

# Supplementary Information

## Construction of microporous zincophilic interface for stable Zn anode

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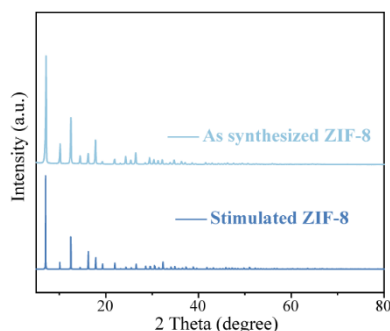
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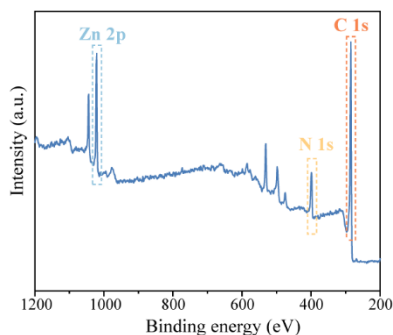
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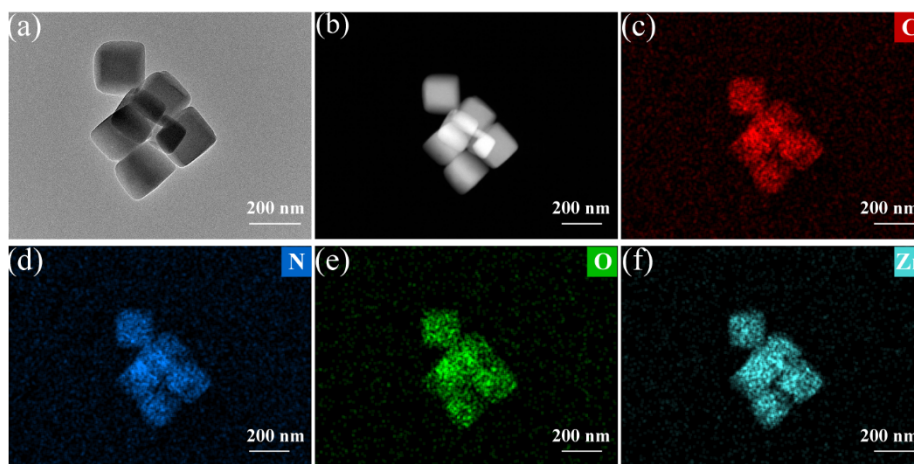
\* Correspondence: kexinyao@cqu.edu.cn



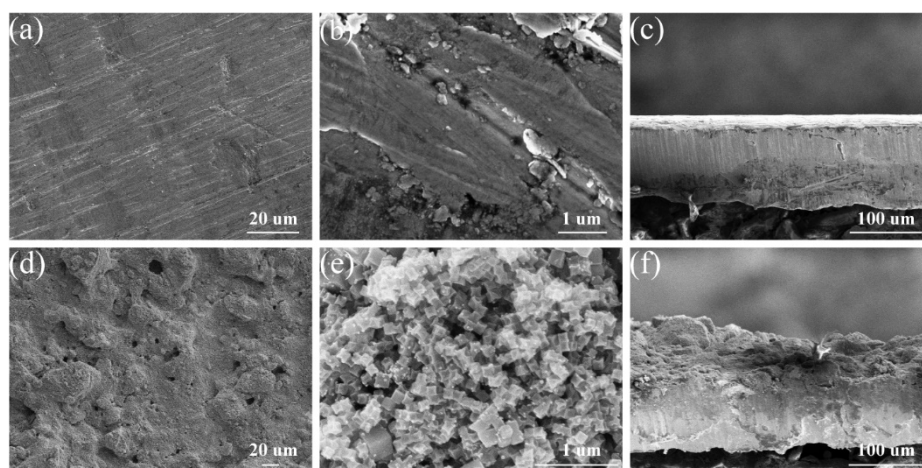
**Figure S1.** The XRD pattern of ZIF-8



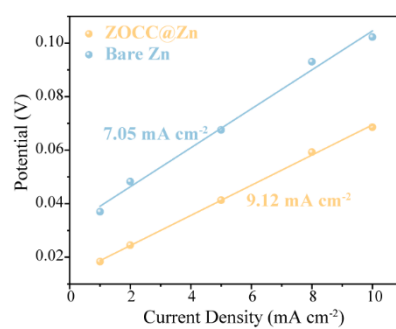
**Figure S2.** The wide-scan XPS spectrum of ZOCC



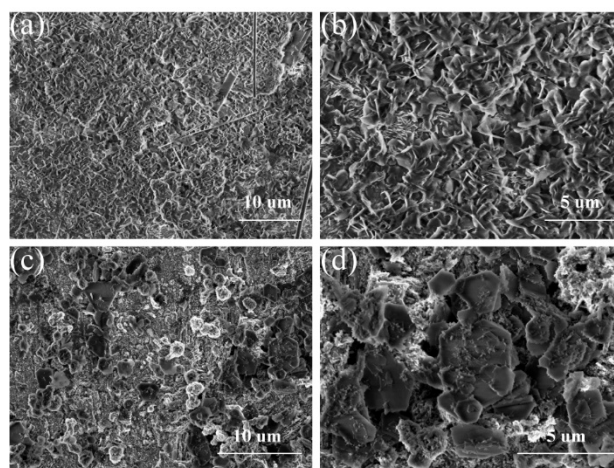
**Figure S3.** (a) TEM image of ZIF-8; (b) HAADF-STEM image of ZIF-8; Corresponding elemental mapping of (c) C; (d) N; (e) O; (f) Zn



