

Supporting Information

Poly(3,4-ethylenedioxysephenone): Effect of Solvent and Electrolyte on Electrodeposition, Optoelectronic and Electrochromic Properties

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Table S1. Dielectric constant and viscosity of solvents at 25°C¹

Solvent	Dielectric constant (ϵ)	Viscosity (mPa s)	Density(g/cm ⁻³)
Acetonitrile (MeCN)	37.50	0.34	0.79
Propylene carbonate (PC)	66.14	2.5	1.20

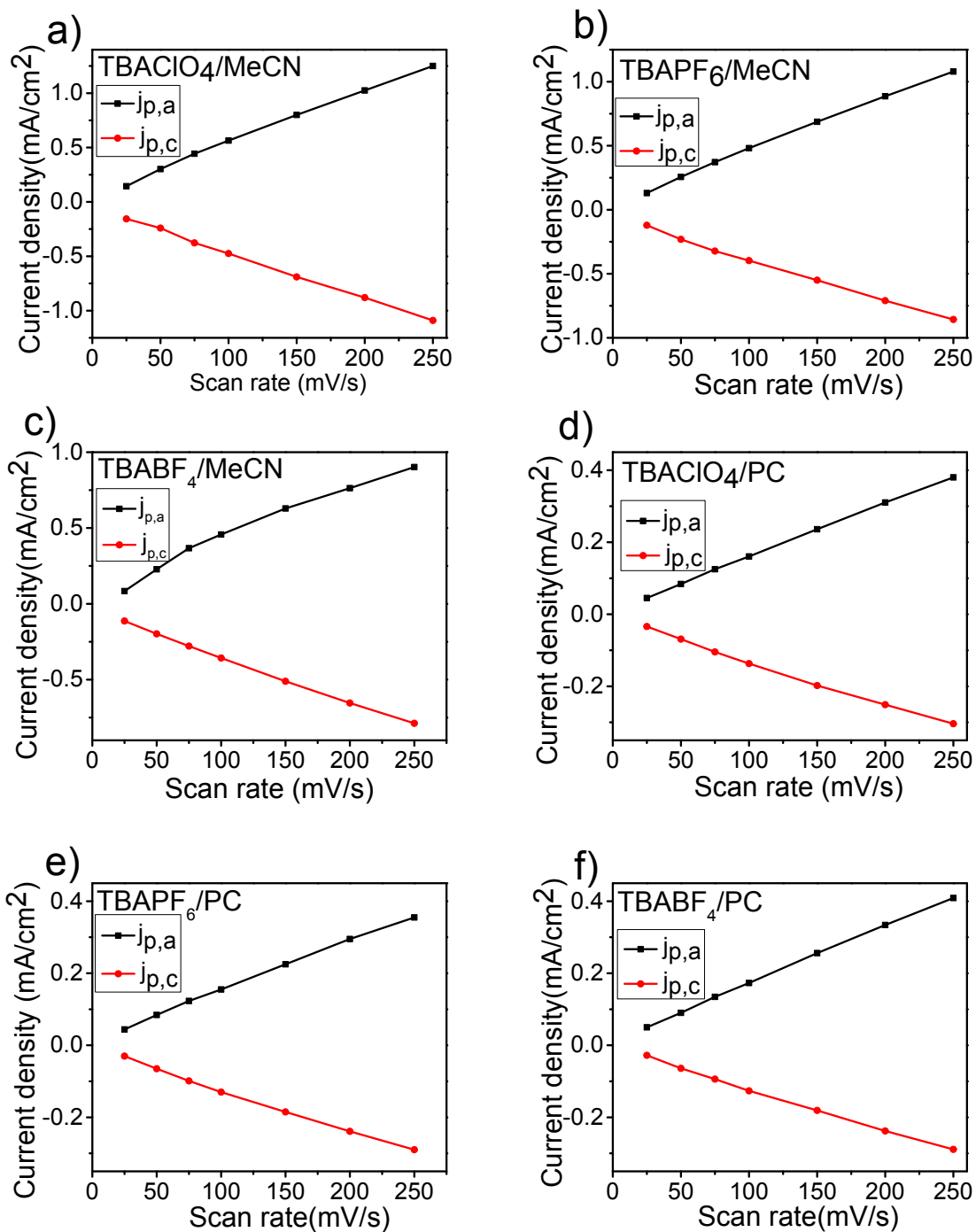


Figure S1. Plots of cathodic and anodic peak current densities versus scan rates of PEDOS films prepared in different solvent-electrolyte medium a) TBAClO₄/MeCN, b) TBAPF₆/MeCN, c) TBABF₄/MeCN, d) TBAClO₄/PC, e) TBAPF₆/PC and f) TBABF₄/PC.

