

Supporting Information

NiCo₂O₄ Nanoarray on CNT Sponge: a Bifunctional Oxygen Electrode Material for Rechargeable Zn-Air Battery

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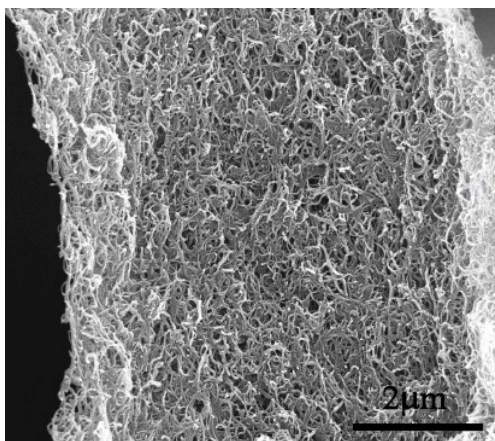


Figure S1. High resolution FESEM image of the CNT incorporated melamine sponge (CS).

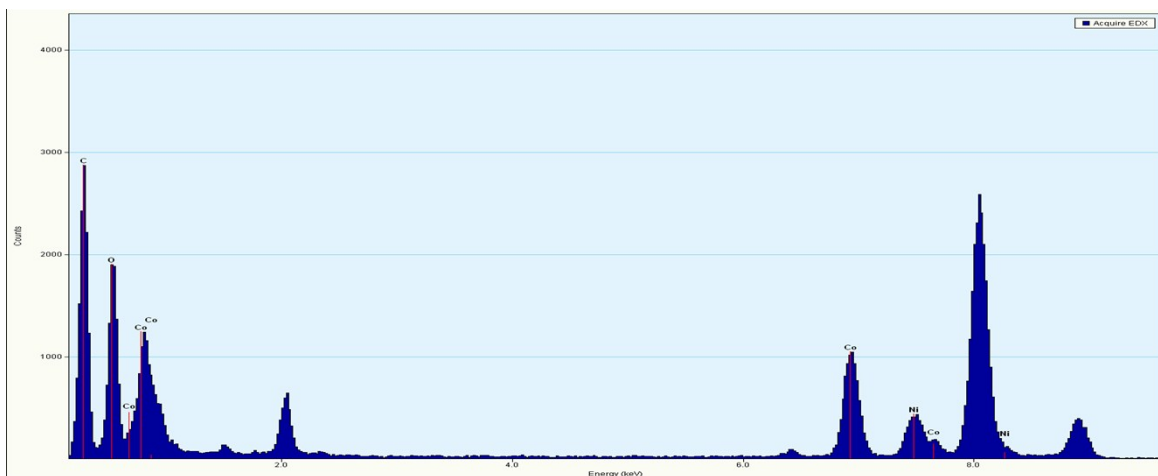


Figure S2. EDAX analysis of NCS.

