Electronic Supplementary Information

Soluble Conducting Polymer-Functionalized Graphene Oxide for Tunable Actuator Fabrication

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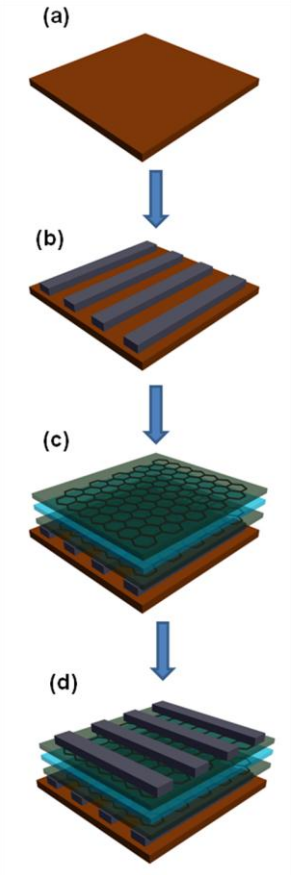

Fig. S1. Schematic diagram of fabrication process for dry conducting polymer actuator: (a) polyimide film, (b) deposition of bottom Al electrode, (c) spin coating of trilayer actuator configuration (active layer/solid polymer electrolyte/active layer), and (d) deposition of top Al electrode.

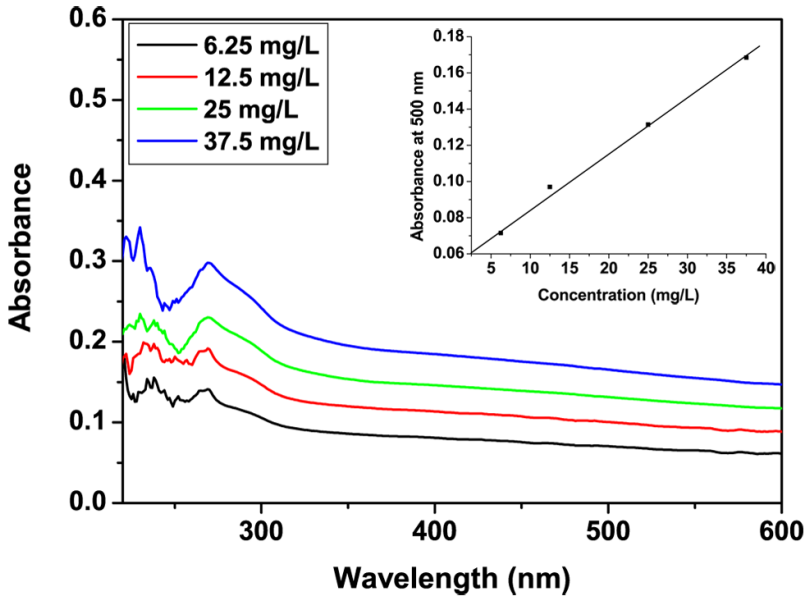

Fig. S2. Concentration dependence of UV–Vis absorption spectra of GO-f-PTAA-co-PTh in DMF solution with different concentrations of 6.25, 12.5, 25, and 37.5 mg/L. The inset shows the absorbance at 500 nm of the solution with different concentration.

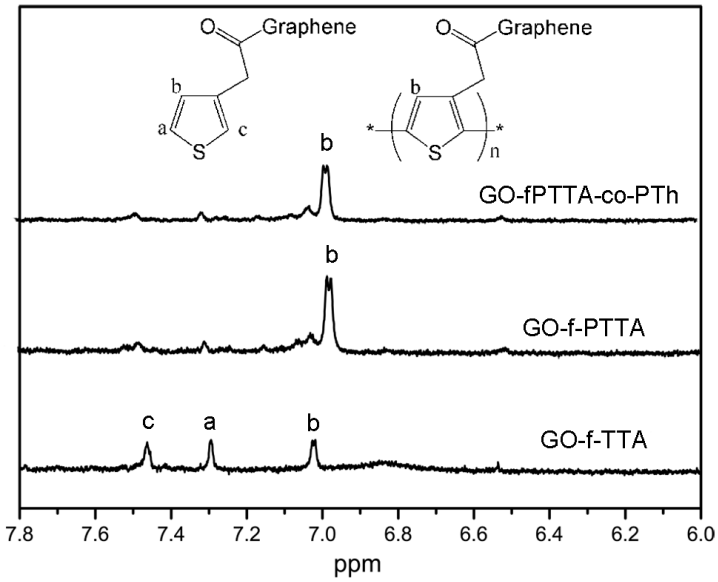

Fig. S3. ^{1}H-NMR spectra of GO-f-TAA, GO-f-PTAA, and GO-f-PTAA-co-PTh composites.

