 7.098 7.047

12.00 16.34

10.4   9.8   9.4   9.0   8.6   8.2   7.8   7.4   7.0   6.6   6.2
f1 (ppm)

¹³C NMR of compound *TPA-azo-TPA*

147.302 146.905   132.004 131.048 129.531 129.447 129.329 125.516 125.393 124.860 124.078 123.402 122.080 121.287   77.318 77.000 76.683

145   135   125   115   105   95   90   85   80   75
f1 (ppm)
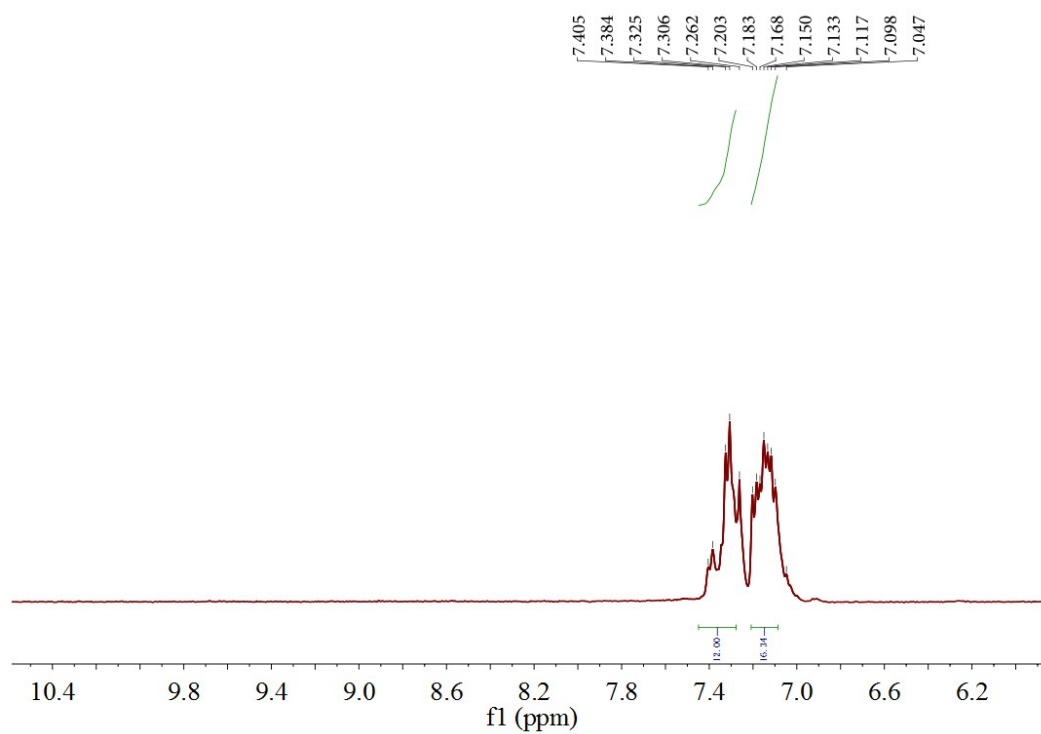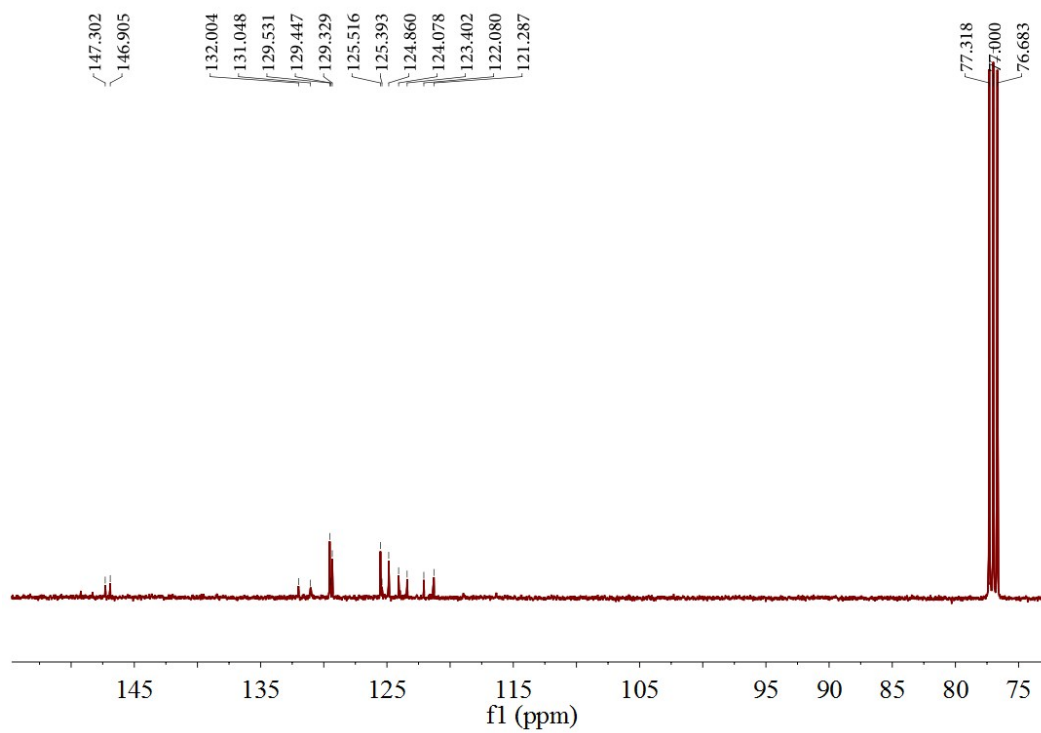
