

Electronic supplementary information

Fig. S1 (a) Part of the XRD pattern of ZNC NFs and corresponding standard JCPDS cards, (b) the enlarged pattern of the region marked by black rectangle in (a).



Fig. S2 EDS analysis of ZNC NFs and the corresponding atomic percentages of Zn, Ni and Co. The samples were dispersed on Si substrates and gold-sprayed prior to FESEM and EDS measurements, thus Si and Au were also detected as shown in Fig. S2.



Fig. S3 (a) Low and (b) high magnification FESEM images of ZN NFs



Fig. S4 TEM image of a single ZnO-NiO@Co $_3O_4$ nanoflake, which is used to measure the average particle size of ZnO and NiO.



Fig. S5 Cycling performance of ZNC NFs at 1 A g $^{\text{-}1}$.