

Supporting Information

VO₂(B)@ Carbon Fiber Sheet as a Binder-free Flexible Cathode for Aqueous Zn-Ion Batteries

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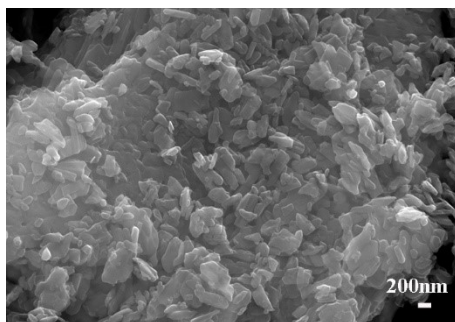


Fig. S1 The SEM image of pure VO₂(B) at magnification of 20,000 times.

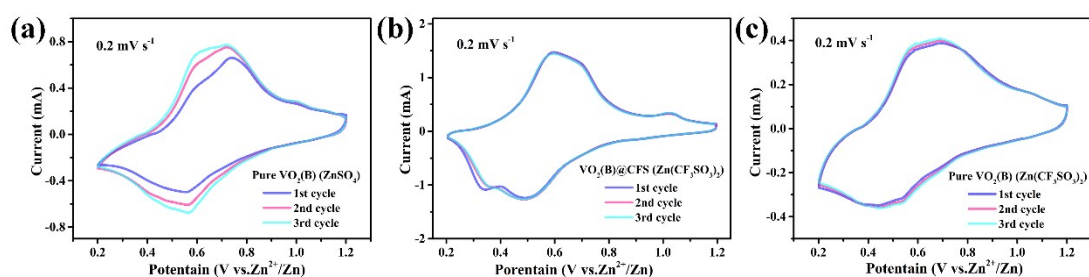


Fig. S2 Electrochemical characterization : (a) CV curves of pure VO₂(B) cathode at a voltage range of 0.2–1.2 V [ZnSO₄]. (b) CV curves of VO₂(B)@CFS cathode at a voltage range of 0.2–1.2 V [Zn (CF₃SO₃)₂]. (c) CV curves of pure VO₂(B) cathode at a voltage range of 0.2–1.2 V [Zn (CF₃SO₃)₂].

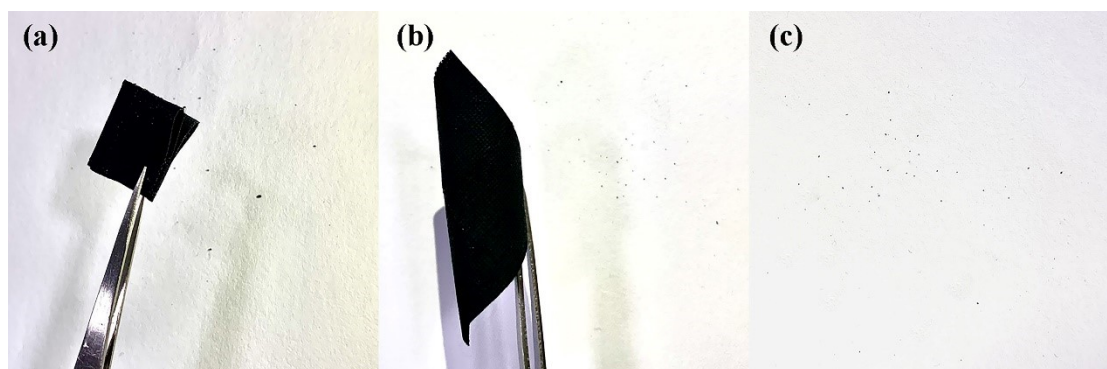


Fig. S3 VO₂(B)@CFS Flexible cathode electrode: (a) After being folded 30 times; (B) After being twisted 50 times; (c) Powder falling on A4 paper after 80 folds and twists.

