

## Article

# Flexible Polymer-Ionic Liquid Films for Supercapacitor Applications

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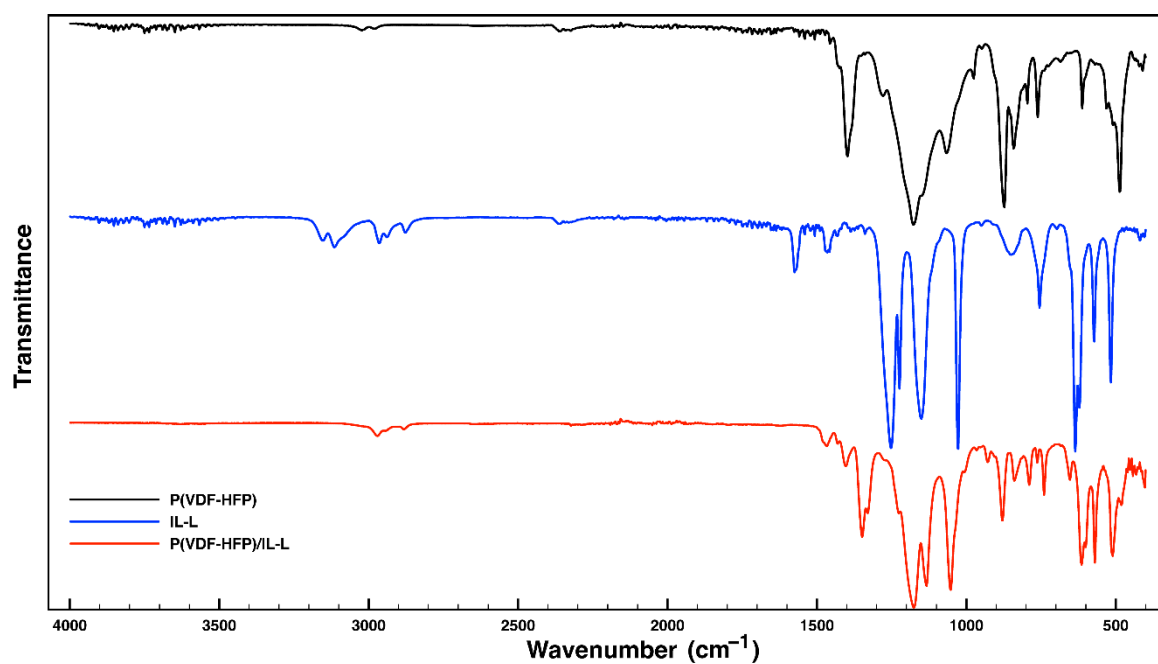
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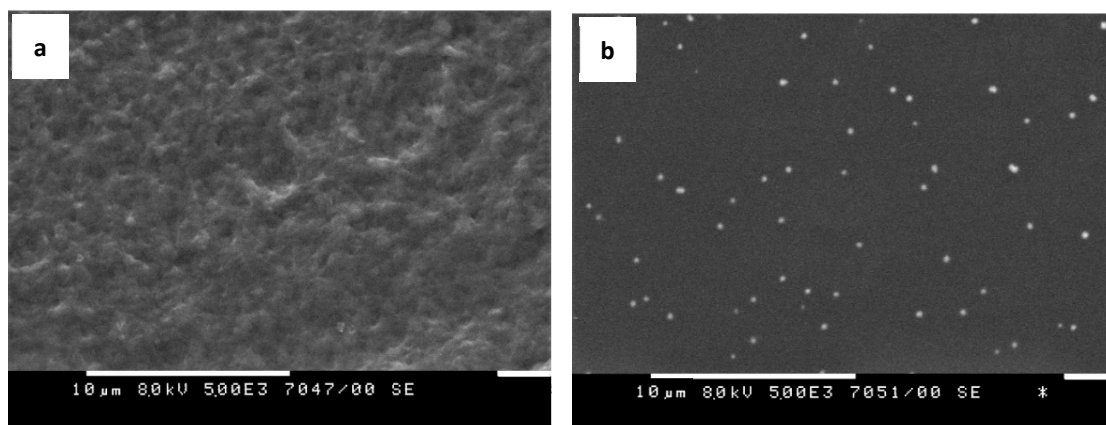
## Supporting Information

