Supporting Information

Polypyrrole-Coated Paper for Flexible Solid-State Energy Storage

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**Figure S1.** Electrochemical properties of the polypyrrole-coated paper electrodes with different mass loadings in a three-electrode configuration in 1 M hydrochloric acid. (a) Cyclic voltammetry curves for electrodes with different polypyrrole masses at a scan rate of 5 mVs\(^{-1}\). (b) Galvanostatic charge-discharge curves for polypyrrole-coated paper electrodes at a fixed current density of 5 mA\(\text{cm}^{-2}\). (c) Areal capacitance of polypyrrole-coated paper electrodes with respect to discharge current. (d) Electrochemical impedance spectroscopy of the polypyrrole-coated paper electrodes.
Figure S2. Gravimetric capacitance of the polypyrrole-coated paper, normalized to polypyrrole only.
**Figure S3.** (a) Cyclic voltammetry curves for solid-state supercapacitors with different polypyrrole polymerization times at a scan rate of 5 mVs$^{-1}$. (b) Galvanostatic charge-discharge curves for solid-state supercapacitors with different polypyrrole polymerization times at a fixed current density of 1 mAcm$^{-2}$. (c) Electrochemical impedance spectroscopy of the as-fabricated solid-state supercapacitors. (d) Cyclic voltammetry curves for solid-state polypyrrole/paper supercapacitors with 180 minutes polymerization time in normal and bent states at a scan rate of 5 mVs$^{-1}$. 
**Figure S4.** Leakage current and self-discharge for the fabricated solid-state supercapacitor with electrodes of 180 minutes polypyrrole-coated paper.
Figure S5. Galvanostatic charge-discharge curves for solid-state supercapacitors with different electrode area at a fixed discharge current of 1 mA. All the electrodes hold the same polymerization time of 180 minutes.