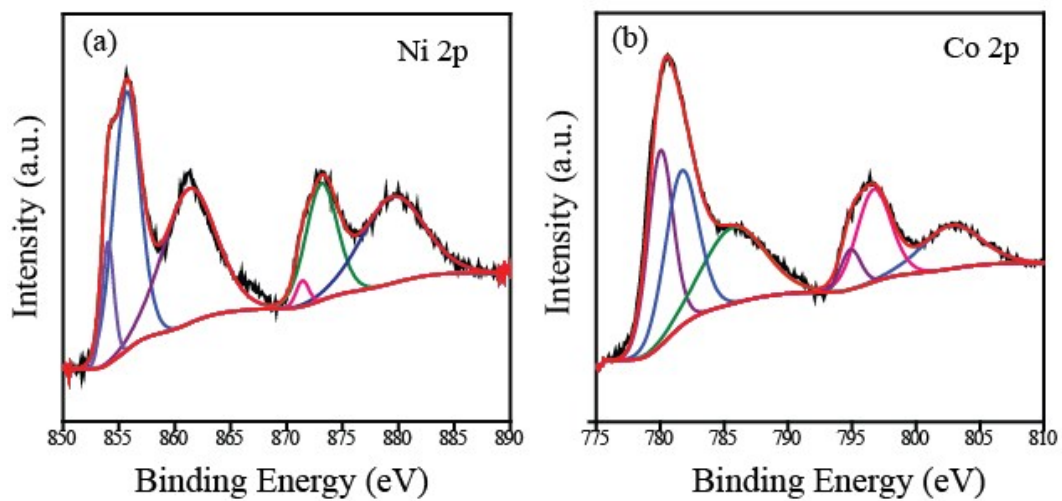


Figure S3. Ni 2p (a) and Co 2p (b) XPS spectra of NMS.

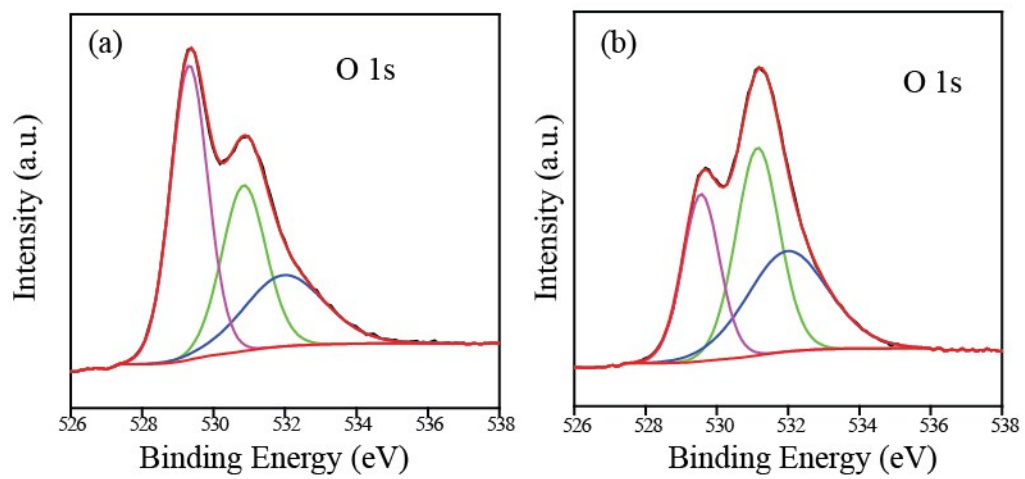


Figure S4. O 1s XPS spectra of (a) NCS and (b) NMS.

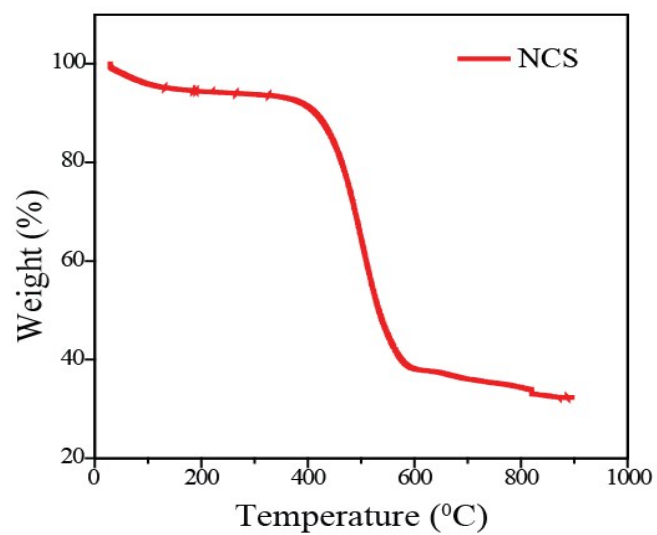


Figure S5. TGA profile of NCS in O₂ atmosphere.