**Table S1.** Assignment of FTIR spectral bands of pure PVdF-HFP and BMPTFSI [1,17].

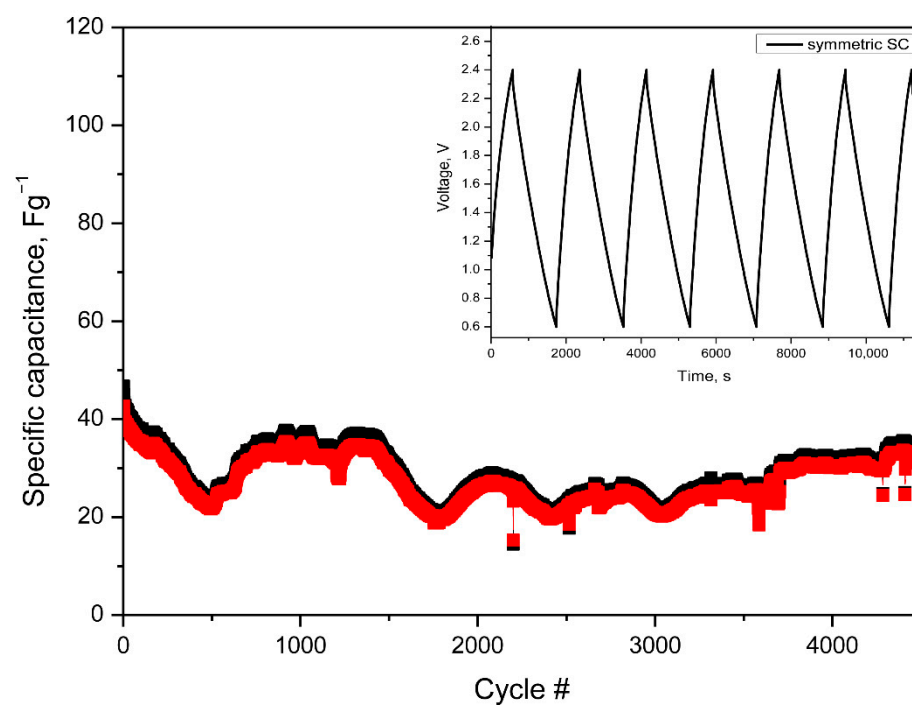
	IR (cm <sup>-1</sup> )	Assignment
PVdF-HFP	489	Bending and wagging of the CF <sub>2</sub> group
	613	C-F <sub>2</sub> bending and CCC skeletal vibration
	762	CH <sub>2</sub> rocking vibration
	795	CF <sub>3</sub> stretching vibration
	840	CH <sub>2</sub> rocking
	974	C-F stretching
	1066	Vibration of crystalline phase
	1181	C-C band stretching
BMPTFSI	510, 571	CF <sub>3</sub> asymmetric bending
	598	bending CH <sub>3</sub> (N)CN stretching
	654	C-H vibrational mode of cyclic BMP <sup>+</sup>
	740	S-N stretching mode
	793	C-C-H bending
	1051	Asymmetric S-N-S stretching
	1132	C-SO <sub>2</sub> -N bending
	1349	Asymmetric SO <sub>2</sub> stretching
	1469	CH <sub>2</sub> , CH <sub>3</sub>



**Figure S1.** FTIR spectra of pure P(VDF-HFP), IL-L and P(VDF-HFP)/IL-L.



**Figure S2.** SEM images of PVDF-HFP/IL composite membranes: a) cross-linked pure P(VDF-HFP) and b) cross-linked P(VDF-HFP)/IL-L.



**Figure S3.** Long-term test of symmetric SC cell with P(VDF-HFP)/ IL-L film at a current load of  $60 \text{ mA g}^{-1}$ .