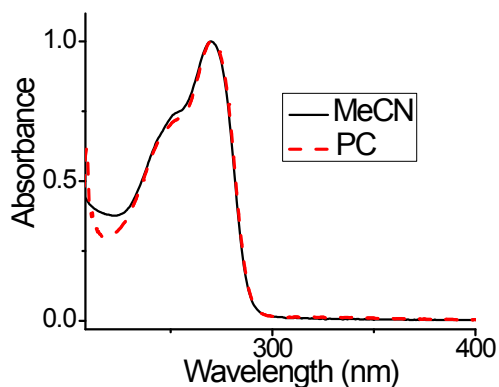


Figure S2. UV-vis absorption spectra of EDOS in acetonitrile and propylene carbonate.

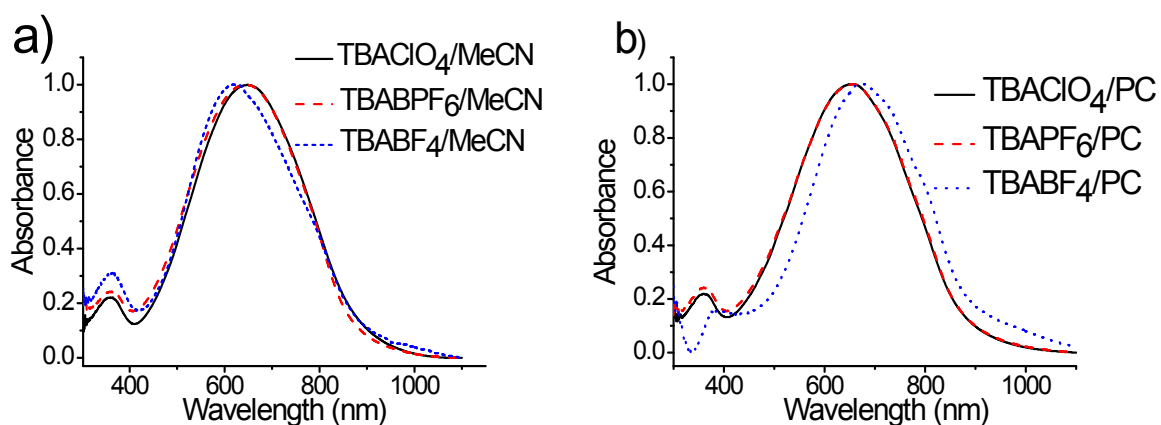
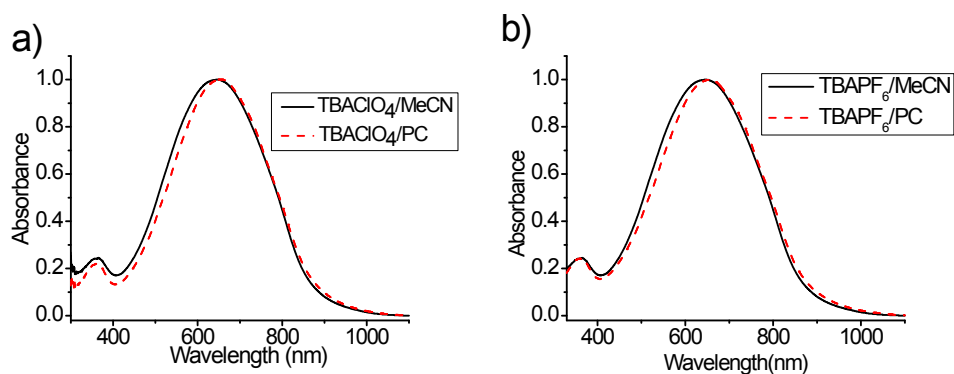


Figure S3. Normalized UV-vis-NIR spectra of PEDOS films a) MeCN and b) PC in neutral states (-0.9 V) recorded in same solvent-electrolyte media as used for electropolymerization.



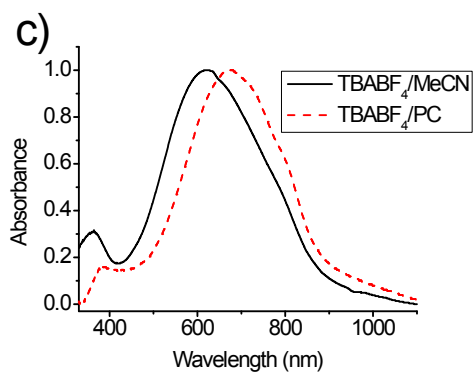


Figure S4. Normalized UV-vis-NIR spectra of PEDOS films prepared using a) TBAClO₄ and b) TBAPF₆ c) TBABF₄ in neutral states (-0.9 V) recorded in solvents MeCN and PC.