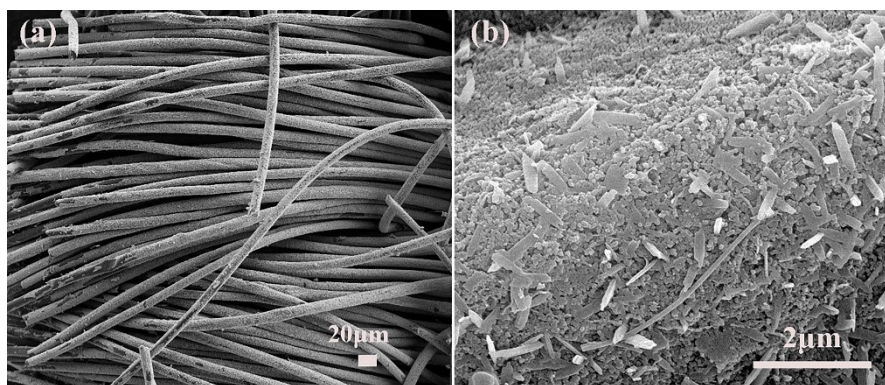


Fig. S4 SEM image (a) and (b) of VO₂(B)@CFS electrode after 50 cycles at 0.5A g⁻¹.

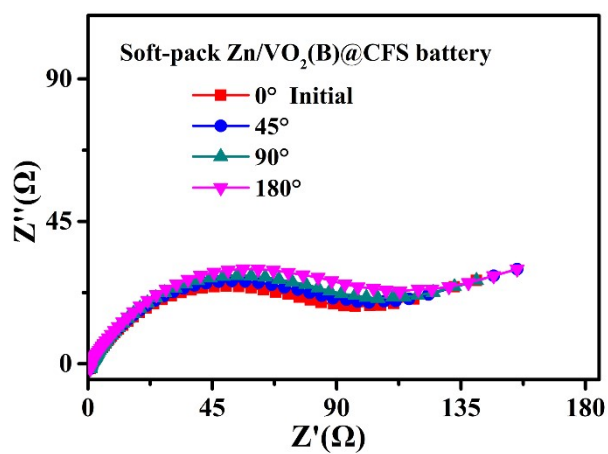


Fig. S5 Electrochemical impedance spectra of the soft-packaged Zn/VO₂(B)@CFS battery at various bending states from 0.01 Hz to 100 kHz .

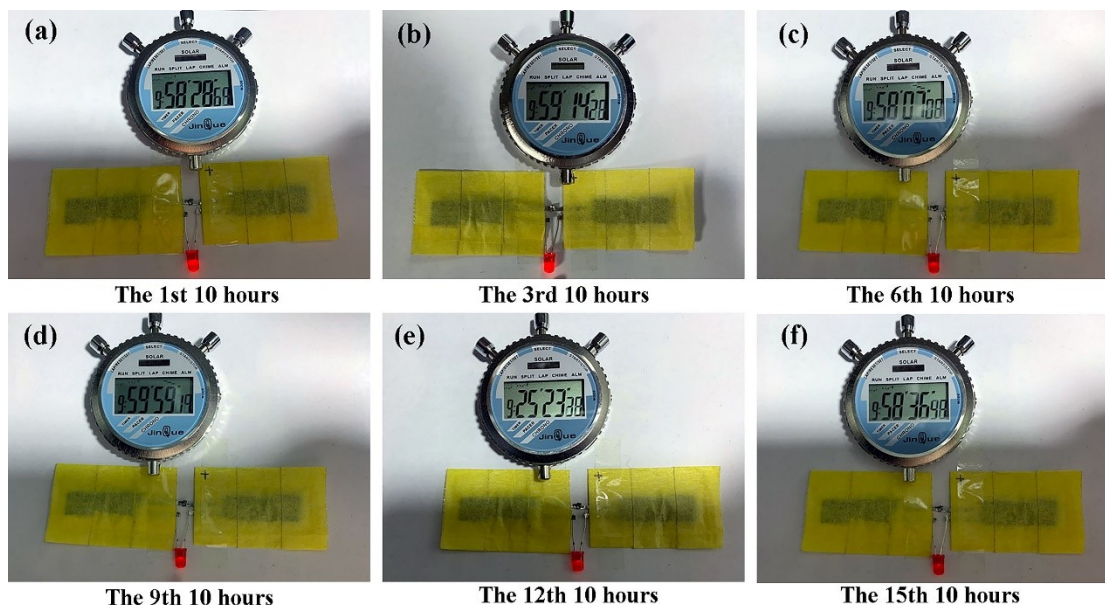


Fig. S6 Soft-pack Zn/VO₂@CFS[ZnSO₄] battery powers LED lights brightness at 10 to 150 h.