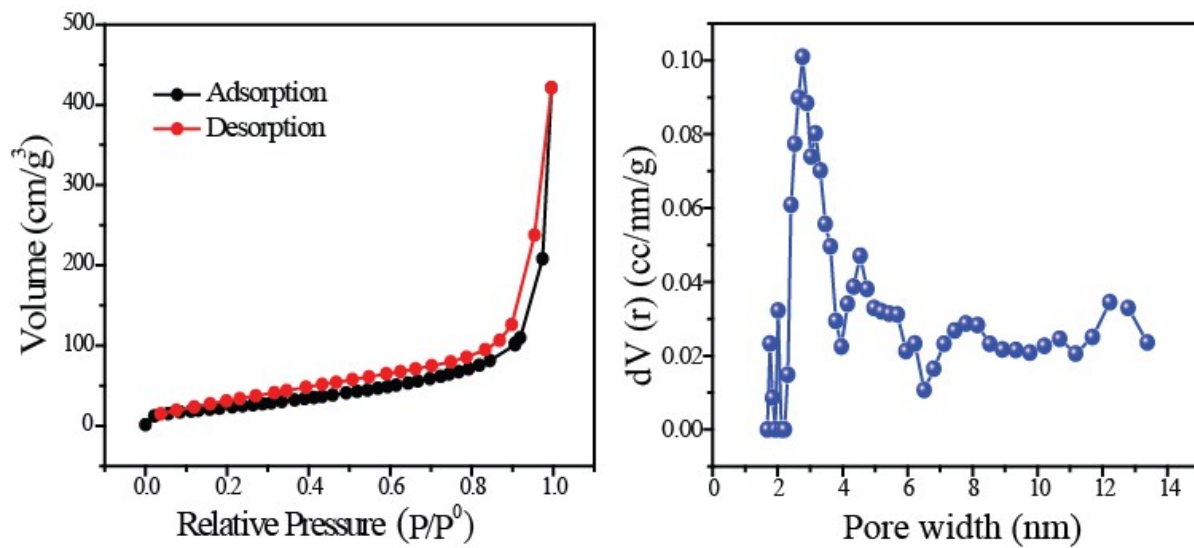


Figure S6. BET adsorption isotherm and pore size distribution profile of NCS.

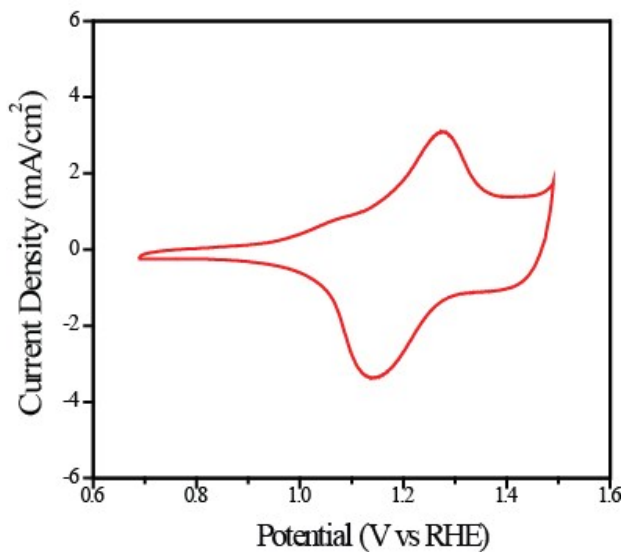


Figure S7. Cyclic voltammogram of NCS in N₂-saturated 1 M KOH.

