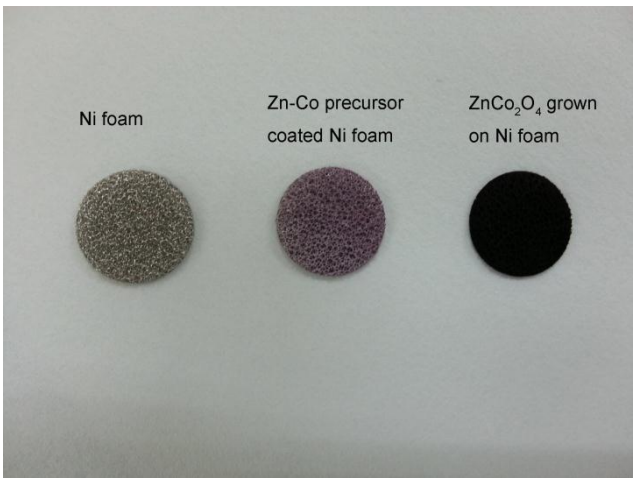


Fig. S1 Optical images of the Ni foam, as-prepared precursor coated Ni foam, Ni foam after $ZnCo_2O_4$ growth.

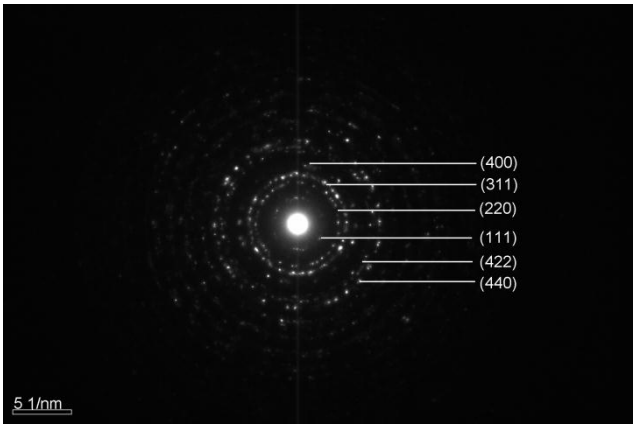


Fig. S2 SAED pattern of the $ZnCo_2O_4$ nanowires.

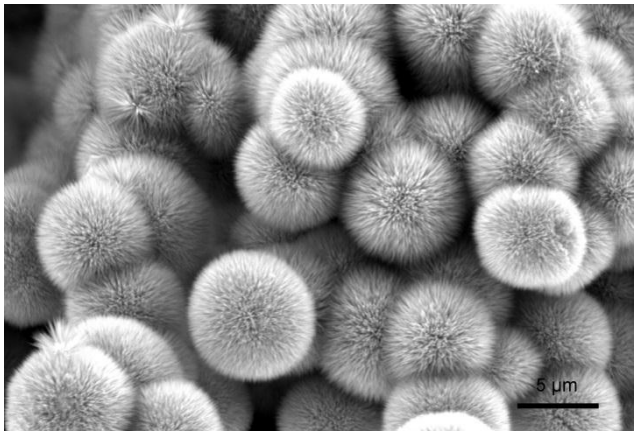


Fig. S3 Dandelion-like $NiCo_2O_4$ structures.

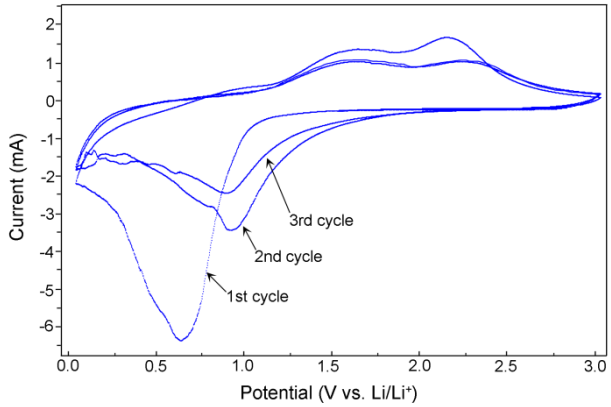


Fig. S4 The first three cyclic voltammograms of the $ZnCo_2O_4$ structure measured at a scan rate of 0.1 mV $s^{-1}$ in the voltage range of 0.01–3 V.

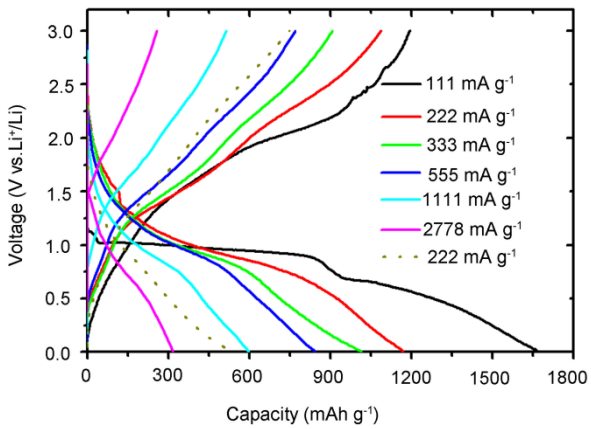


Fig. S5 Representative galvanostatic discharge-charge voltage profiles at various current densities in the voltage range of 0.01-3 V.

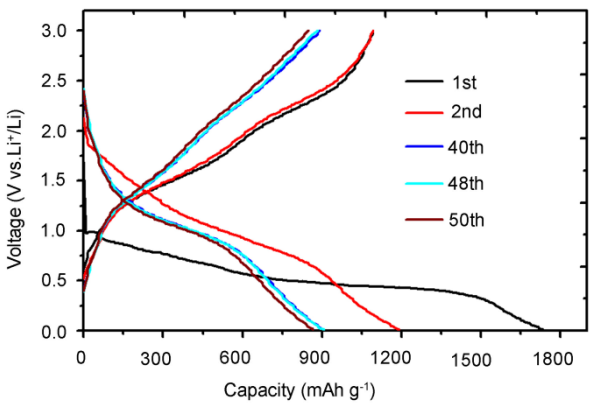


Fig. S6 Typical galvanostatic discharge-charge voltage profiles for the first, second, 40th, 48th and 50th at a current density of 416 mA $g^{-1}$ in the voltage range of 0.01-3 V.

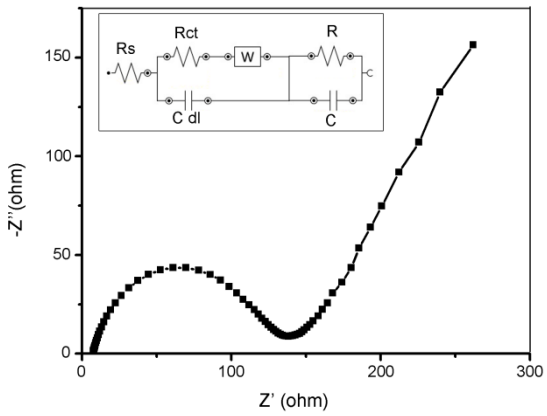


Fig. S7 Nyquist plot of the LZCO/Ni electrode (the inset is the equivalent electrical circuit model for the impedance analysis).