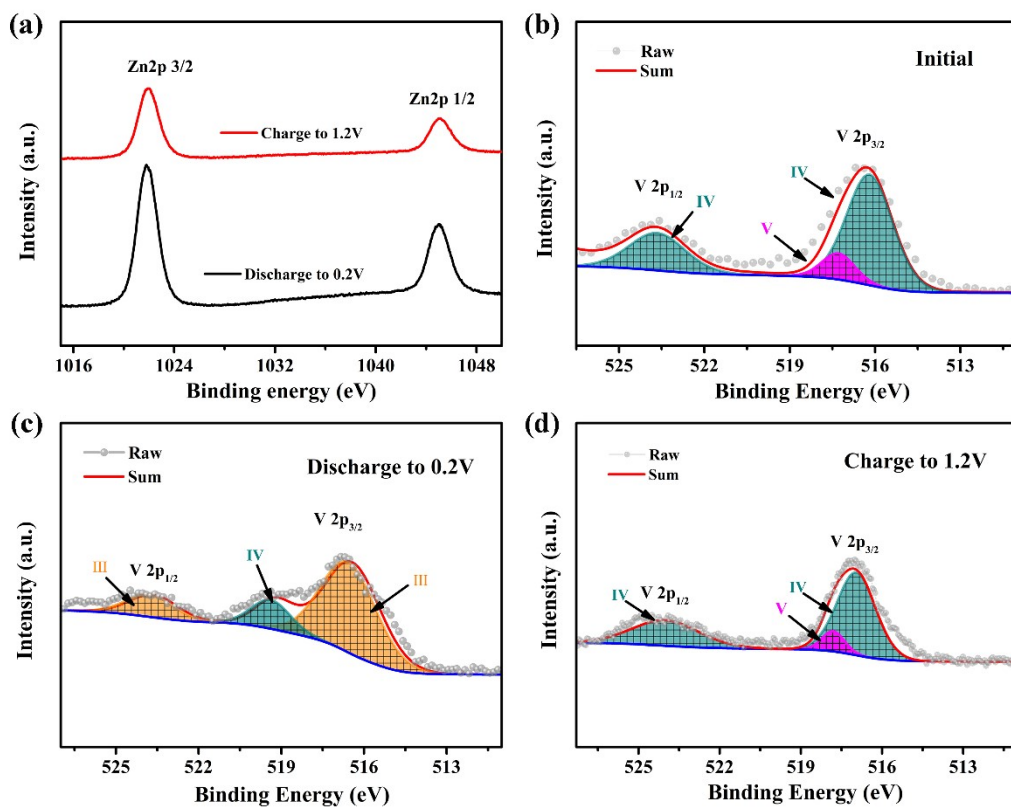


Fig. S7 (a) Zn 2p XPS spectra at different charge/discharge voltages; (b–d) V 2p XPS spectra at initial, discharge and charge voltages.

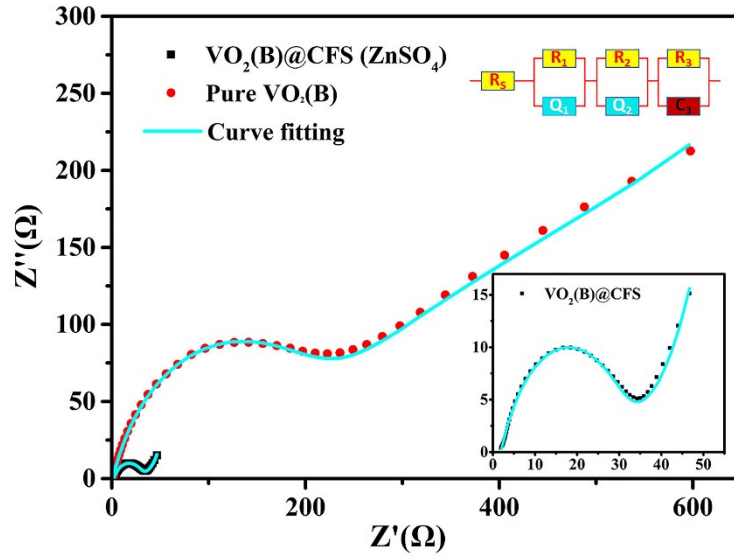


Fig. S8 Comparison of EIS(electrochemical impedance spectroscopy) between CFS@ $\text{VO}_2(\text{B})$ and pure $\text{VO}_2(\text{B})$ [ZnSO_4].