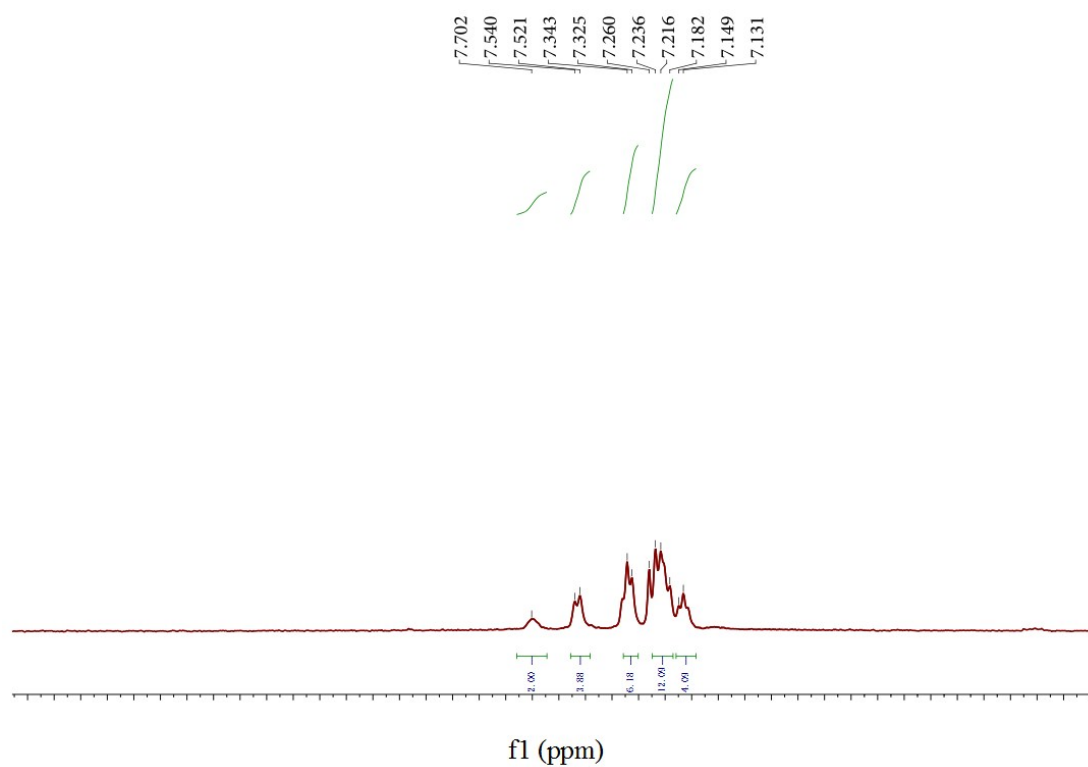## ¹⁹F NMR of compound *TPA-azo-TPA*
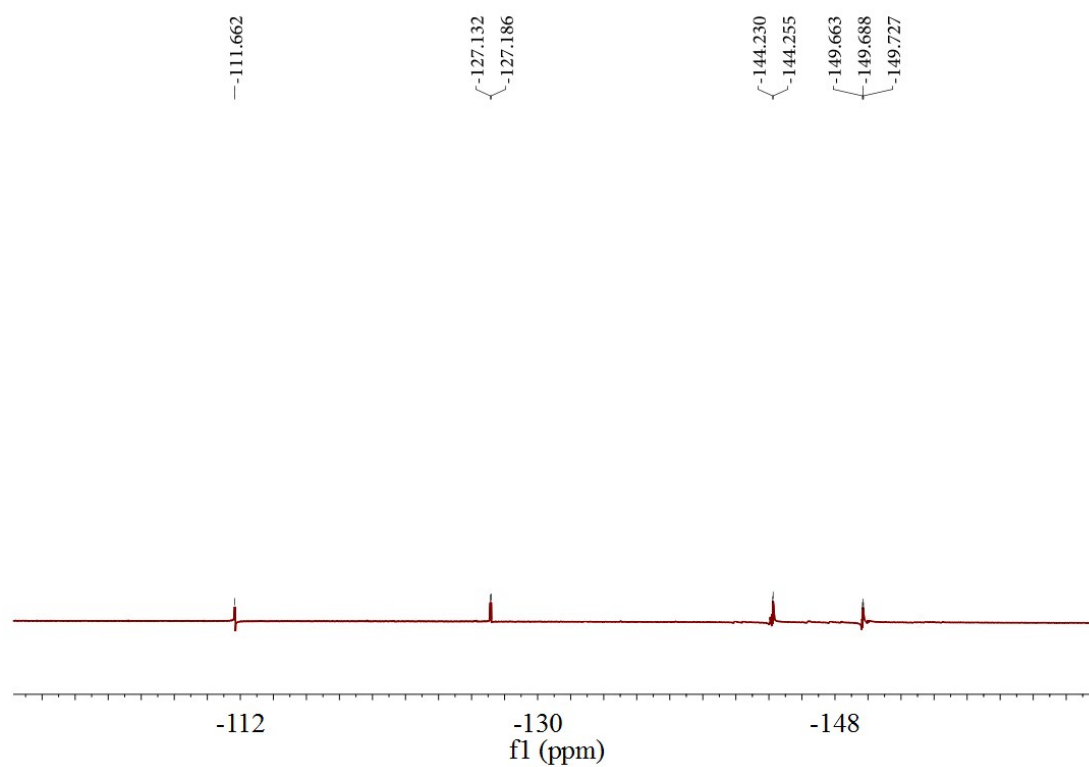
MS of compound *TPA-azo-TPA*
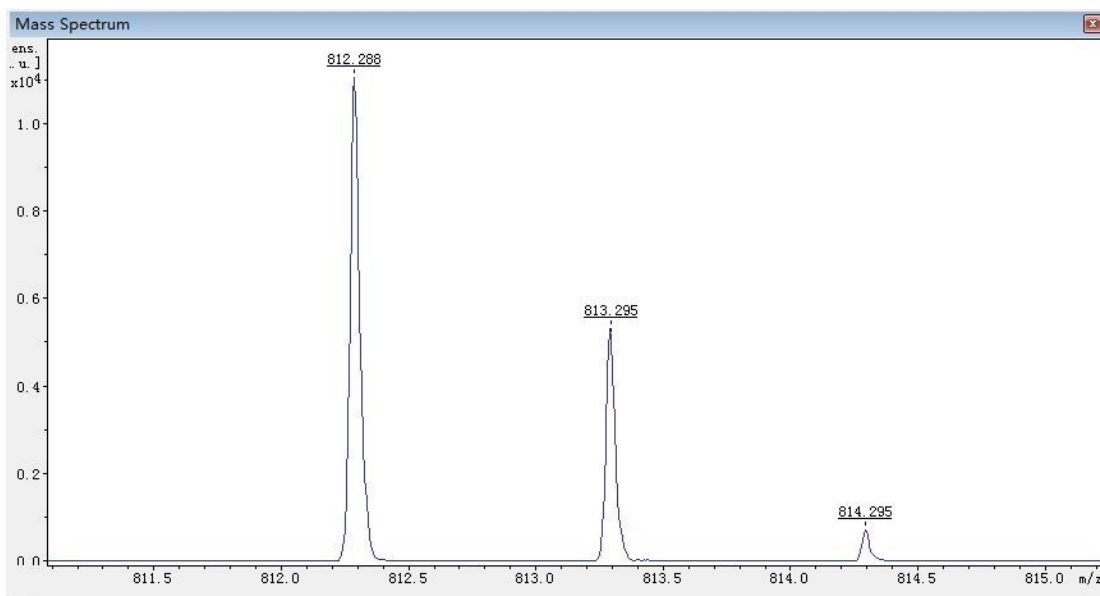
1H NMR of compound *TPA-ph-TPA*

