Supporting Information

Ultraflexible and tailorable all-solid-state supercapacitors by using polyacrylamide-based hydrogel electrolyte with highly ionic conductivity

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Fig. S1. FT-IR spectra of PAAm/LiCl hydrogels with different concentrations of LiCl.



Fig. S2. SEM image of PAAm hydrogel without LiCl.



Fig. S3. Dependance of ionic conductivities of PAAm/LiCl hydrogels on the concentrations of LiCl.



Fig. S4. Digital photographs of a PAAm/LiCl hydrogel cable being stretched from 1.5 cm to 27.5 cm.



Fig. S5. TEM images of CNTs with different magnifications.



Fig. S6. (a) CV curves at 0.1 V s⁻¹, (b) GCD curves at a constant current of 0.65 A cm⁻³ and (c) EIS curves of bare CNTs film–based supercapacitors using electrolyte of PAAm/LiCl hydrogel with different concentrations of LiCl. (d) Dependance of specific capacitance and series resistance of these supercapacitors on LiCl contents of PAAm/LiCl hydrogel electrolytes.

Cycles	20	40	80	120	140
ω	58.4%	64.8%	67.7%	70.6%	71.5%

Table S1. Mass percentages (ω) of PANI in CNT/PANI composite films withdifferent electrochemical deposition cycles



Fig. S7. Raman spectra of CNT/PANI composite films with different electrochemical deposition cycles of PANI.



Fig. S8. EIS curves of supercapacitors based on CNT/PANI composites with different electrochemical depositing cycles of PANI.



Fig. S9. Cycling performance of supercapacitors based on bare CNTs and CNT/PANI composites with 120 cycles PANI.



Fig. S10. SEM image of freeze-dried PVA/H₃PO₄ gel electrolyte.



Fig. S11. Leakage current curves of supercapacitors based on different electrolytes.



Fig. S12. CV at 0.1 V s⁻¹ (a), GCD at 1.3 A cm⁻³ (b) and EIS (c) curves of PAAm/LiCl hydrogel electrolyte–based supercapacitors using CNT/PANI composite under different bending cycles.



Fig. S13. CV at 0.1 V s⁻¹ (a), GCD at 1 A cm⁻³ (b) and EIS (c) curves of PAAm/LiCl hydrogel electrolyte–based supercapacitors using CNT/PANI composite under different kneading cycles.



Fig. S14. CV curves at the scan rate of 0.1 V s⁻¹ (a), GCD curves at 1.4 A cm⁻³ (b) and EIS curves (c) of one piece of as-prepared supercapacitor, one of four tailored strip-like supercapacitors and four tailored devices connected in series and in parallel.