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

Supporting Information

Preparation of TCPP: block copolymer composites and study of their memory behavior by tuning loading ratio of TCPP in polymer matrix

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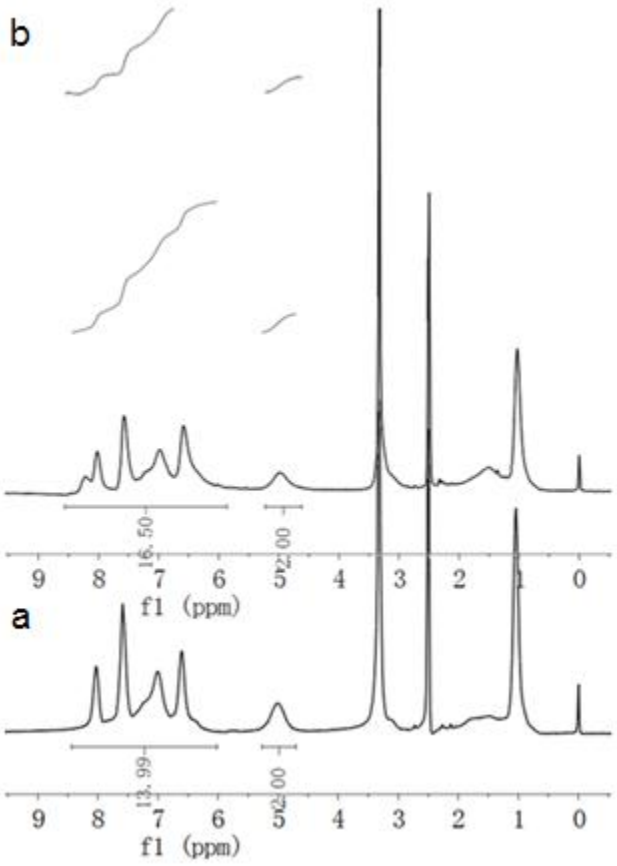

Fig. S1. [1] H NMR spectra in DMSO-*d6* of PStCH (a) and PStCH-*b*-P4VP (b).

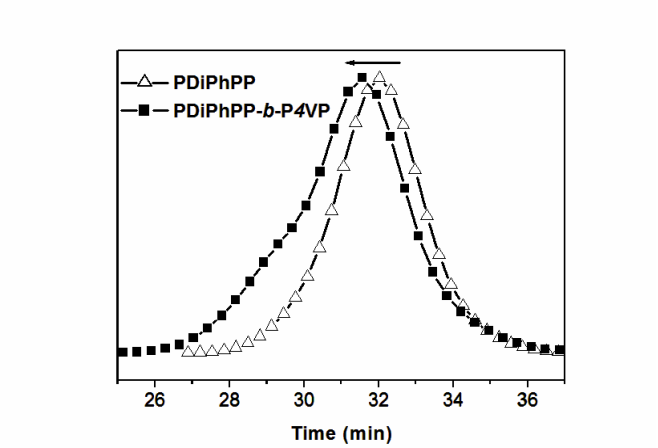

Fig. S2. GPC traces of PStCH (Mn = 10530, PDI = 1.10) and PStCH-*b*-P4VP (Mn = 12170, PDI = 1.19).

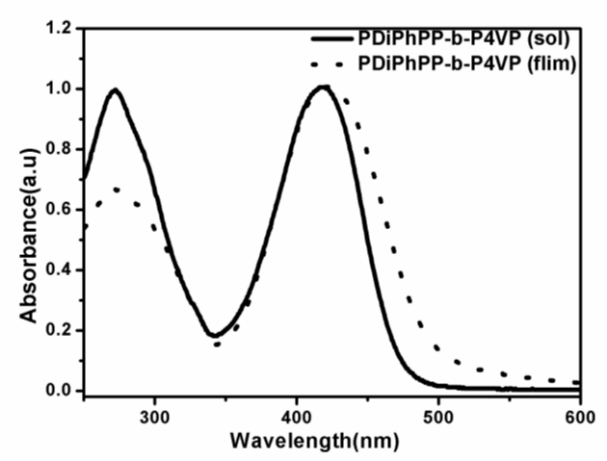

Fig. S3. UV-vis absorption spectra of PStCH-*b*-P4VP in (a) DMF solution and (b) spin coated from 1,2-dichloroethane.