7.702
7.540
7.521
7.343
7.325
7.260
7.236
7.216
7.182
7.149
7.131

f1 (ppm)

13C NMR of compound *TPA-ph-TPA*

146.448
144.481
130.969
129.093
128.931
125.155
123.669
120.770
104.544

| 160 | 150 | 140 | 130 | 120 | 110 | 100 | 90 | 80 | 70 | 60 |

f1 (ppm)

¹⁹F NMR of compound **TPA-ph-TPA**

-129.187
-129.240
-130.860
-130.907

-153.105
-153.154

f1 (ppm)

-116   -126   -138   -150   -162

MS of compound **TPA-ph-TPA**

Mass Spectrum

774.221

775.216

8000

6000

4000

2000

0

772   774   776   778   780   782   784   786   788   790   792   m/z
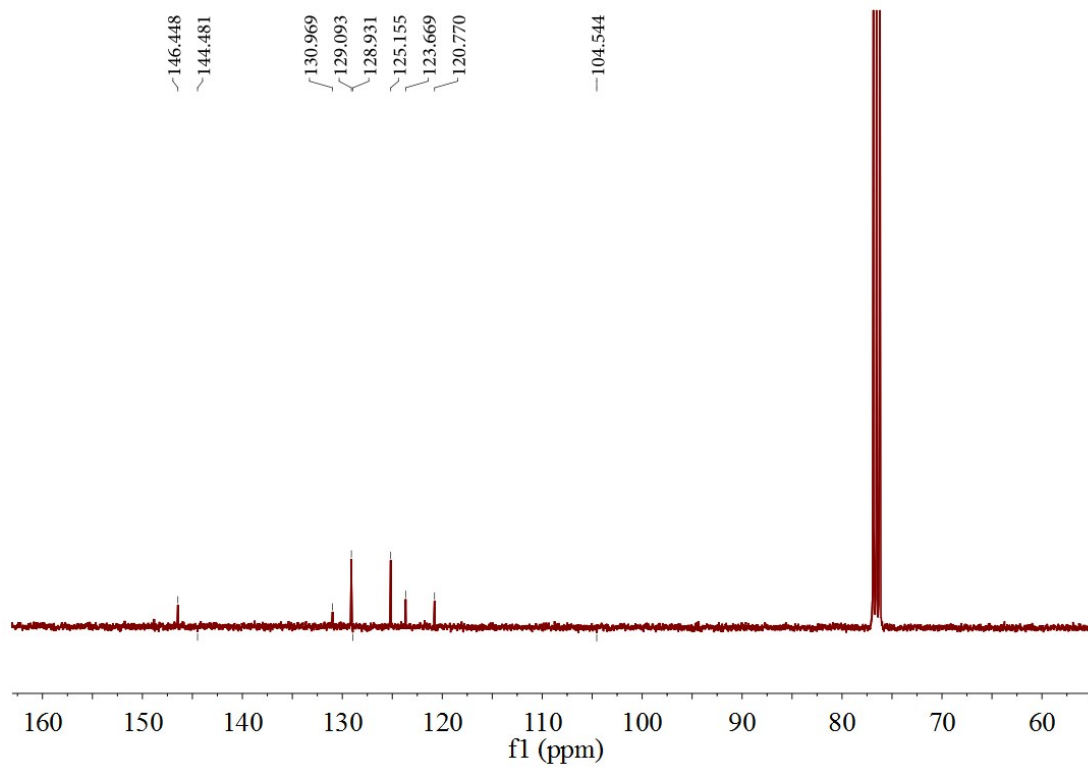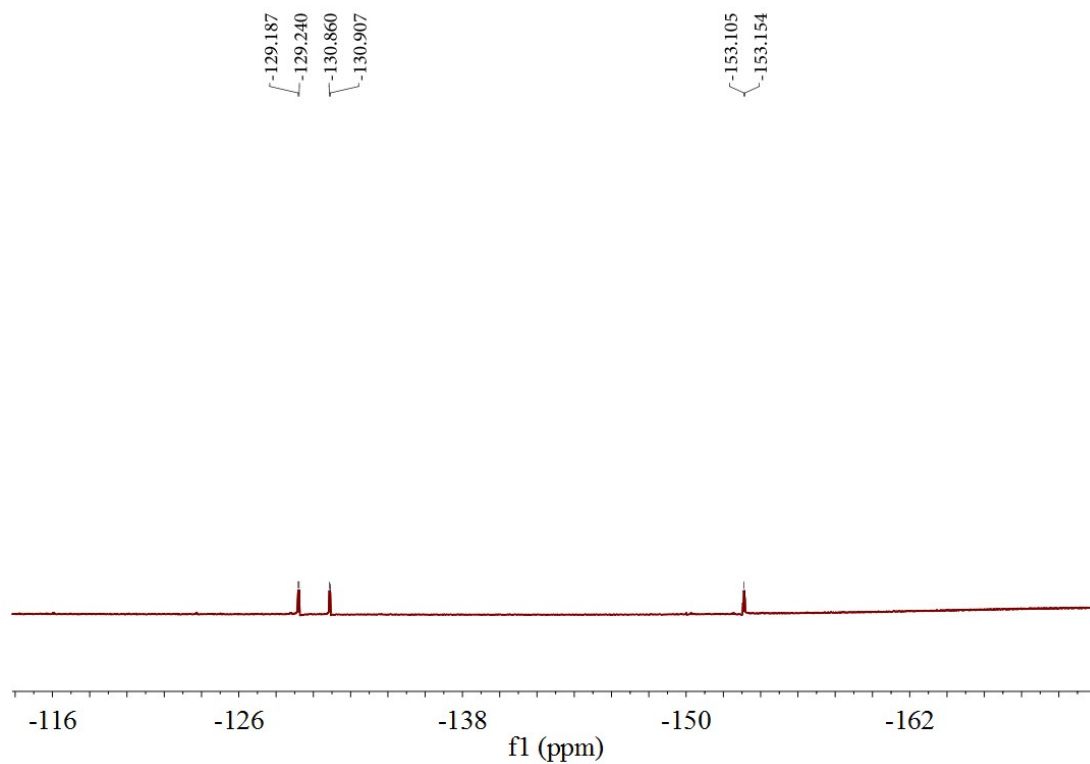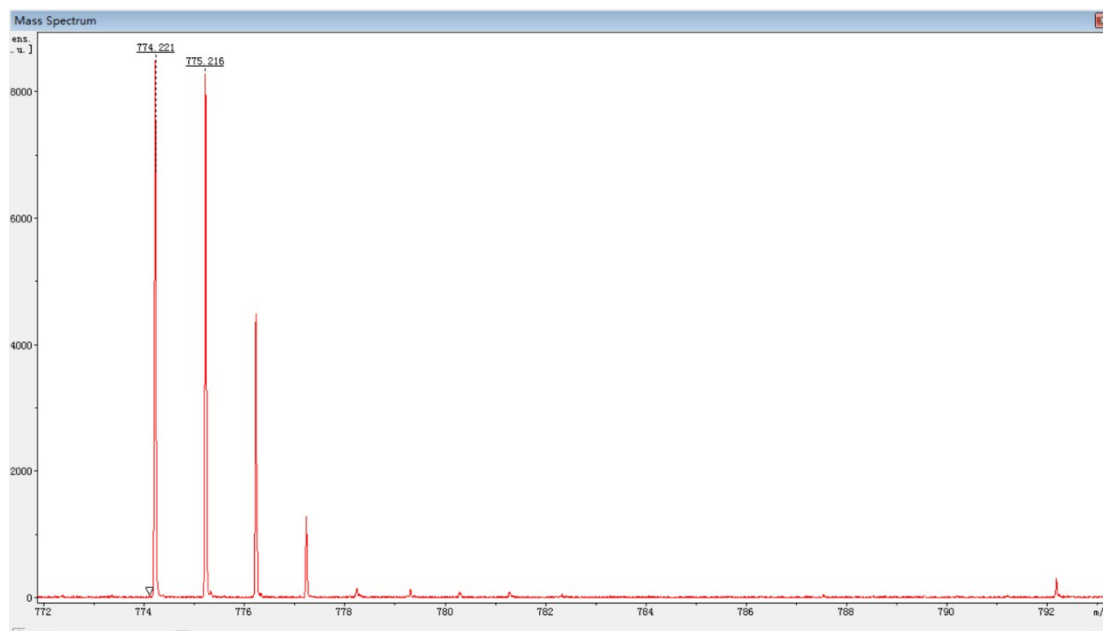