

Supercapattery and Full Cell Lithium-ion Battery Performances of [Ni(Schiff base)]-derived Ni/NiO/Nitrogen-doped Carbon Heterostructure

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Supplementary data

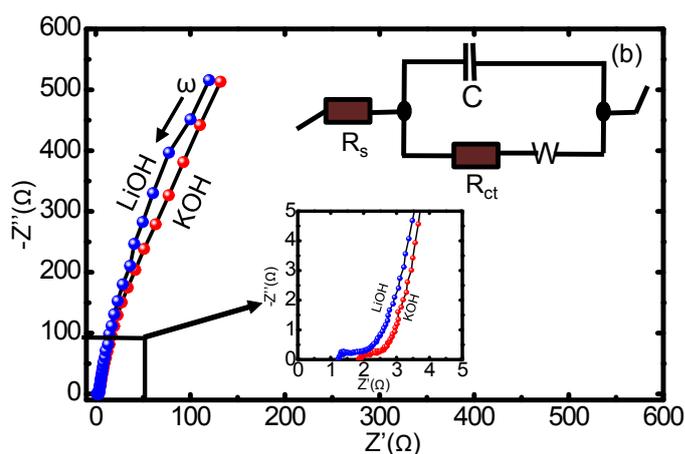


Fig. S1 Nyquist plots obtained for the Ni/NiO/NC electrode in KOH and LiOH electrolytes.

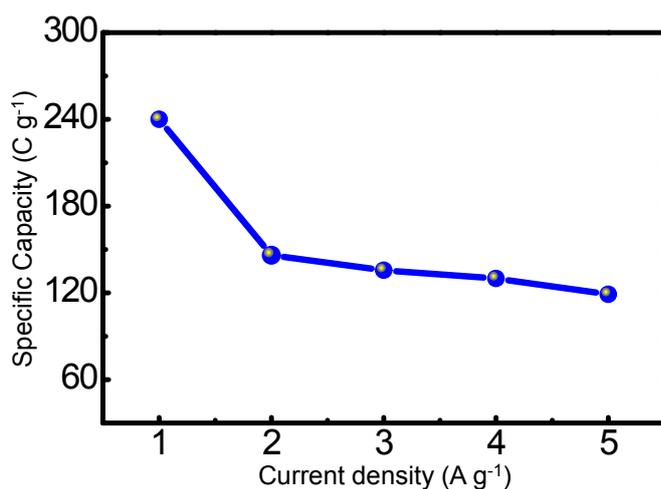


Fig. S2 Dependence of specific capacity on the current density of the supercapattery device (Ni/NiO/NC | LiOH | rGO).

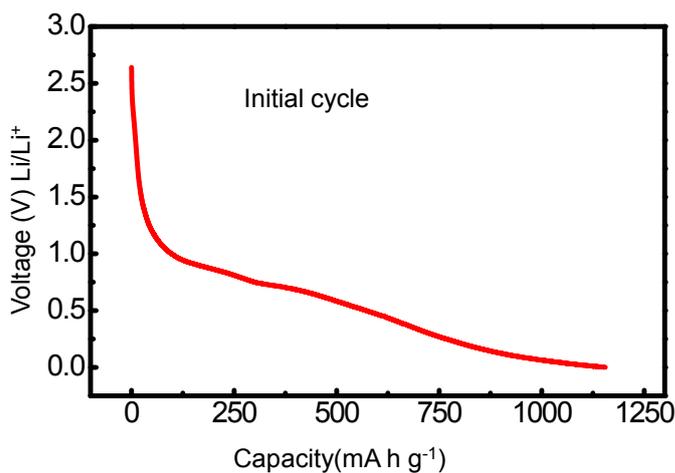


Fig. S3 Initial discharge curve recorded for the CR-2032 coin cell consisting of the Ni/NiO/NC nanocomposite as anode and lithium metal as counter electrode at 0.2C-rate.

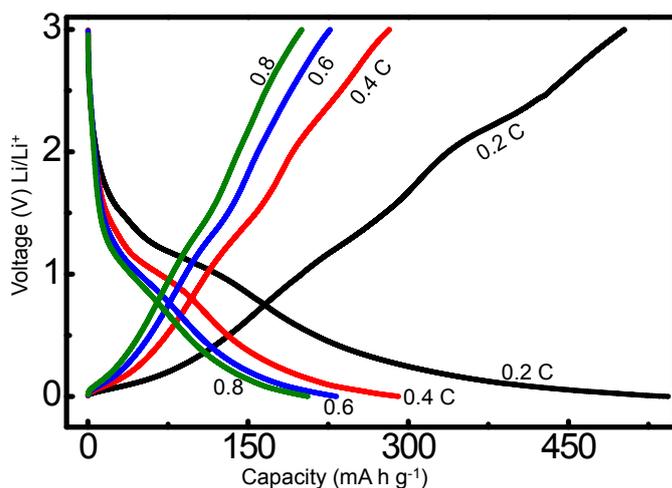


Fig. S4 Charge-discharge curves at different current rates for particular cycles.

To further investigate the performance of the (Ni/NiO/NC) electrodes, the rate capability has been evaluated. Fig. S3 shows the charge–discharge voltage profiles recorded at various C rates. It can be seen that, as the rate increases, the discharge capacity decreases. At 0.2C-rate, the half-cell delivers discharge capacity of 600 mA h g⁻¹ and 550mA h g⁻¹ at first and second cycles, respectively. At 0.4C-rate, the capacity in the initial cycles was found to be nearly 300 mA h g⁻¹. It is seen that the charge-discharge profiles recorded at 1st and 2nd cycles are almost similar which imply stabilized conversion/re-conversion reactions. At higher C-rates (0.6 and

0.8 C-rates), the half-cell exhibits nearly similar discharge capacity, implying high reversibility and rate capability of the composite anode

Table S1. Fit values obtained from the Nyquist plots recorded for the Ni/NiO/NC in KOH and LiOH electrolytes.

Electrolyte	R_s (Ω)	R_{ct} (Ω)	C (F)	W (Ω s^{-1/2})
KOH	2.24	1.64	0.02297	195.5
LiOH	1.78	1.53	0.02253	202.5