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

Supporting Information for

Well-defined electrochemical switching of amphiphilic glycolated poly(3,4-ethylenedioxythiophene)

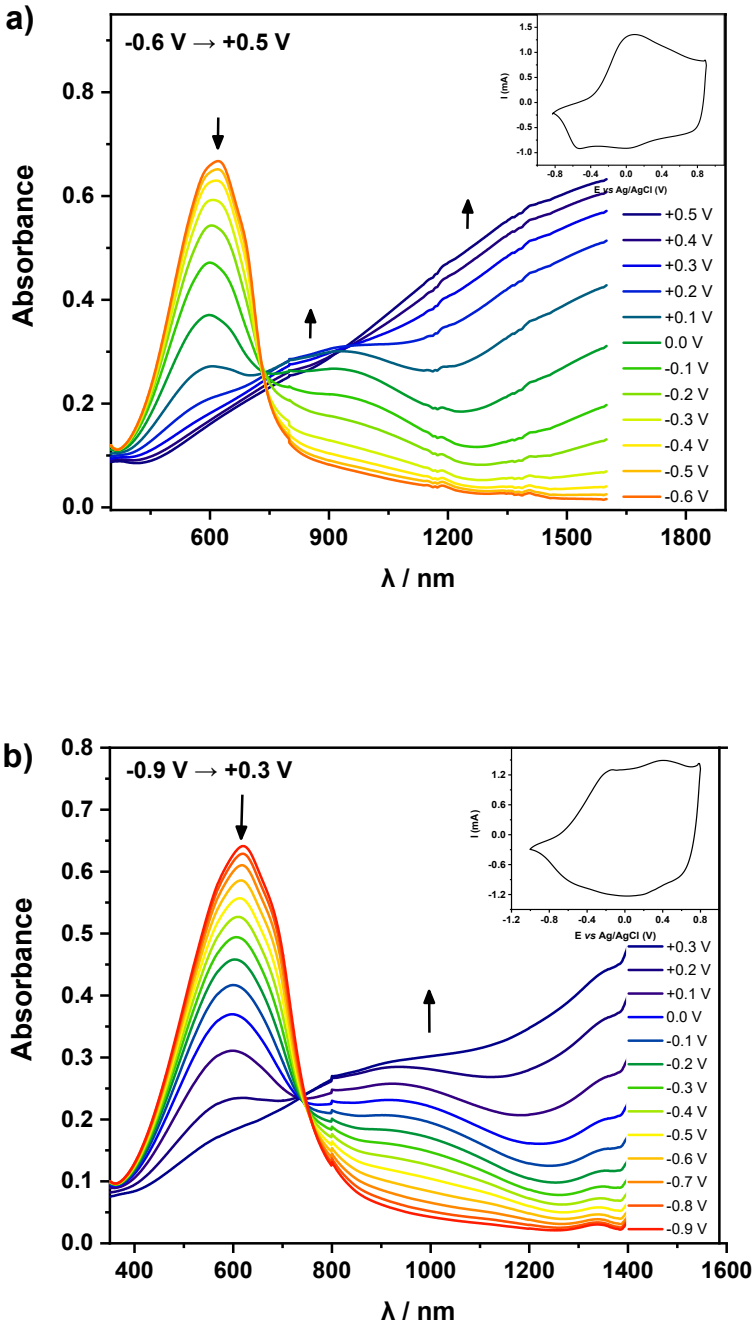


Fig. S1. CV scans and UV–vis-NIR spectra of thin films of PEDOT deposited on an ITO, recorded for increasing electrode potential from: -0.9 V to +0.2 V (a); -0.9 V to +0.3 V vs Ag/AgCl, under an inert atmosphere of argon (b). Electrolyte: 0.1 M $TBAPF_6/CH_3CN$ (a) and 0.1 M KCl/H_2O (b).

