

Electronic Supplementary Information

Facile synthesis of mesoporous $\text{Ni}_{0.3}\text{Co}_{2.7}\text{O}_4$ hierarchical structures for high-performance supercapacitors

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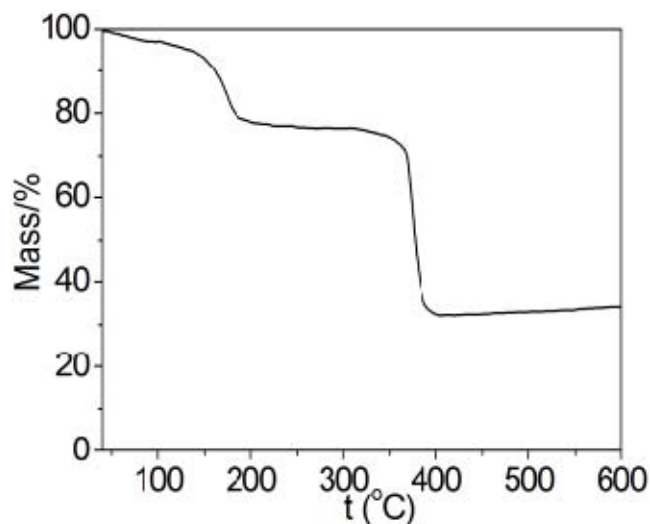


Fig. S1 TGA curve of the nickel cobalt oxalate precursor.

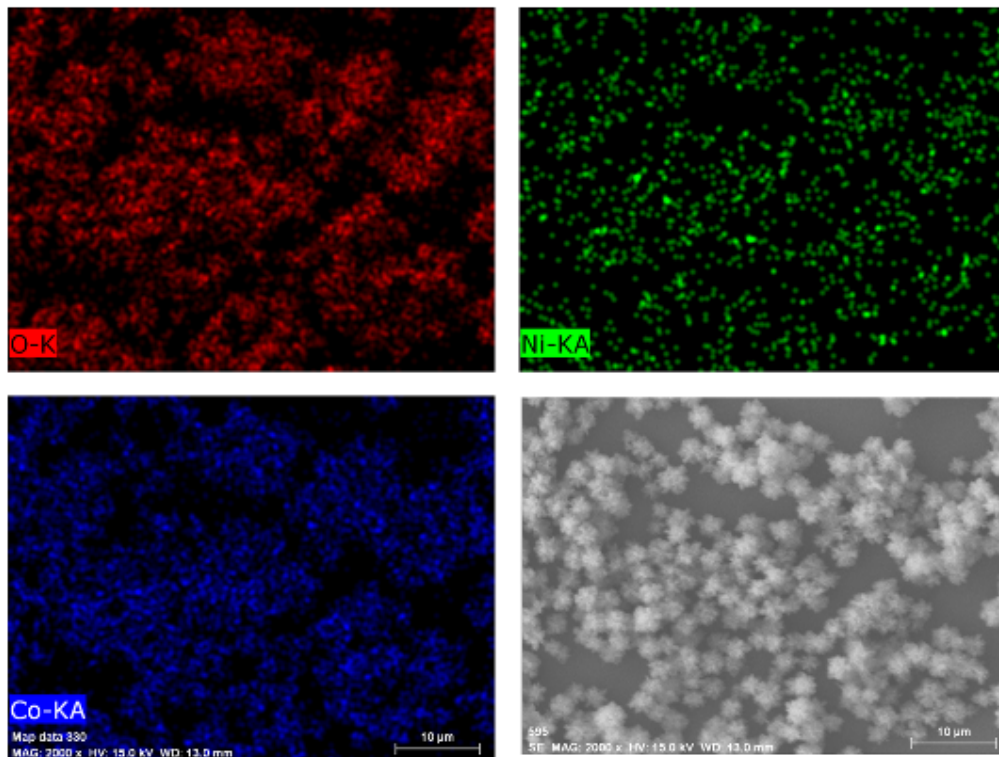
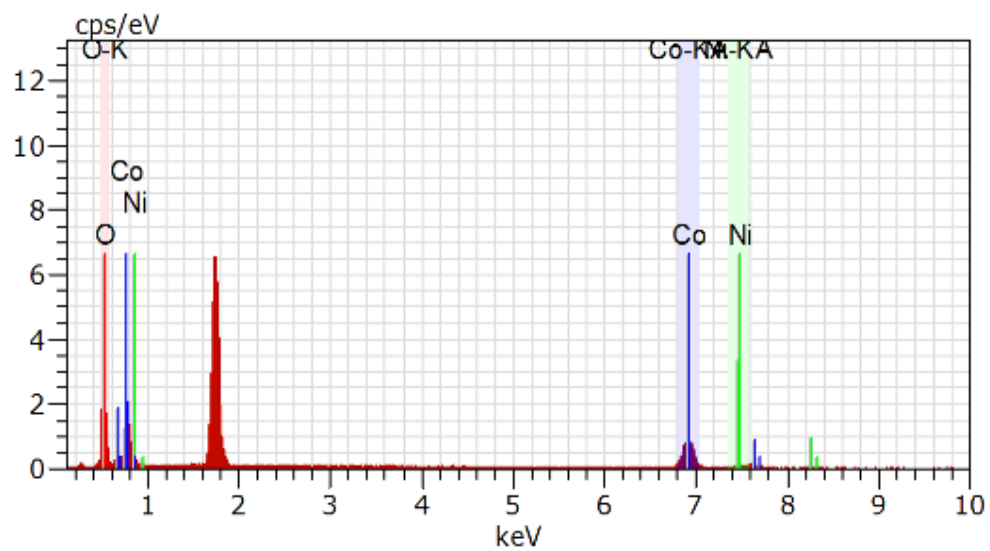