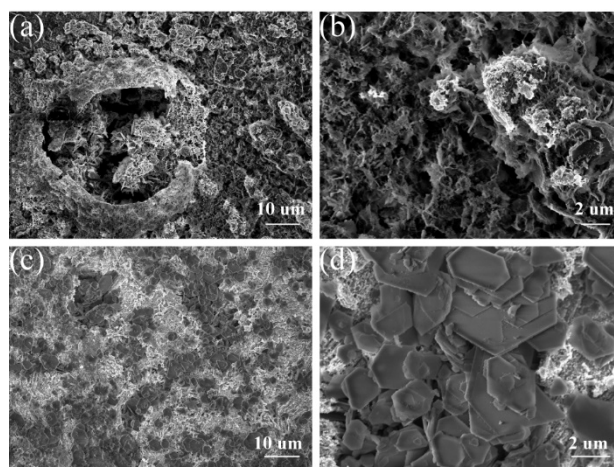
**Figure S4.** The surface morphology of bare Zn (a-b) and ZOCC@Zn (d-e) at different magnifications; The cross-sectional SEM images of bare Zn (c) and ZOCC@Zn (f)



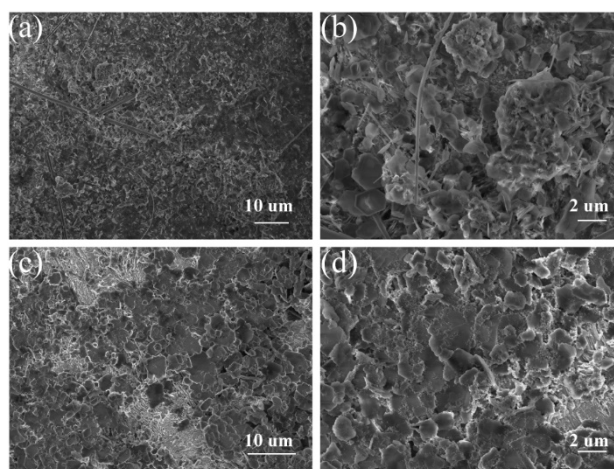
**Figure S5.** Exchange current density plot



**Figure S6.** Surface morphology of bare Zn (a-b) and ZOCC@Zn (c-d) electrodes after 15 cycles at a current density of  $0.5 \text{ mA cm}^{-2}$  and a capacity of  $0.25 \text{ mA h cm}^{-2}$ , respectively

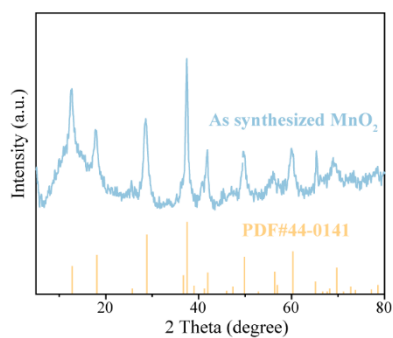


**Figure S7.** Surface morphology of bare Zn (a-b) and ZOCC@Zn (c-d) electrodes after 15 cycles at a current density of  $1 \text{ mA cm}^{-2}$  and a capacity of  $1 \text{ mA h cm}^{-2}$ , respectively

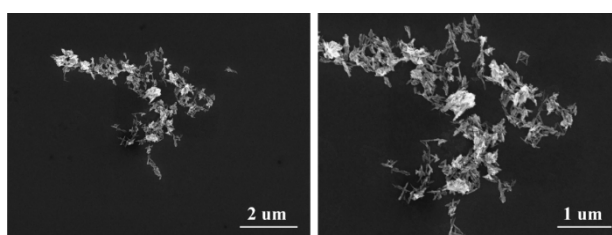


**Figure S8.** Surface morphology of bare Zn (a-b) and ZOCC@Zn (c-d) electrodes after 15 cycles at a

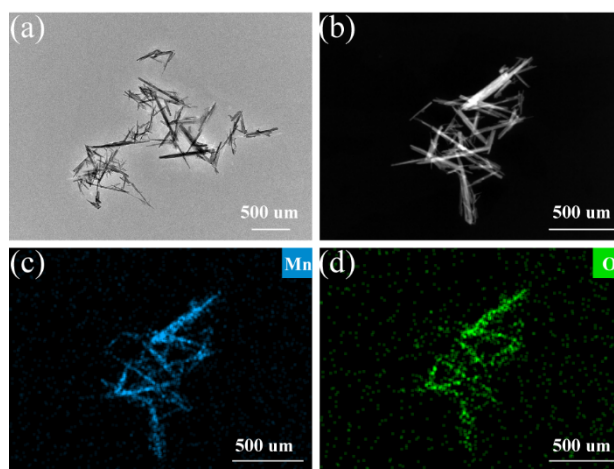
current density of  $5 \text{ mA cm}^{-2}$  and a capacity of  $1 \text{ mA h cm}^{-2}$ , respectively



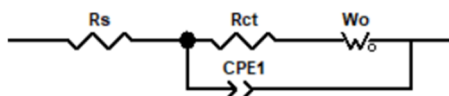
**Figure S9.** The XRD pattern of  $\alpha\text{-MnO}_2$



**Figure S10.** SEM pattern of  $\alpha\text{-MnO}_2$  at different magnifications



**Figure S11.** (a) TEM image of  $\alpha\text{-MnO}_2$ ; (b) HAADF-STEM image of  $\alpha\text{-MnO}_2$ ; Corresponding elemental mapping of (c) Mn and (d) O



**Figure S12.** The equivalent circuit used for fitting the experimental EIS data