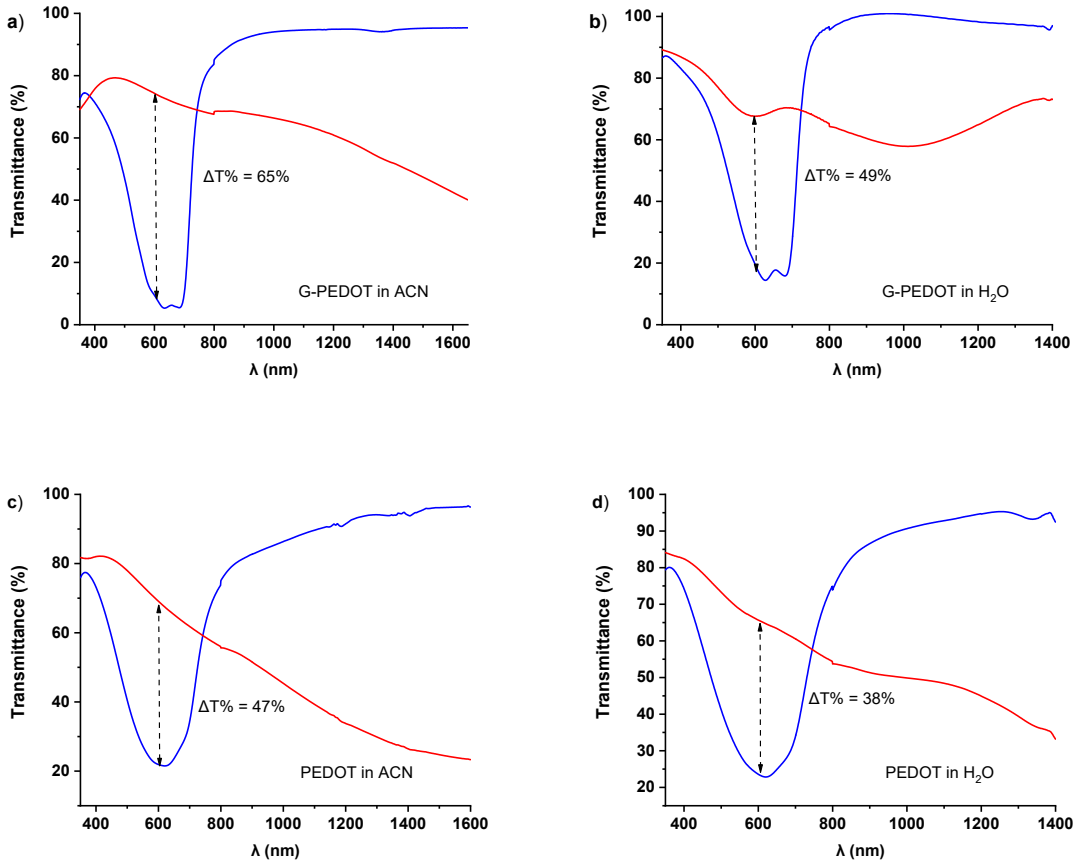


Figure S2. Transmittance spectra of the G-PEDOT and PEDOT in the colored (blue line) and the colorless states (red line) in organic (a, c) and aqueous solutions (b, d).

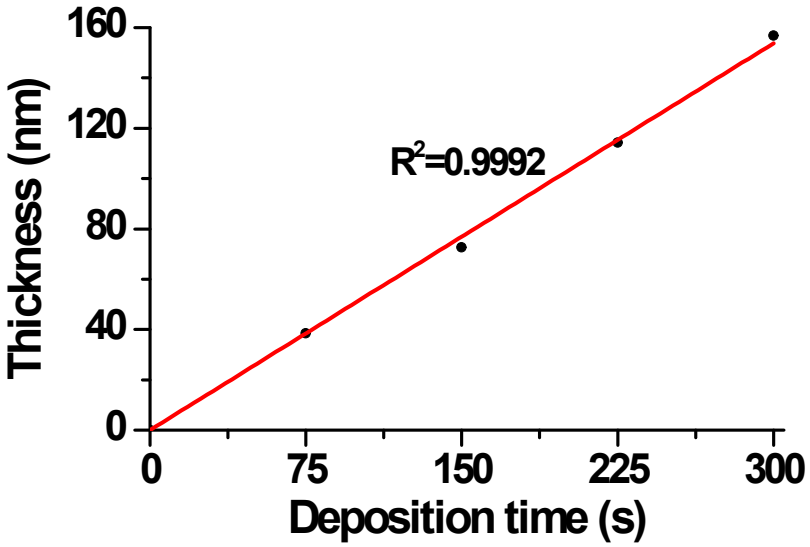


Fig. S3. Thickness dependence on the time of deposition by galvanostatic electropolymerization of G-PEDOT for the samples used for capacitance determination (0.05 cm^2).

