Unique $CoWO_4$@WO_3 heterostructured nanosheets with superior electrochemical performances for all-solid-state supercapacitors

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Preparation of oxygen deficient $NiMoO_4$ on CC (O_v-$NiMoO_4$)

The preprocess of carbon cloth is as with the Experimental section in the manuscript. Firstly, 0.35 g $Ni(NO_3)_2 \cdot 6H_2O$ and 0.37 g $(NH_4)_6Mo_7O_{24} \cdot 4H_2O$ were added into 60 mL deionized water with little $NH_3 \cdot H_2O$ to adjust the pH of the solution equal to 7. Then, the uniform solution immersed with carbon cloth was kept at 150 °C for 6 h. Following, the carbon cloth was rinsed with deionized water and dried at 60 °C overnight. Finally, the precursor was under thermal treatment at 450 °C in the air atmosphere for 3 h to achieve the O_v-$NiMoO_4$ composites.

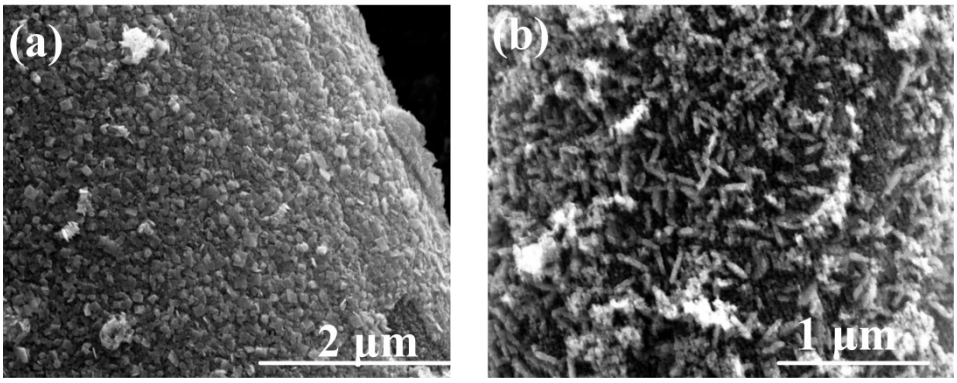

Fig. S1 (a, b) SEM images of $CoWO_4$@WO_3-2 and $CoWO_4$@WO_3-12 composites, respectively.

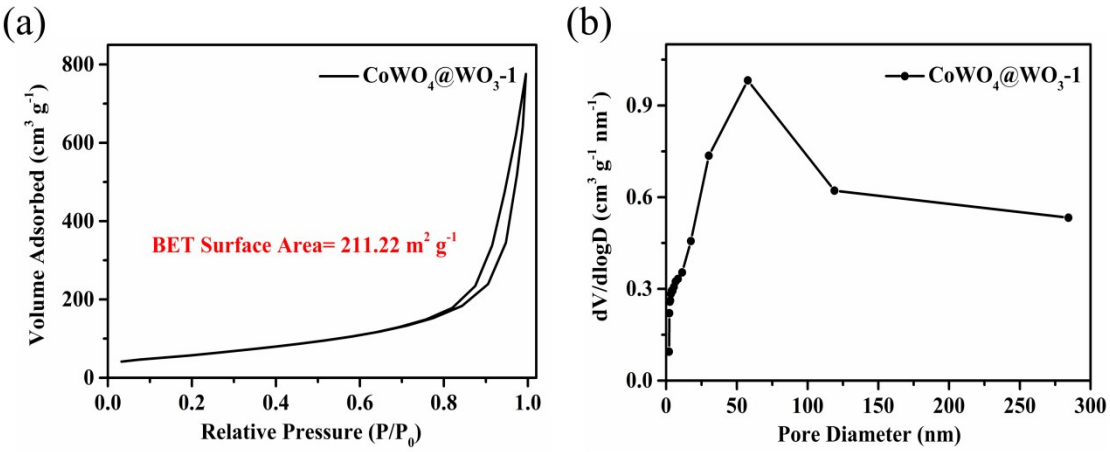

Fig. S2. (a, b) N_2 adsorption-desorption isotherms and pore-size distribution of $CoWO_4$@WO_3-1, respectively.

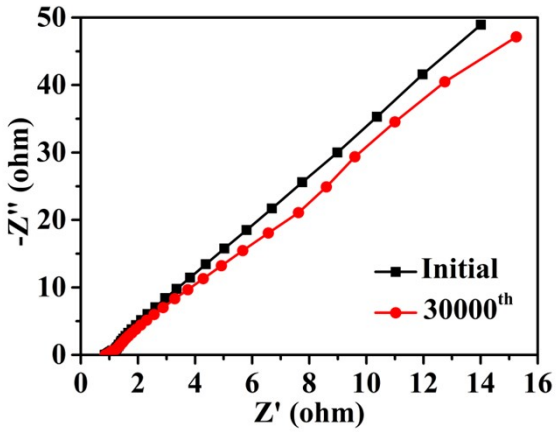

Fig. S3 (a, b) Nyquist plots over 30000 cycles of $CoWO_4$@WO_3-1 electrode.

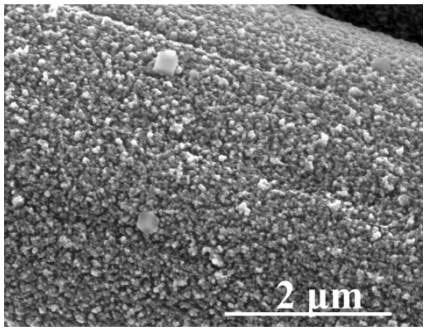

Fig. S4 The SEM image of $CoWO_4$@WO_3-1 electrode over 30000 cycles .

Fig. S5 The Led powered by two $CoWO_4$@WO_3-1//O_v-$NiMoO_4$ ASCs devices in series.