Fig. S2 EDS and elemental mapping of the sample P1.

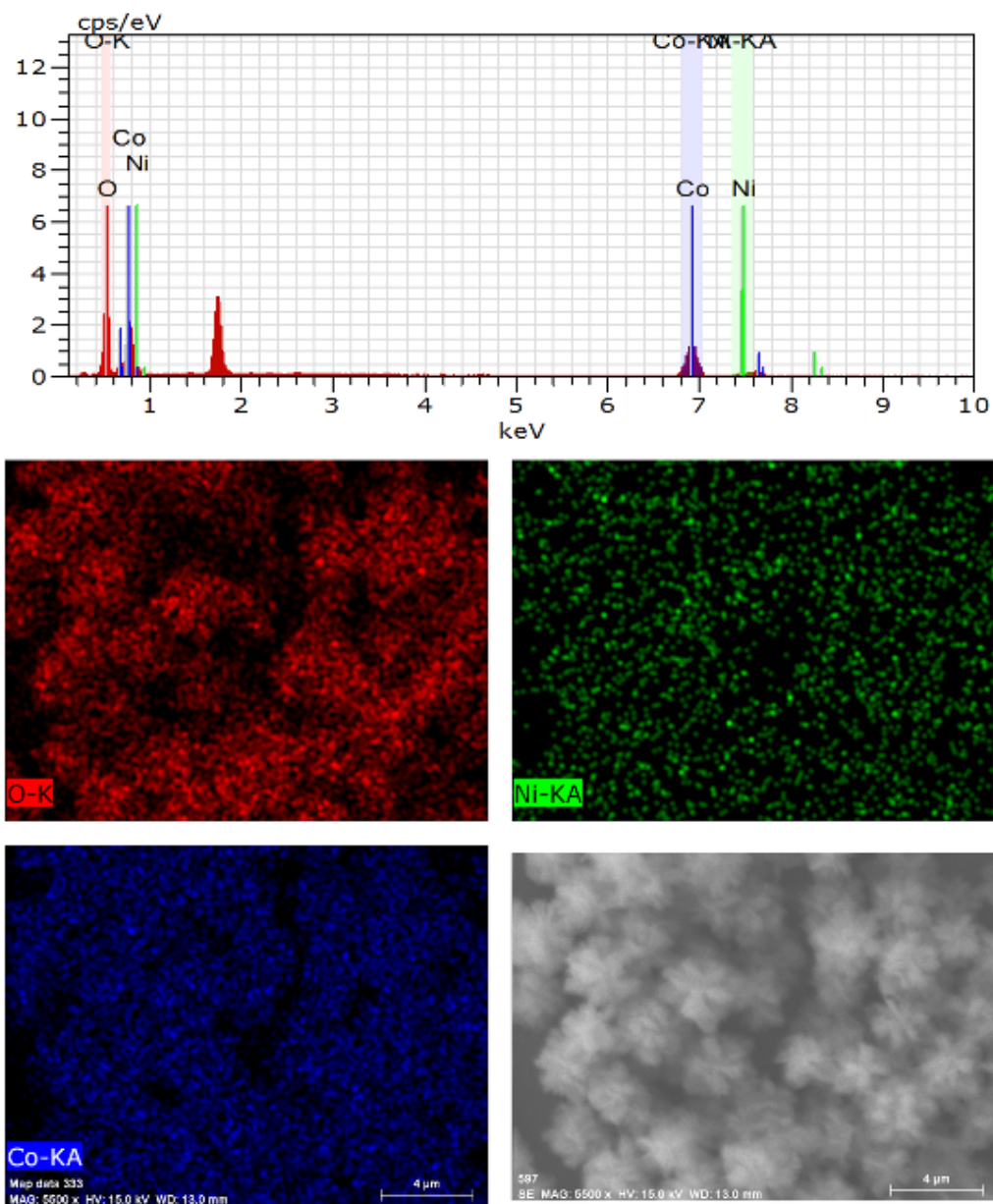


Fig. S3 EDS and elemental mapping of the sample P2.