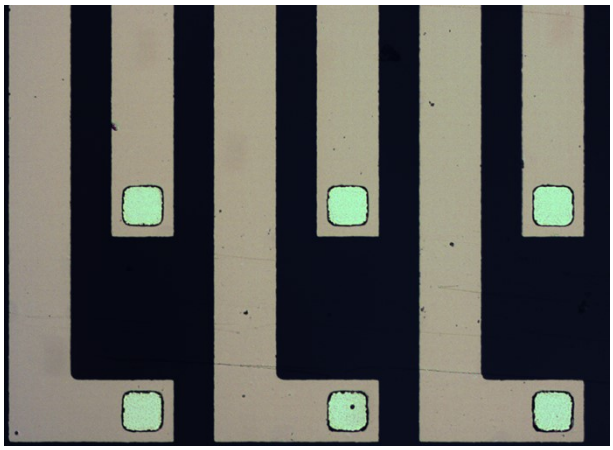


Fig. S4. Photomicrograph of test microelectrode arrays used in this work, with bare 50×50 µm exposed gold electrodes prior to electropolymerization.

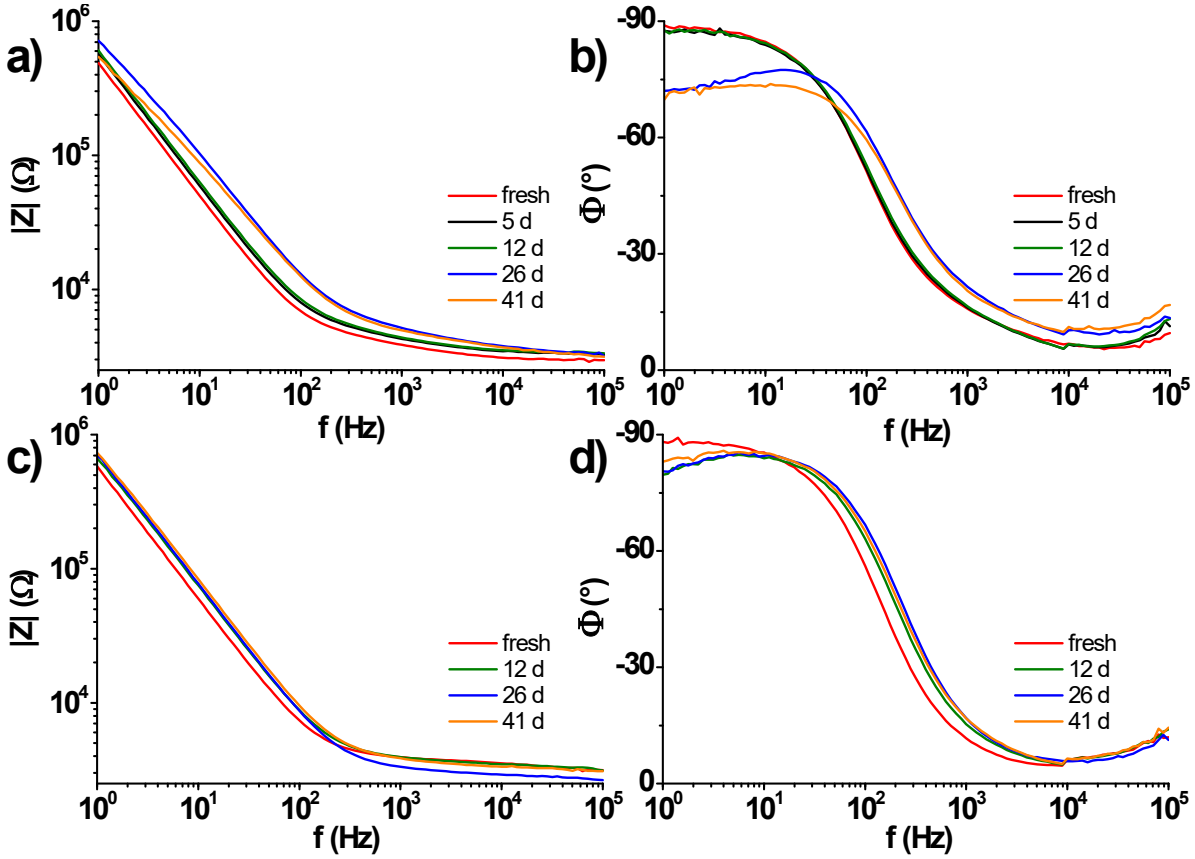


Fig S5. Electrochemical impedance spectra (Bode plots) of 50×50 µm microelectrodes, functionalized with PEDOT and G-PEDOT deposited via