Fig. S1. FESEM images of carbon samples: (a) PF-blank; (b) PF-Zn-1:3; (c) PF-Zn-1:5; (d) PF-PVB-1:1.
Fig. S2. XRD patterns of the PF-blank and PF-Zn-1:5 samples.
**Fig. S3.** Galvanostatic charge-discharge curves measured at a current density of 1 A g⁻¹ of the carbon samples.
Fig. S4. Specific capacitances at various current densities of the carbon samples.
Fig. S5. XPS spectrum of the PF-Zn-PVB-1:5:1 sample.
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**Fig. S6.** PF-Zn-PVB-1:5:1 sample: (a) Cyclic voltammograms at various scan rates; (b) Specific capacitances derived from CV tests; (c) Galvanostatic charge-discharge curves with different potential windows measured at a current density of 1 A g\(^{-1}\); (d) Specific capacitances at various current densities; (e) Cycling stability after 10000th cycles as well as the cyclic voltammograms of the 1st and 10000th cycles (the inset) at a current density of 20 A g\(^{-1}\); (f) Nyquist plots before/after 100 cycles.

**Notes:** The electrochemical results shown in Fig. S6 are measured in a two-electrode cell.

Gravimetric capacitance for a single electrode was calculated from the discharge curve in a two-electrode cell as

\[
    C_{\text{single}} = \frac{4I\Delta t}{m\Delta V}
\]

where \( I \) (A) is the constant current and \( m \) (mg) is the total mass for both carbon electrodes, \( \Delta t \) (s) is the discharge time, and \( \Delta V \) (V) is the voltage change during the discharge process.