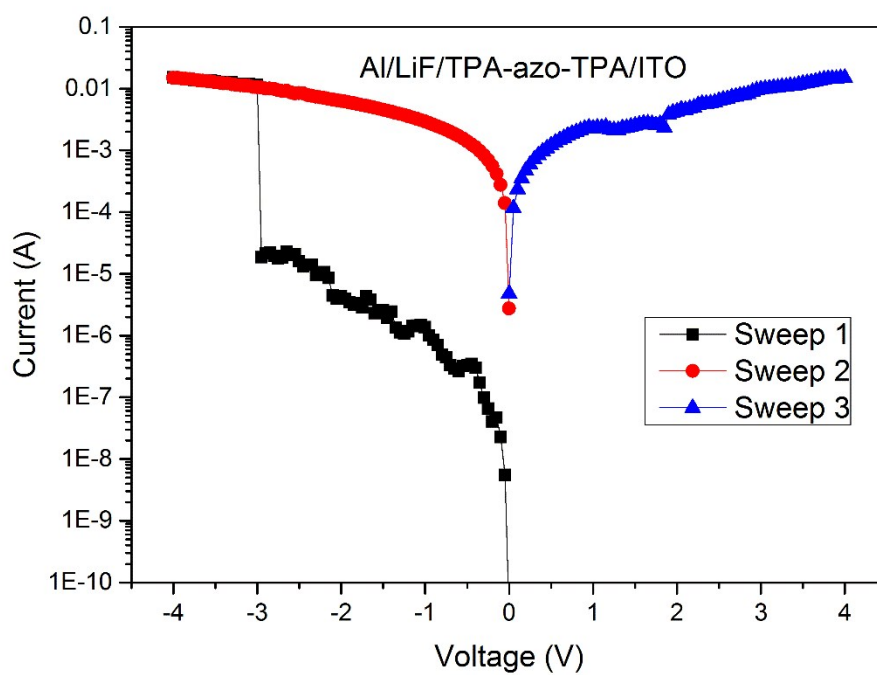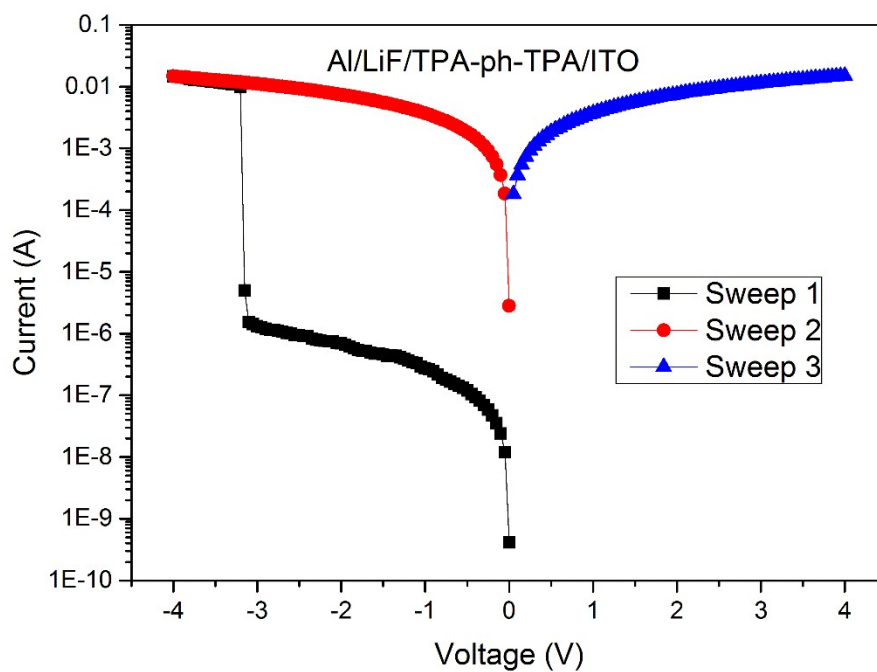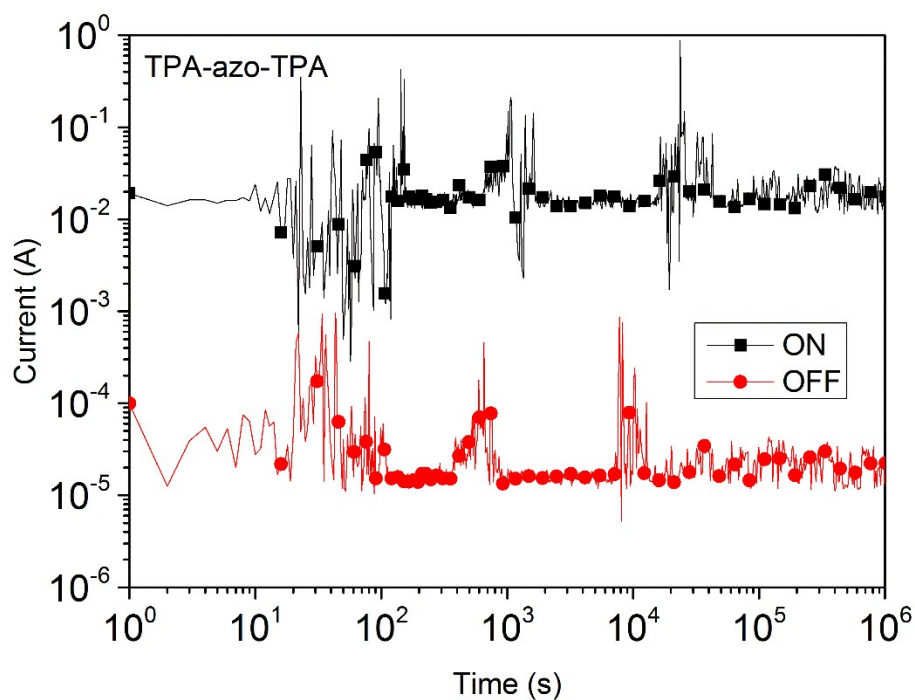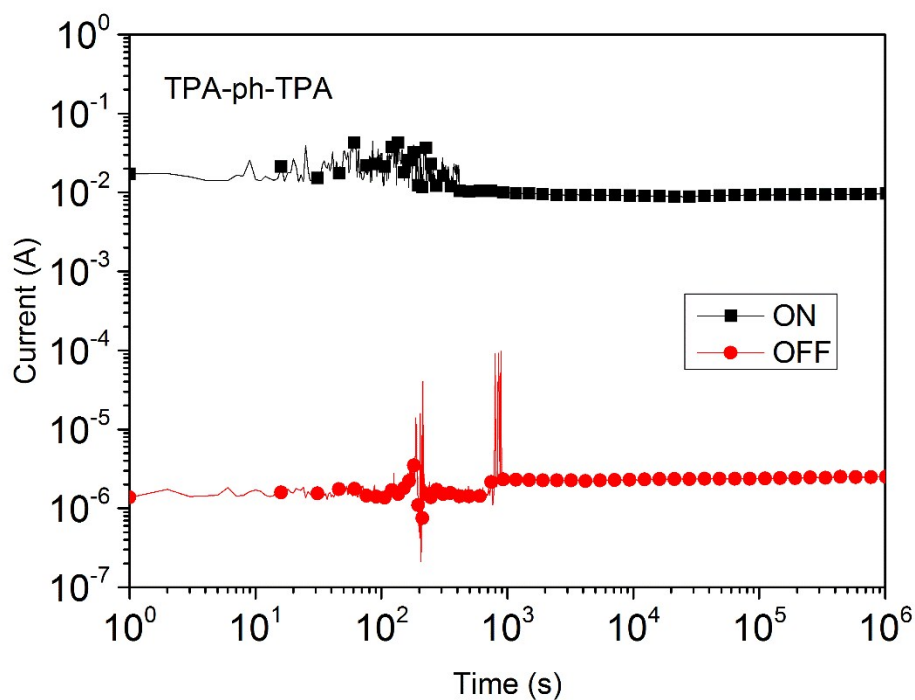
Figure S1 I-V characteristics of Al /LiF (5 nm)/ **TPA-azo-TPA** / ITO memory devices.