galvanostatic electropolymerization (4 µC: 50 nA, 80 s) recorded during accelerated aging test (60 °C, PBS solution). a) Impedance of G-PEDOT. b) Phase angle of G-PEDOT. c) Impedance of PEDOT. d) Phase angle of PEDOT. Plots shown in the figure are averaged over 2-3 different specimens.

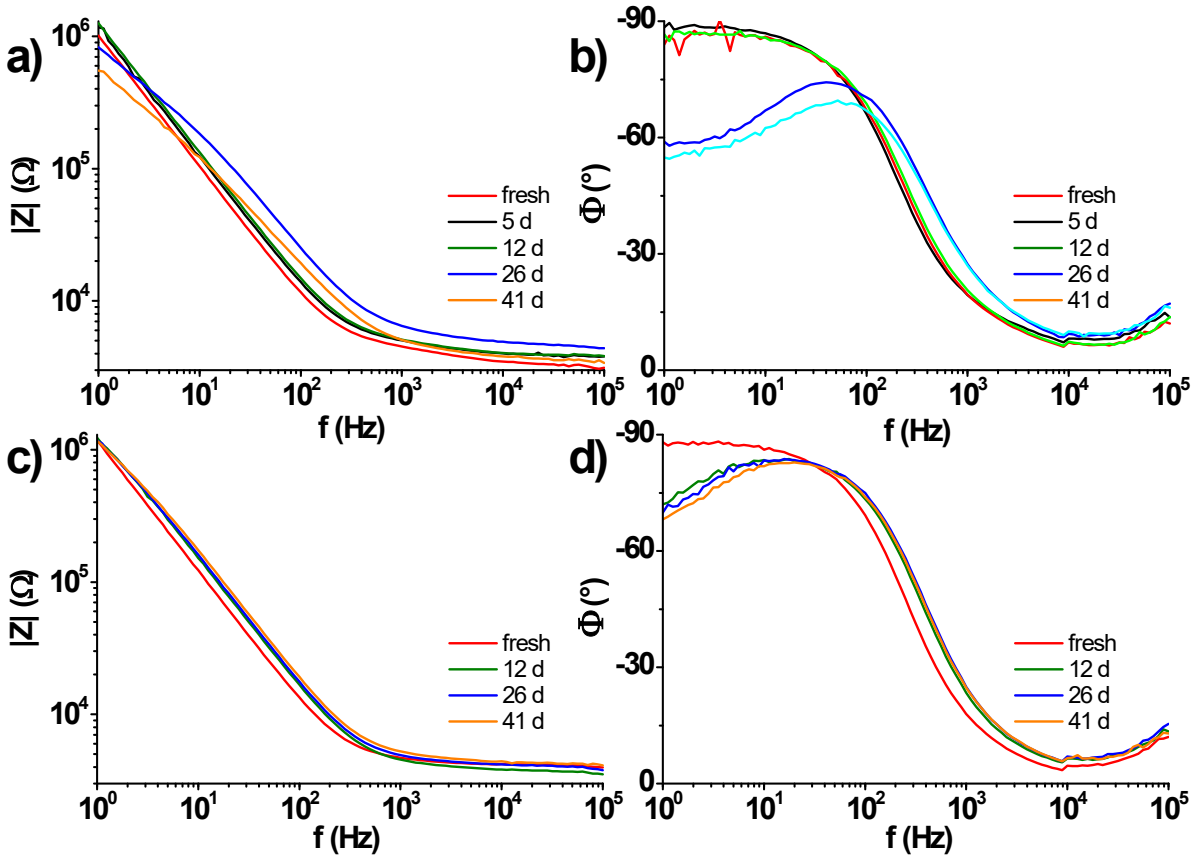
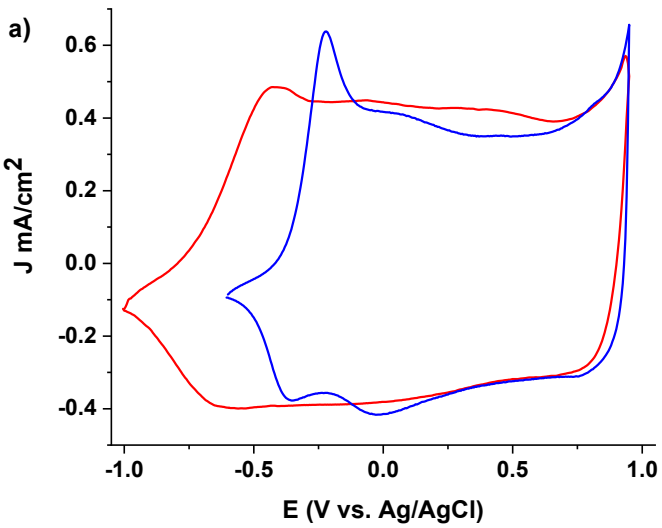


