Bio-inspired Polydopamine Coating as a Facile Approach to Constructing Polymer Nanocomposites for Energy Storage

Guanyao Wang, Xingyi Huang,* and Pingkai Jiang

Department of Polymer Science and Engineering, Shanghai Key Laboratory of Electrical Insulation and Thermal Aging, Shanghai Jiao Tong University, Shanghai 200240, China

Email: xyhuang@sjtu.edu.cn
Fig. S1. $^1$H NMR spectrum of L-DOPA. The deuterated solvent is $d_6$-DMSO.

Fig. S2. EDX elemental mapping images of h-DOPA@TiO$_2$ NWs: Ti mapping in cyan, O mapping in yellow, C mapping in green, N mapping in blue.
Fig. S3. FT-IR spectra of TiO$_2$ and $h$-DOPA@TiO$_2$ NWs.
Fig. S4. Temperature-dependent dielectric spectra of (a) P(VDF-HFP) and 15 vol % TiO$_2$ NWs/P(VDF-HFP) nanocomposites. Frequency dependent of imaginary electric modulus at various temperature of (c) P(VDF-HFP)-based nanocomposites with 15 vol % of TiO$_2$ NWs.
**Fig. S5.** Electric displacement-electric field ($D$-$E$) loops under unipolar electric fields of 100 Hz for (a) pure P(VDF-HFP) and P(VDF-HFP)-based nanocomposites with (b) 2.5 vol %, (c) 5 vol %, (d) 10 vol %, and (e) 15 vol % of $h$-DOPA@TiO$_2$ NWs.