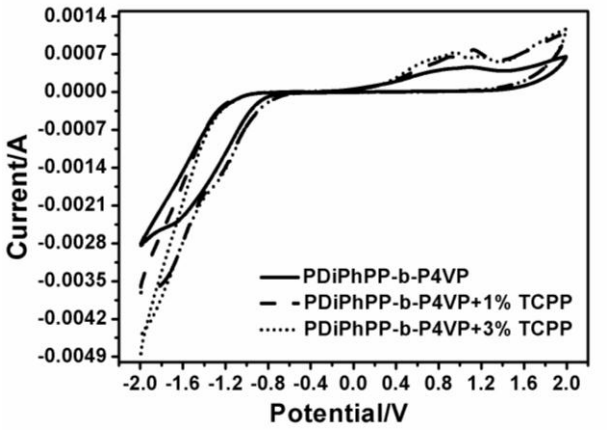

Fig. S4**.** Cyclic voltammograms of PStCH-*b*-P4VP and TCPP: PStCH-*b*-P4VP on a ITO electrode in 0.1 M TBAP/CH_3CN solution with Ag/AgCl as reference electrode and Pt wire as counter electrode. A scan rate of 100 mV/s was used.

The conducting cyclic voltammetry (CV) measurements was investigates in 0.1 M acetonitrile

solution of tetrabutylammonium hexafluorophosphate, with the auxiliary electrode of Pt, reference electrode of Ag/AgCl and working electrode of the ITO glass coated with a polymer film. The E_{Foc} is 0.43 eV from the CV measurement with bare ITO glass substrate without polymer film. The highest occupied molecular orbital (HOMO) and lowest unoccupied molecular orbital (LUMO) energy levels can be calculated from the cyclic voltammetry (CV) results, according to the following equations:

HOMO (eV) = – [(E_{Ox}(onset) – E_{Foc}) + 4.80]

LUMO (eV) = HOMO + E_g

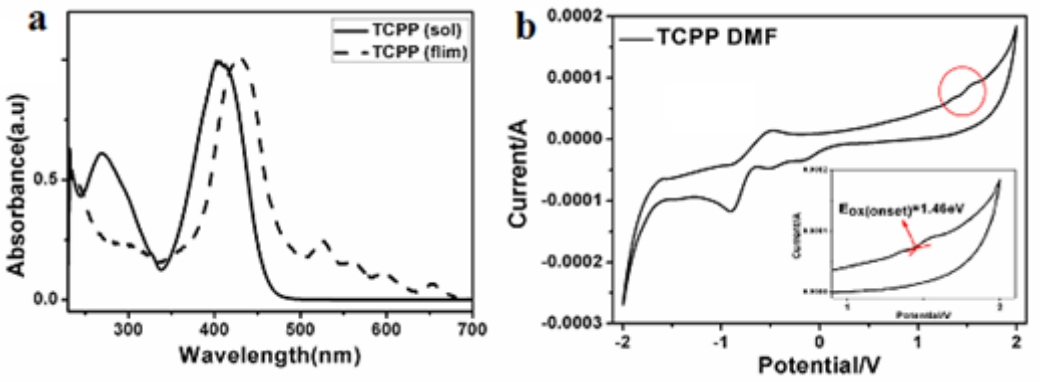

Fig. S5. (a) UV-vis absorption spectra of TCPP in DMF solution and spin coated from 1,2-dichloroethane; (b) Cyclic voltammograms of TCPP in DMF with 0.1M of n-Bu4NPF6 as the supporting electrolyte.