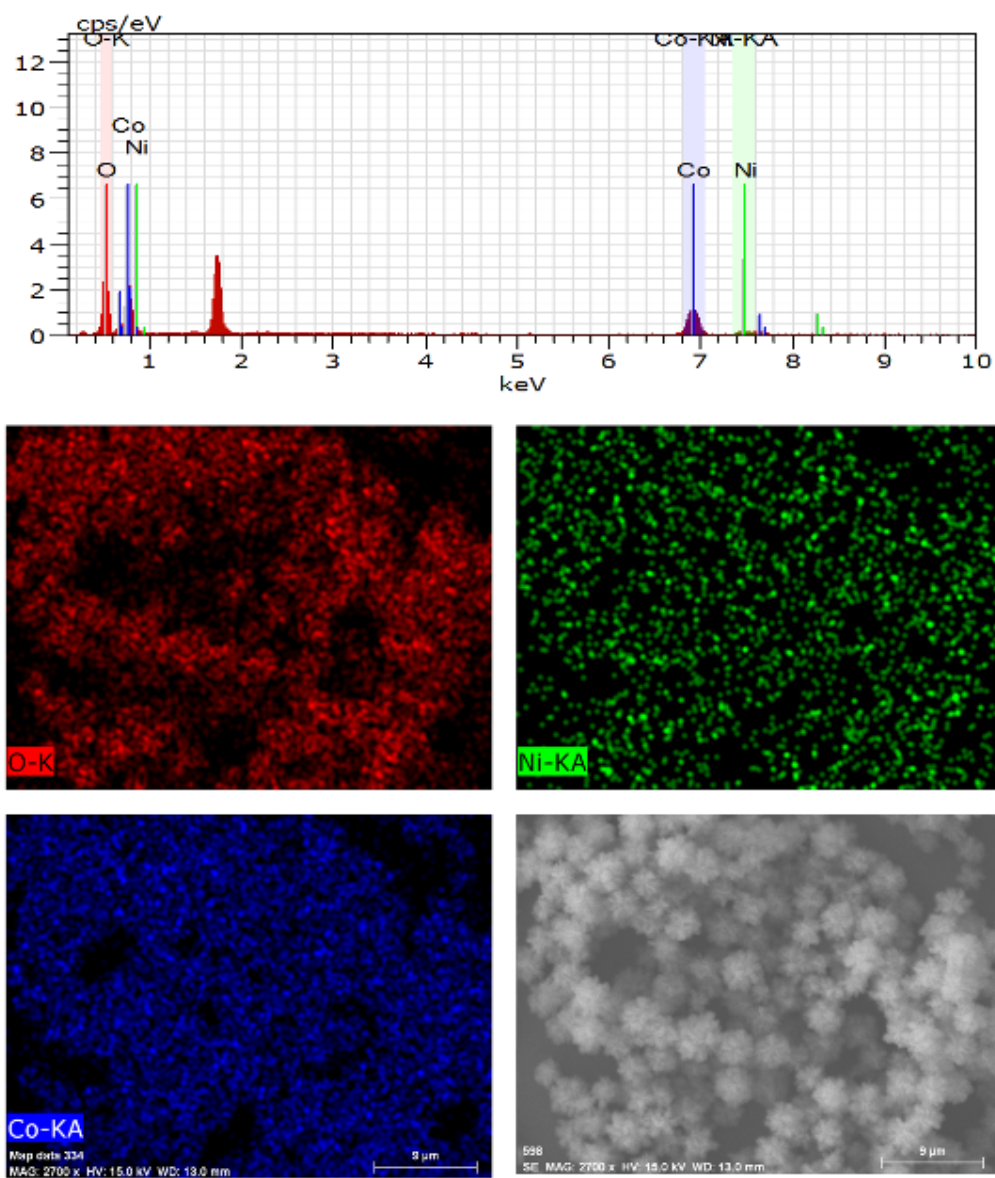


Fig. S4 EDS and elemental mapping of the sample P3.

Table S1. Quantitative analysis of Ni and Co contents by ICP-AES.

| Sample | Co % | Ni % | Co/Ni ratio |
|--------|------|------|-------------|
| P1 | 66.1 | 7.3 | 9.05 |
| P2 | 66.3 | 7.5 | 8.84 |
| P3 | 66.3 | 7.4 | 8.96 |

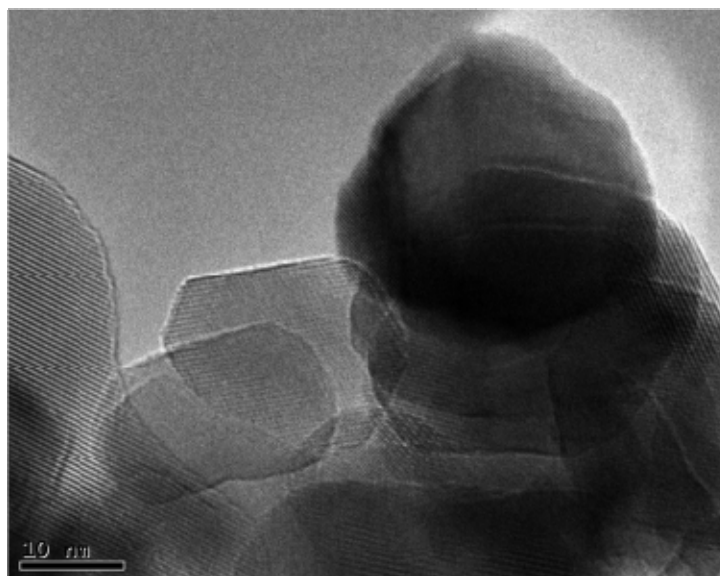


Fig. S5 HRTEM image of the sample P1.

