Electronic supplementary information (ESI)

Vanadium disulfide nanosheets loaded on carbon cloth as electrode for flexible quasi-solid-state asymmetric supercapacitors: Energy storage mechanism and electrochemical performance

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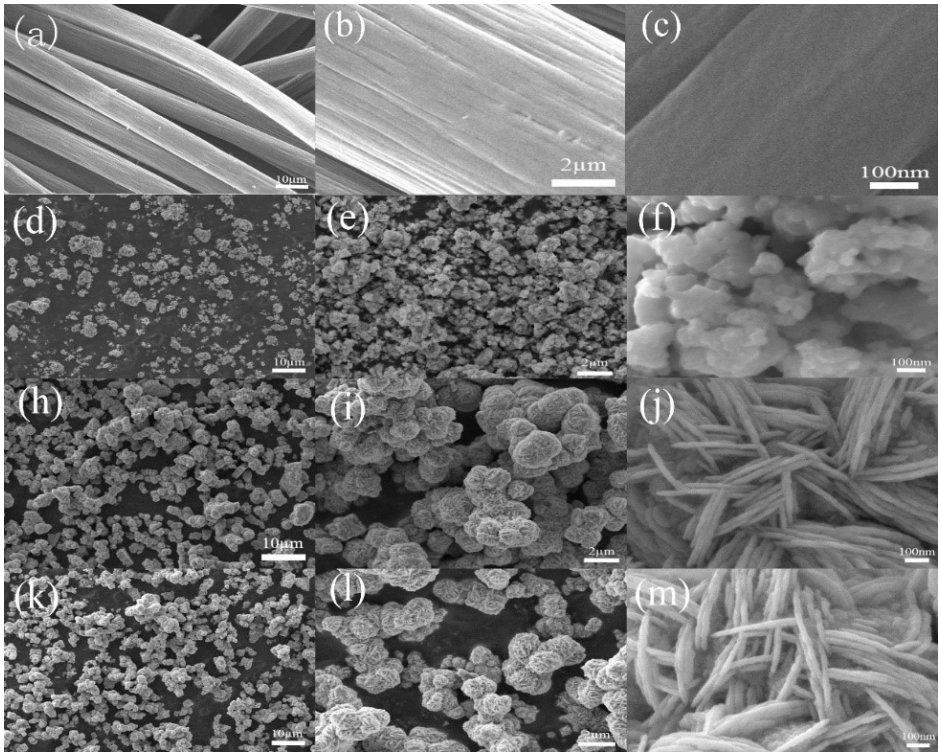

Fig. S1 (a-c) SEM images of CC before acidification; (d-f) SEM images of VS_2-6 monomer; (h-j) SEM images of VS_2-18 monomer; (k-m) SEM images of VS_2-24 monomer.

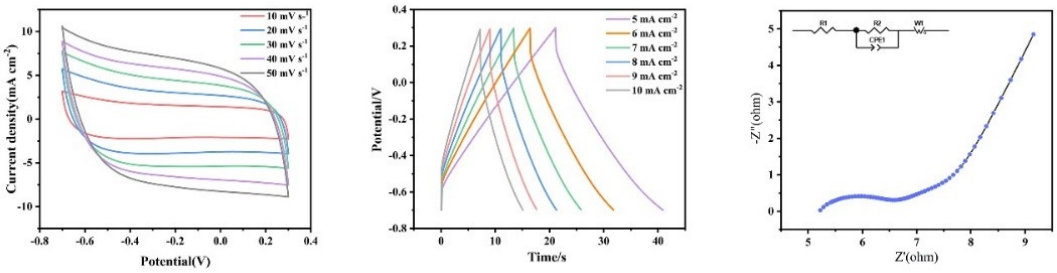

Fig. S2 Electrochemical characteristics of assembled symmetric device. (a) The CV profiles at various scanning rates. (c) The GCD profiles at various current densities. (d) The EIS profiles.

The CV test of the assembled symmetric device is carried out at different scanning rates (Fig. S2 (a)). The CV curve maintains a rectangular shape and without polarization, indicating that the device can work stably in the voltage range of 0 to 1 V. Fig. S2 (b) shows the GCD curve of the device at current density from 1 to 10 mA cm^{-2}, and the specific capacitance is 35.3, 33.3, 31.4, 30.6, 29.0 and 28.8 mF cm^{-2}. Fig. S2 (b) is the EIS curve of device, and Fig. S2 (c) is an equivalent circuit diagram. According to the fitting results, the Rs and Rct of the device are 5.179 Ω and 1.249 Ω respectively, showing good electron transmission efficiency.

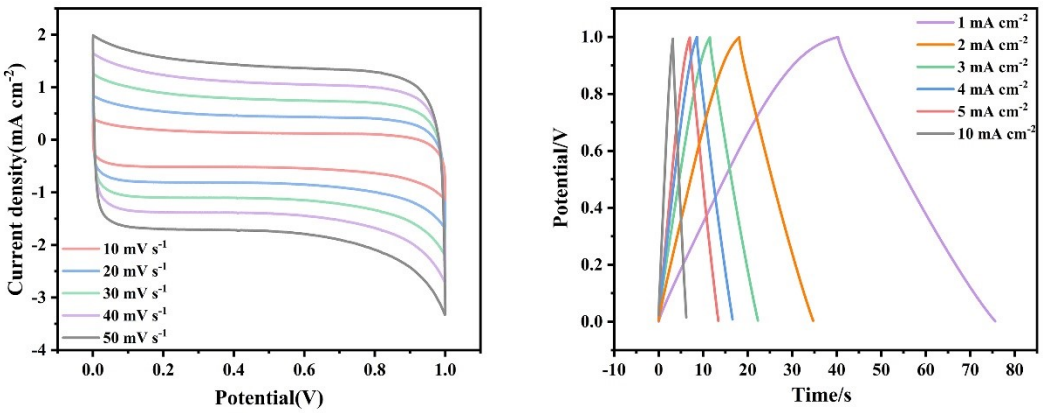

Fig. S3 Electrochemical properties of AC/CC. (a)The CV profiles of AC/CC at various scanning rates. (b)The GCD profiles of AC/CC at various current densities.

The electrochemical performance of AC/CC electrode was evaluated in 1 M Na_2SO_4 electrolyte by three-electrode test. The test window of CV curve is selected from 0 V to 1 V (Fig.S3a). Fig. S3 (b) shows that the specific capacitance values are 15.8, 15.1, 15.0, 14.6, 14.3 and 13.1 mF cm^{-2} under the current density of 1 to 10 mA cm^{-2}, respectively.

Fig. S4 Photographs of the devices at various bending states. (a) 0°; (b) 90°; (c) 180°.