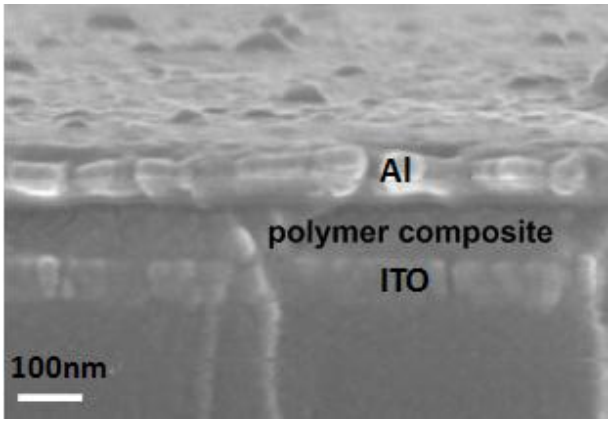

Fig. S6. SEM images of the cross-section of the memory device.

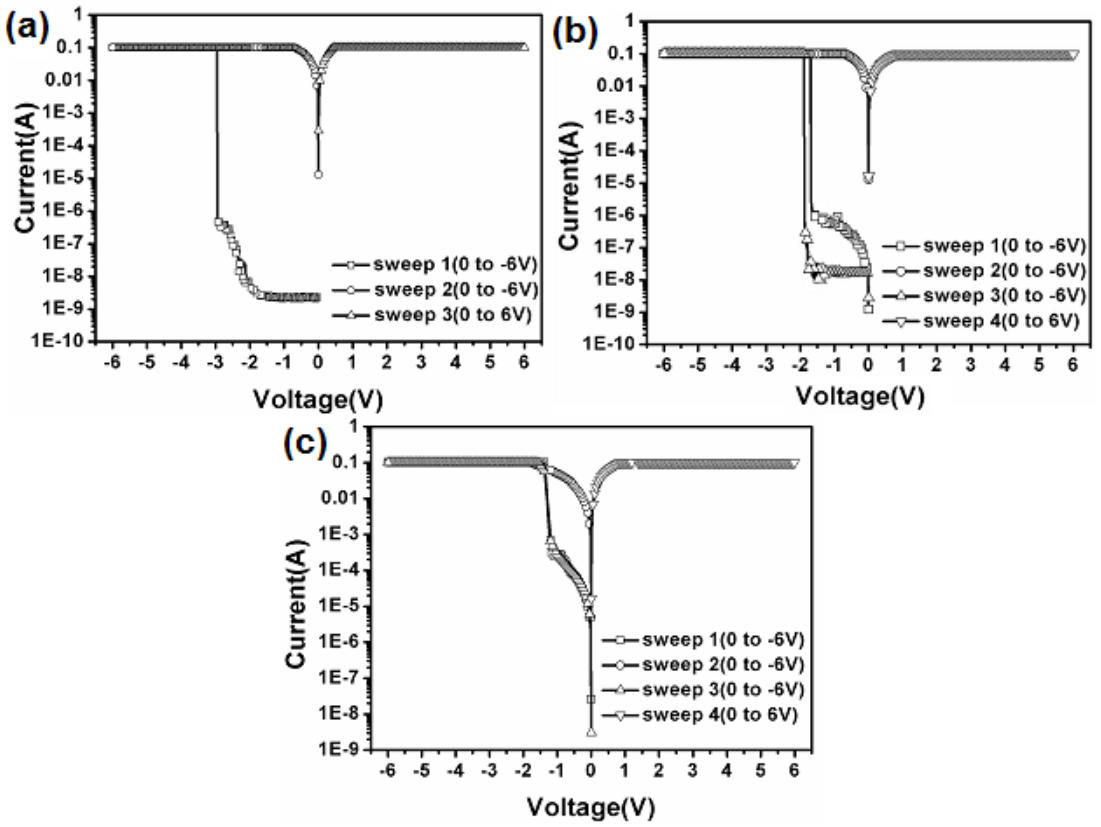

Fig. S7 (a-c) Current–voltage (I–V) characteristics of the PStCH-*b*-P4VP and TCPP: PStCH-*b*-P4VP composites memory devices based on Au-Au electrode. The content of TCPP: (a) 0%; (b) 1% and (c) 3%.