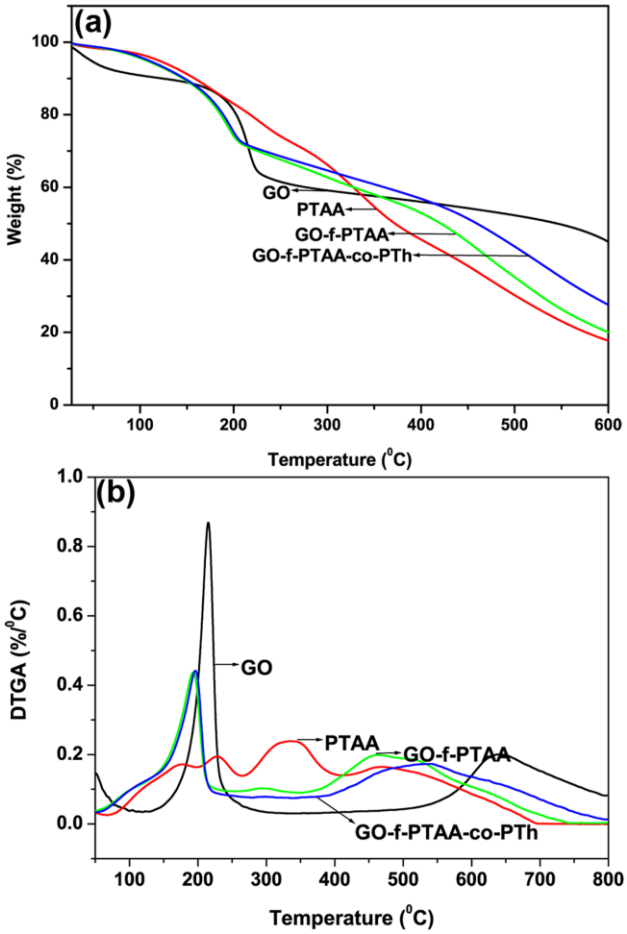

Fig. S4. (a) Thermogravimetric (TGA) curves of GO, PTAA, GO-f-PTAA, and GO-f-PTAA-co-PTh composites and (b) derivative TGA curves of the respective samples.

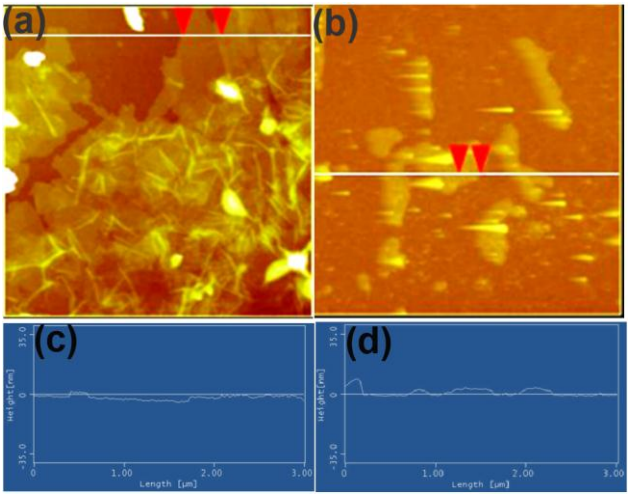

Fig. S5. Atomic force microscopy images of (a) GO and (b) GO-f-PTAA-co-PTh composites.

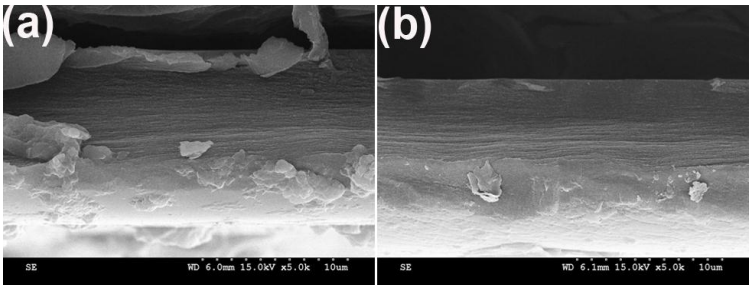

Fig. S6. Cross-sectional scanning electron microscopy images of GO-f-PTAA-co-PTh actuator device.