Figure S2 I-V characteristics of Al /LiF (5 nm)/ **TPA-ph-TPA** / ITO memory devices.
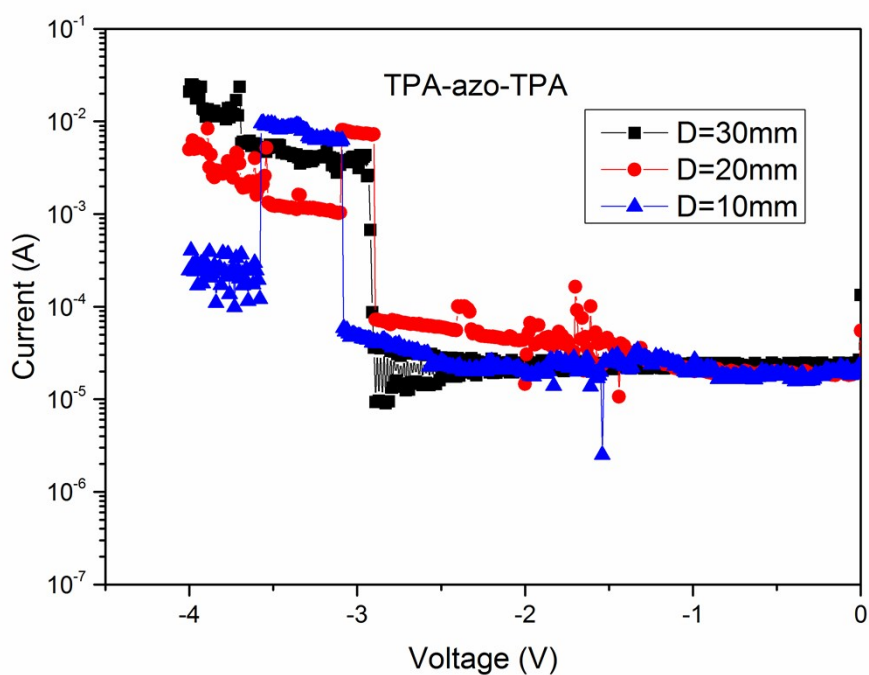
Figure S3 The effect of retention time of Al/ **TPA-azo-TPA** /ITO-based memory device under a constant stress of -1.0 V in air and humidity condition.
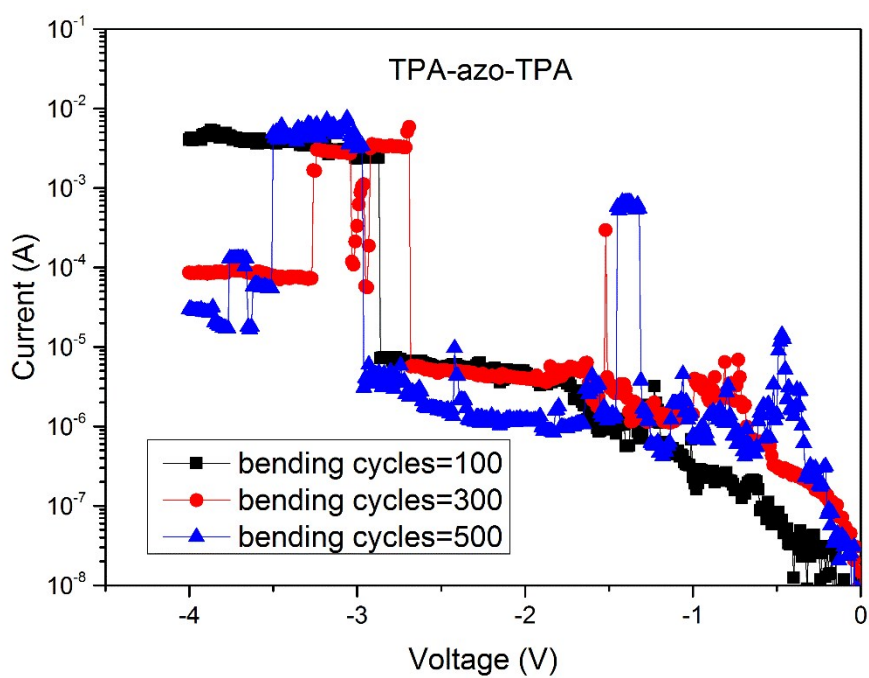

Figure S4 The effect of retention time of Al/ **TPA-ph-TPA** /ITO-based memory device under a constant stress of -1.0 V in air and humidity condition.

Figure S5 The memory effects of the Al/ **TPA-azo-TPA** /Al-based flexible memory devices in

different bending degrees. the distance between the end of the arc define as (D).

Figure S6 The memory effects of the Al/ **TPA-azo-TPA** /Al-based flexible memory devices

under different bending cycles in the maximum bending condition.