Facile fabrication of hierarchical ZnCo$_2$O$_4$/NiO core/shell nanowire arrays with improved lithium-ion battery performance

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**Fig. S1** SEM images with low and high magnifications of the precursor ZCO NWs grown on the Ni foam before annealing treatment, demonstrating the uniform growth of the array on a large scale.
**Fig. S2** Side-view SEM image of the ZCO/NiO NWs. It is shown that the ZCO/NiO NWs are rigid and well separated, with inter-NWs spacing of micrometer scale, from which the length of NWs is about 7.0 µm.
**Fig. S3** SEM images of the ZCO/NiO NWs obtained after CBD for different times, showing the morphology evolution of the core/shell nanowire arrays: (a) 10 min, (b) 20 min, (c) 35 min, and (d) 60 min.
Fig. S4 The EDX spectrum of ZCO/NiO NWs.
Fig. S5 Raman spectrum of ZCO/NiO NWs.
Fig. S6 XRD patterns of the pristine ZCO NWs (a) and ZCO/NiO NWs (b) grown on the Ni foam substrate.
Fig. S7 Nitrogen adsorption/desorption isotherm and pore-size distribution of the ZCO/NiO NWs (a) and ZCO NWs (b) electrodes which were scraped from the Ni foam.
Fig. S8 (a) The first three CV curves of ZCO NWs electrode at a scanning rate of 0.5 mV s$^{-1}$. (b) Nyquist plots of ZCO NWs and ZCO/NiO NWs after the first cycle.