Polymer prepared using	Magnifications	
	10000	20000
TBAClO ₄ /MeCN		
TBAPF ₆ /MeCN		
TBABF ₄ /MeCN		

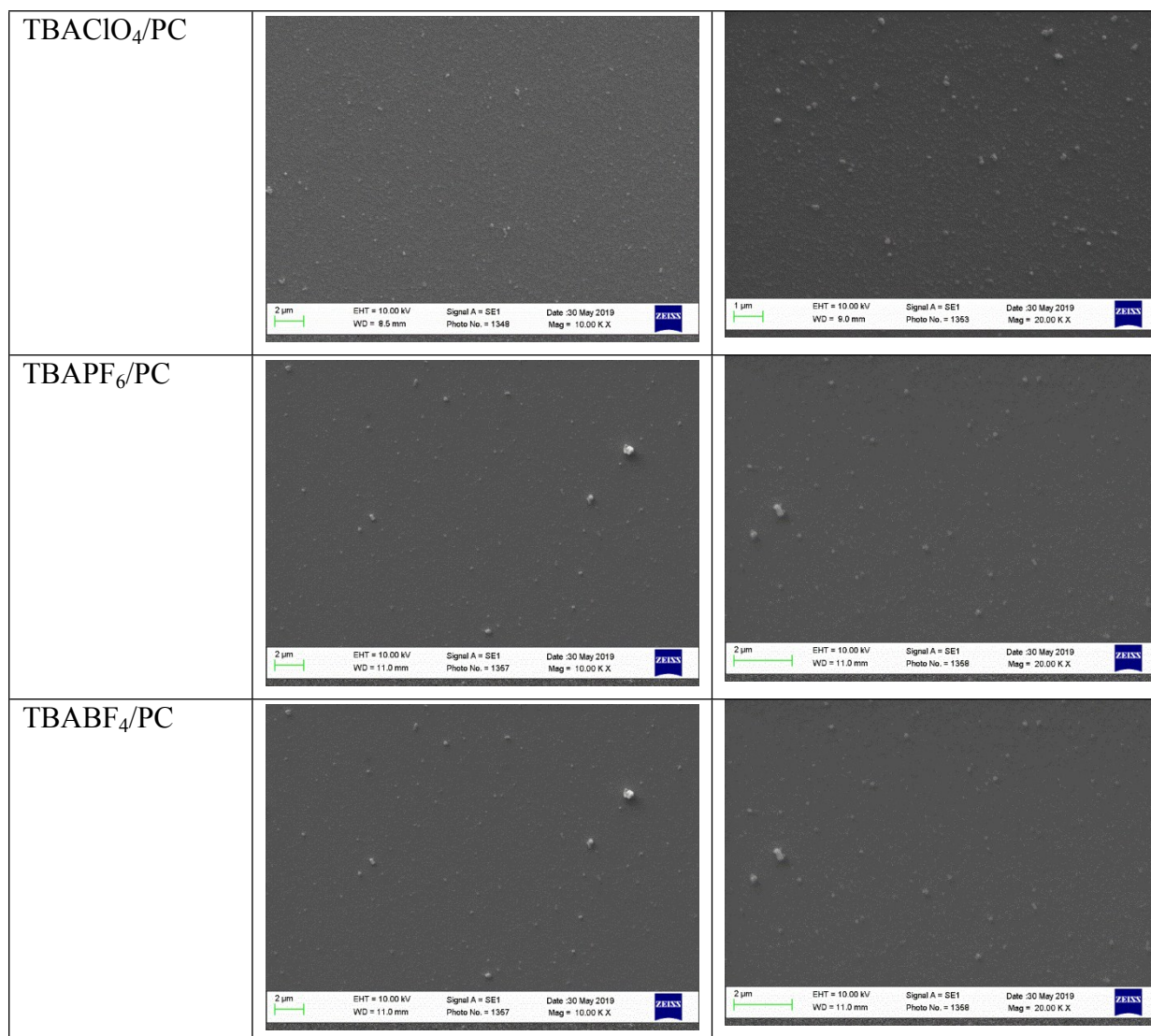


Figure S5. SEM images of PEDOS films prepared on ITO coated glass using repetitive cyclic voltammetry in different solvent-electrolyte media a) TBAClO₄/MeCN, b) TBAPF₆/MeCN, c) TBABF₄/MeCN d) TBAClO₄/PC e) TBAPF₆/PC f) TBABF₄/PC at scan rate of 100 mV/s. Magnification: 10000 and 20000 x. Concentration of supporting electrolyte is 0.1 M.

Reference

1. S. Ming, Z. Feng, D. Mo, Z. Wang, K. Lin, B. Lu and J. Xu, *Phys.Chem. Chem. Phys.*, 2016, **18**, 5129-5138.