

## Supporting Information for

### Hydrothermal Synthesis of Needle-Like Hyperbranched $\text{Ni}(\text{SO}_4)_{0.3}(\text{OH})_{1.4}$

#### Bundles and Their Morphology-Retentive Decompositions

#### to NiO for Lithium Storage

By

Wei Wen, Jin-Ming Wu, Lu-Lu Lai, Guo-Ping Ling and Min-Hua Cao

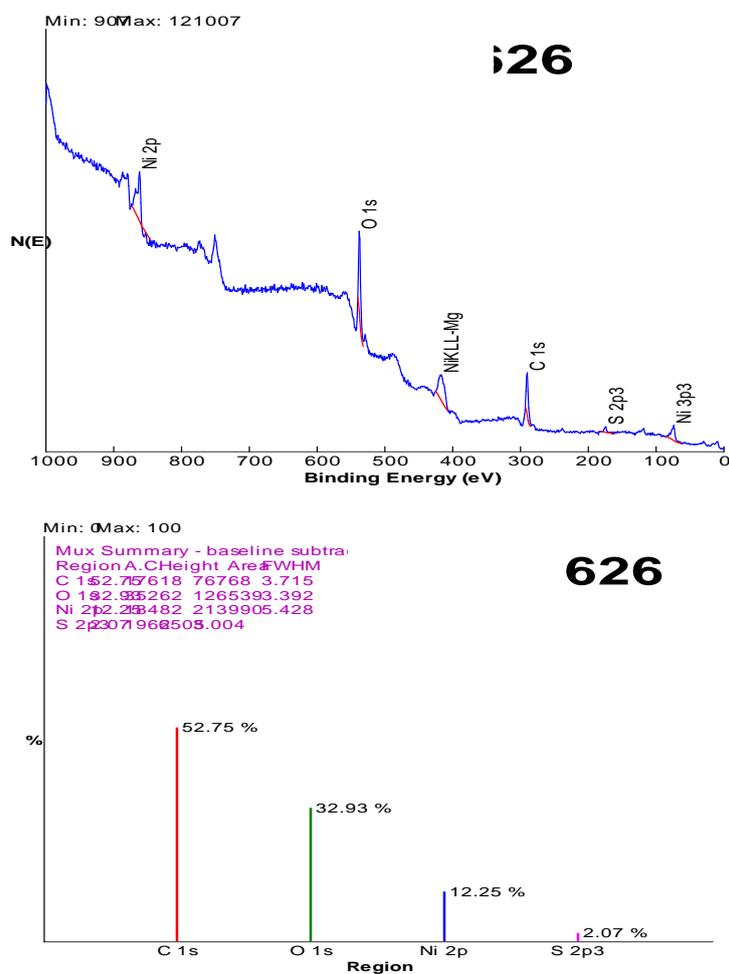
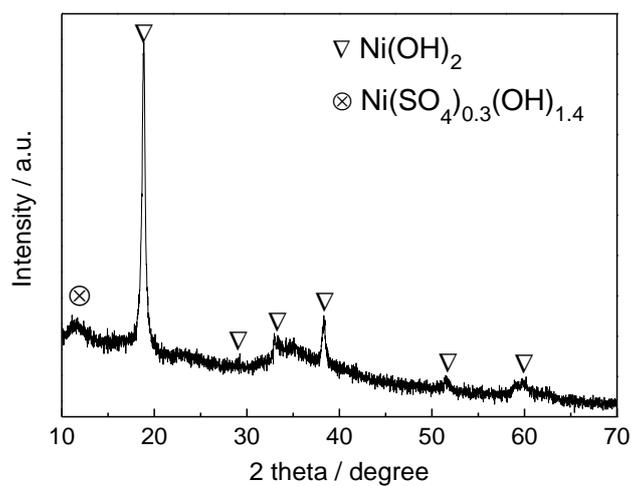
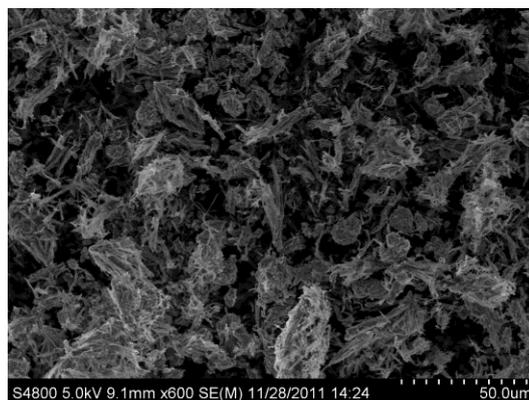