Fig S6. Electrochemical impedance spectra (Bode plots) of 50×50 µm microelectrodes, functionalized with PEDOT and G-PEDOT deposited via galvanostatic electropolymerization (2 µC: 20 nA, 100 s) recorded during accelerated aging test (60 °C, PBS solution). a) Impedance of G-PEDOT. b) Phase angle of G-PEDOT. c) Impedance of PEDOT. d) Phase angle of PEDOT. Plots shown in the figure are averaged over 2-3 different specimens.



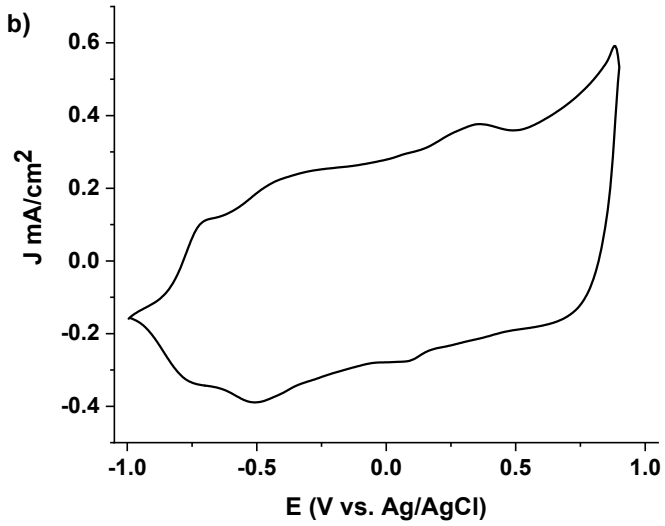


Fig S7. a) The comparison of cyclic voltammograms of the thin films of G-PEDOT and PEDOT galvanostatically deposited on the ITO electrode (electrolyte: deoxygenated 0.1M KCl, scan rate: 100 mV/s). Galvanostatic electrodeposition conditions were as follows: constant current 10 µA (0.2 mA/cm^2 150 s), ITO immersed in 0.1 M $TBAPF_6/CH_3CN$ electrolyte containing 5 mM of G-EDOT or EDOT, respectively. b) Cyclic voltammograms of PEDOT:PSS thin films in 0.1 M KCl. Scans were performed with 100 mV/s rate, for PEDOT:PSS layer drop cast on ITO electrode.