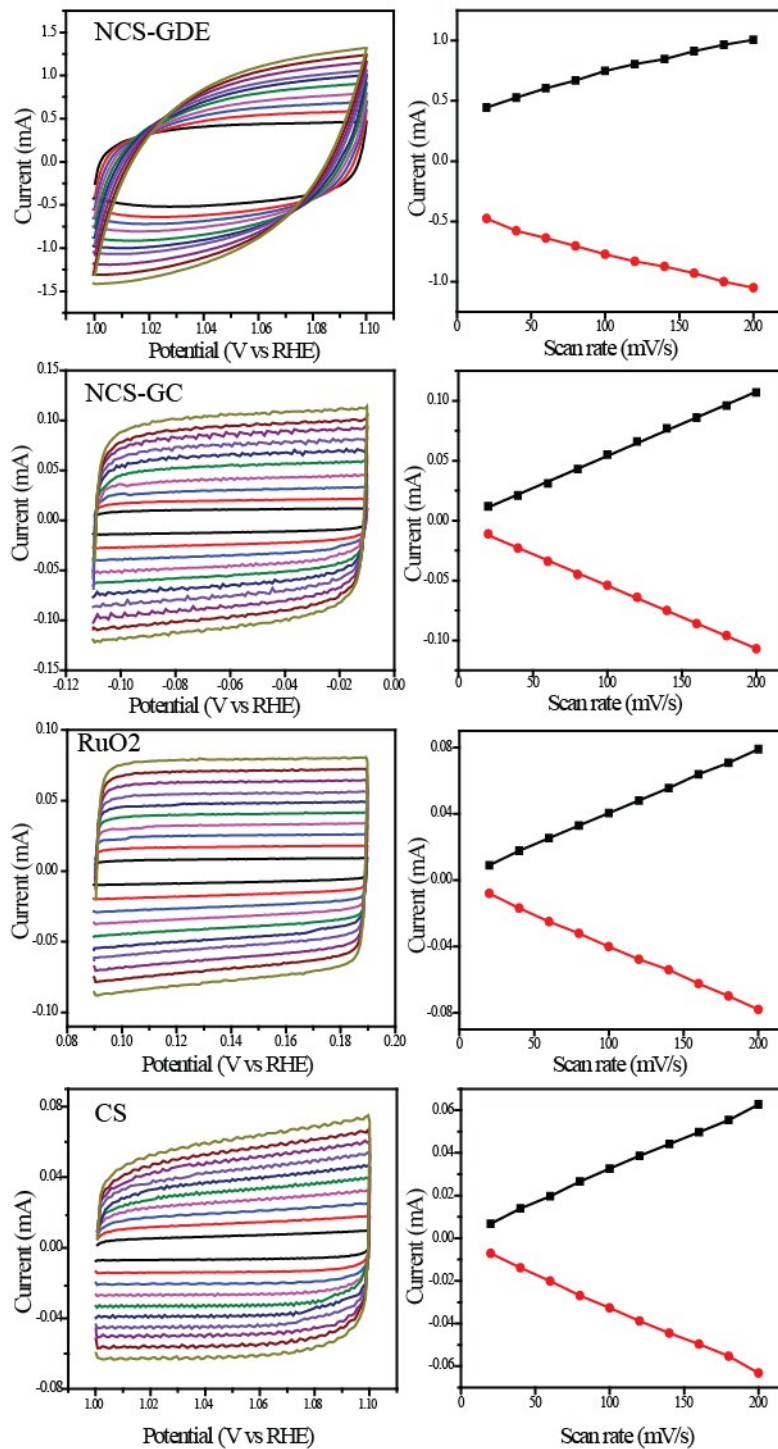


Figure S8. Electroactive surface area calculation through double layer method.

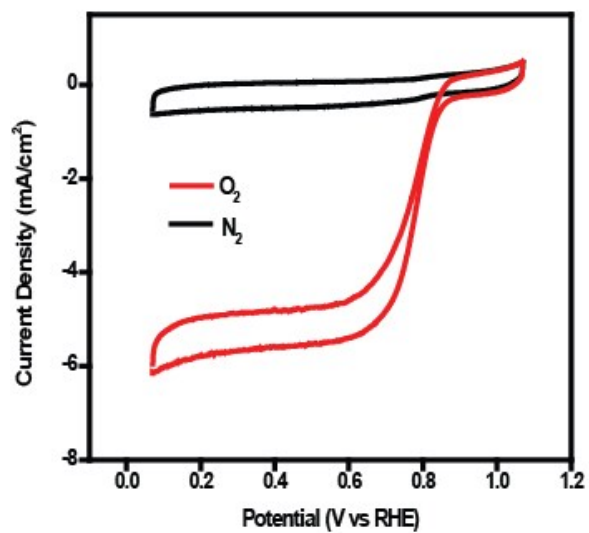


Figure S9. Cyclic voltammogram of NCS in O₂- and N₂-saturated 0.1 M KOH.

