All-Printed Solid-State Supercapacitors with Versatile Shapes and Superior Flexibility for Wearable Energy Storage

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The weight specific capacitance (C_m) and areal specific capacitance (C_s) of the electrode and the flexible supercapacitor can be calculated by the GCD curves as the following:

$$C_m = \frac{I \times \Delta t}{m \times \Delta U} \tag{1}$$

$$C_S = \frac{I \times \Delta t}{S \times \Delta U} \tag{2}$$

The energy density (E) and power density (P) of the electrode and supercapacitor device can be calculated by the following equations from the GCD curves:

$$E = \frac{1}{2} C_S \times \Delta U \tag{3}$$

$$P = \frac{E}{\Delta t} \tag{4}$$

Where m, s, I, Δt, ΔU are the mass of the active electrode materials, the effective areal of the supercapacitor, the operate current, the discharged time and the potential window.

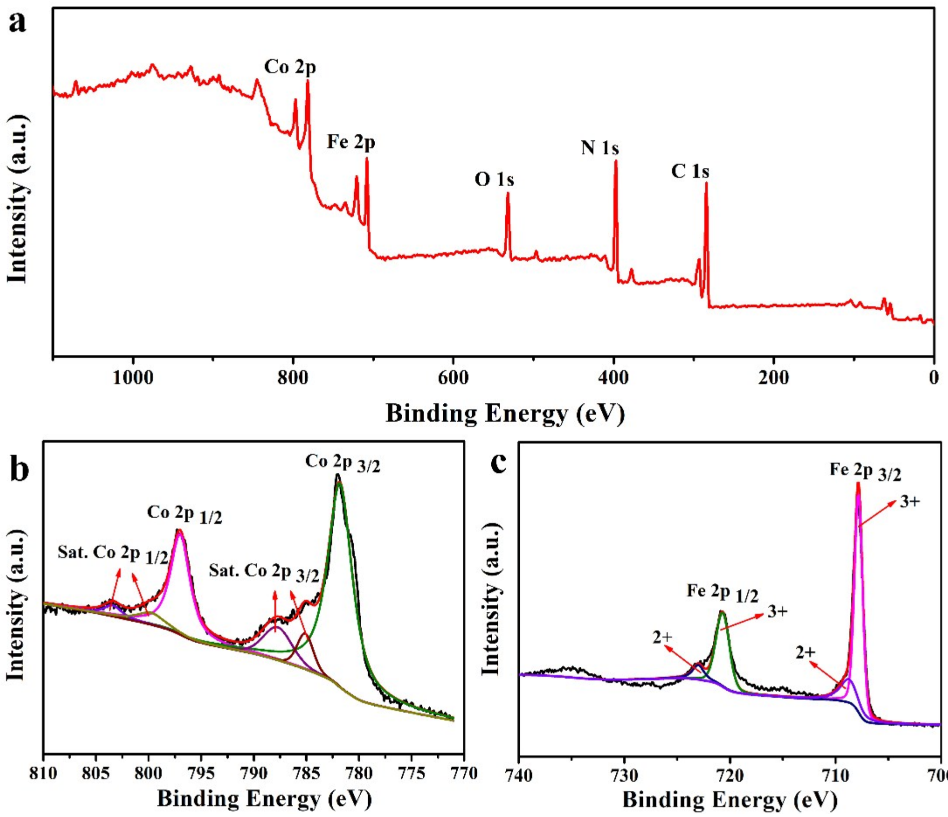

Fig. S1 (a) The XPS spectra of CoHCF nanocubes, (b) the Co 2p and (c) Fe 2p.

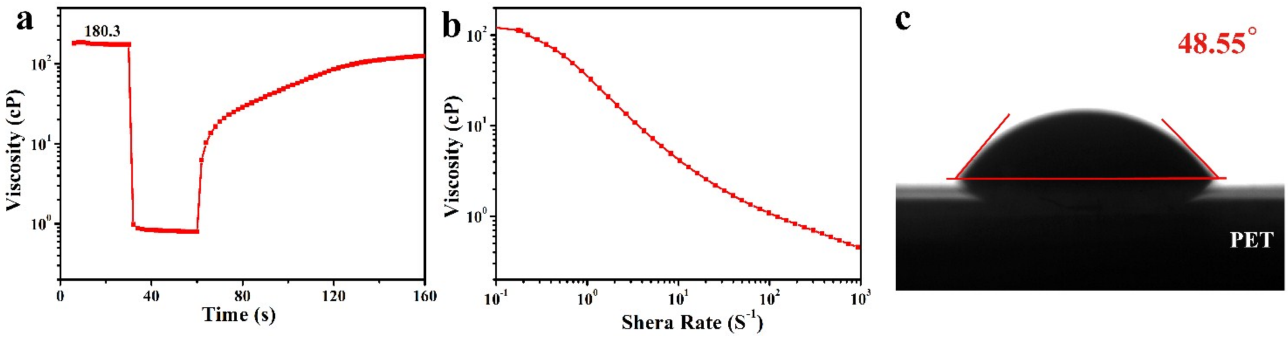

Fig. S2 (a) The thixotropic behavior and (b) relationships between viscosity and the shear rate of CoHCF ink, and (c) the average contact angle test of the CoHCF ink on PET substrate.

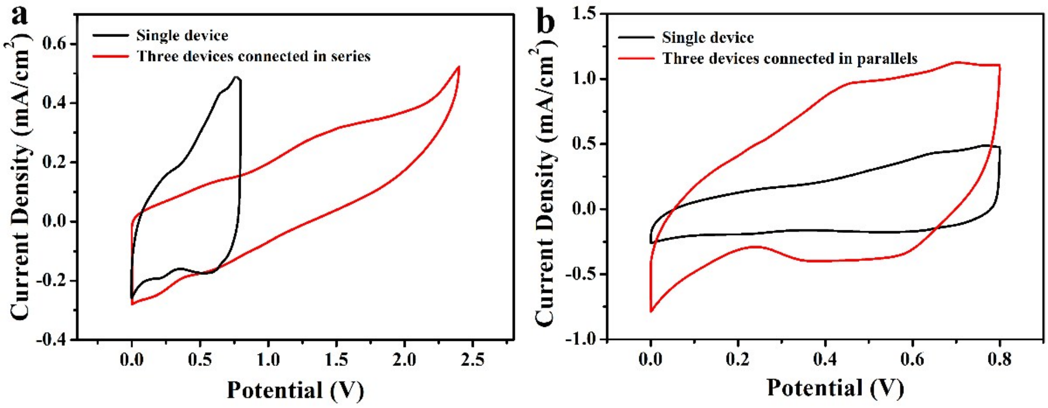

Fig. S3 (a) The CV curves of the single device and the three CoHCF-based supercapacitors integrated in series and (b) in parallels at the scan rate of 50 mV/s.