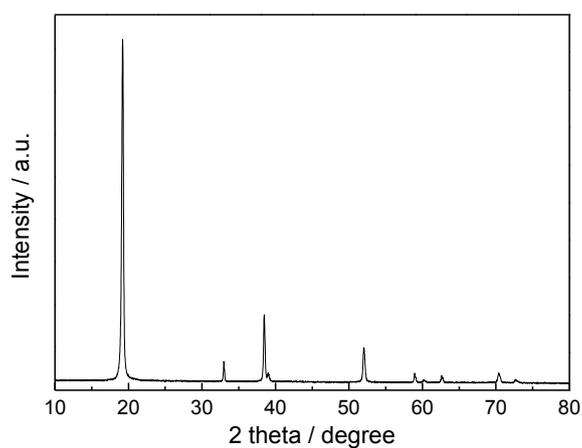
Fig. S1 XPS analysis result of the as-synthesized powder.



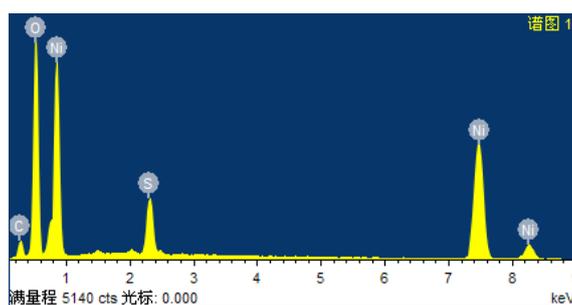
**Fig. S2** XRD pattern of the mixture of microspheres and nanoneedles derived from  $\text{NiCl}_2 \cdot 6\text{H}_2\text{O}$  (4.0 mmol),  $\text{Na}_2\text{SO}_4$  (1.2 mmol), and urea (4.0 mmol). Refer to Fig. 3e, f for the SEM morphology.



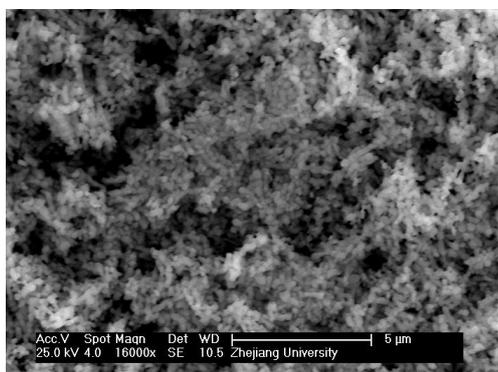
**Fig. S3** SEM image of the product derived from  $\text{NiCl}_2 \cdot 6\text{H}_2\text{O}$  (4.0 mmol),  $\text{Na}_2\text{SO}_4$  (2.4 mmol), and urea (4.0 mmol).



**Fig. S4** XRD pattern of the stacked nanoplates derived from hydrothermal decomposition of aqueous nickel acetate tetrahydrate. Refer to Fig. 4a for the SEM morphology.



**Fig. S5** EDS spectrum of the  $\text{Ni}(\text{SO}_4)_{0.3}(\text{OH})_{1.4}$  nanoneedle bundles annealed at 450 °C for 3 h in air.



**Fig. S6** SEM image of the  $\text{Ni}(\text{SO}_4)_{0.3}(\text{OH})_{1.4}$  nanoneedle bundles derived from nickel acetate and  $\text{Na}_2\text{SO}_4$ , followed by a subsequent calcination at 750 °C for 3 h in air.