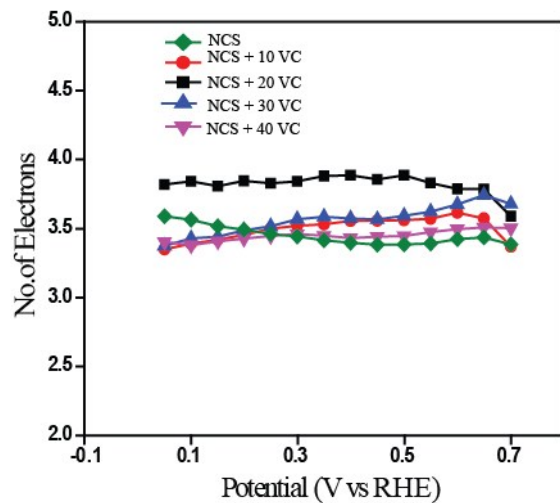


Figure S10. The number of electron transfer of oxygen reduction reaction calculated as a function of the electrode potential from RRDE.

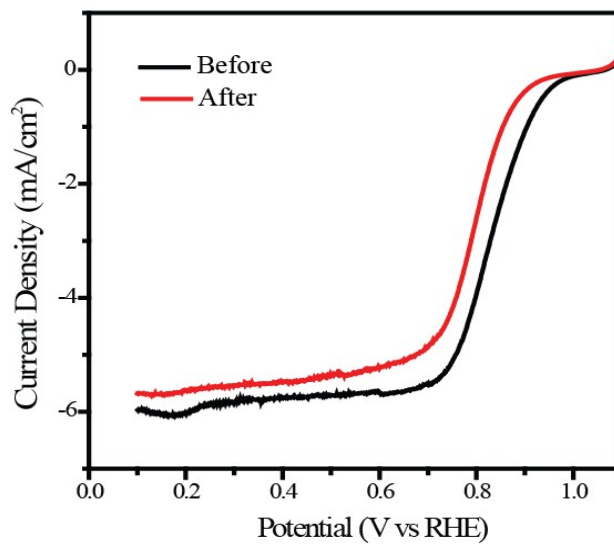


Figure S11. LSVs of Pt/C catalyst recorded in 0.1M KOH at an electrode rotation speed of 1600 rpm before and after ADT.

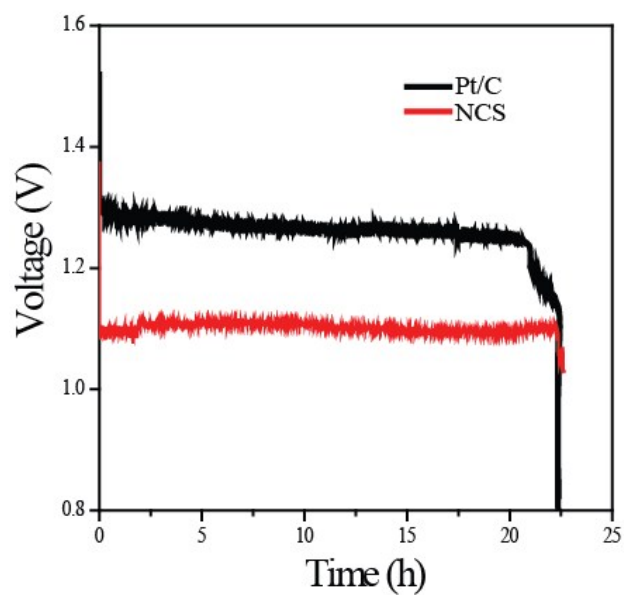


Figure S12. Galvanostatic discharge curves of Zn-air batteries with NCS and Pt/C as the cathodes until complete consumption of Zn anode.

$$\text{Faradaic Efficiency } (\varepsilon) = \frac{2 * I r}{I d * N} \quad (\text{S1})$$