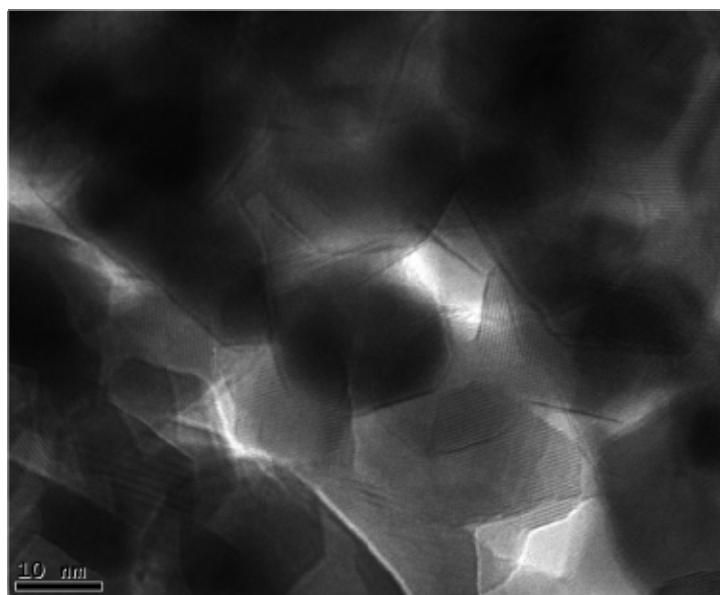


Fig. S6 HRTEM image of the sample P2.

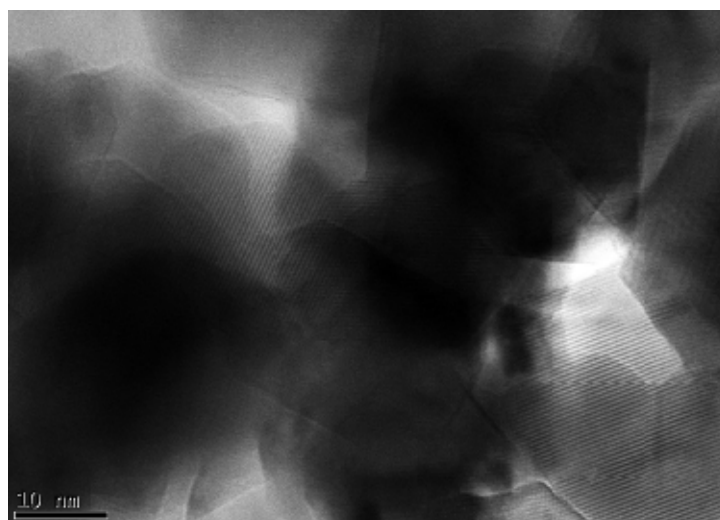


Fig. S7 HRTEM image of the sample P3.

Table S2. Comparison of electrochemical performance of mesoporous Ni_{0.3}Co_{2.7}O₄ hierarchical structures with some Co₃O₄ and NiCo₂O₄ materials from literature.

| Materials | Capacitance | Capacitance retention | Reference |
|---|---|--------------------------|-----------|
| Mesoporous Ni _{0.3} Co _{2.7} O ₄ hierarchical structures | 960 F g ⁻¹ @ 0.625 A g ⁻¹ | 98.1% after 3000 cycles | This work |
| | 805 F g ⁻¹ @ 6.25 A g ⁻¹ | | |
| Porous Co ₃ O ₄ nanowires | 260 F g ⁻¹ @ 2 A g ⁻¹ | 98% after 2000 cycles | Ref [1] |
| | 171 F g ⁻¹ @ 15 A g ⁻¹ | | |
| Ultralayered Co ₃ O ₄ | 604 F g ⁻¹ @ 4 A g ⁻¹ | 98.5% after 2000 cycles | Ref [2] |
| | 474 F g ⁻¹ @ 16 A g ⁻¹ | | |
| NiCo ₂ O ₄ nanosheets on carbon nanofibers | 1002 F g ⁻¹ @ 1 A g ⁻¹ | 92.75% after 2400 cycles | Ref [3] |
| | 675 F g ⁻¹ @ 10 A g ⁻¹ | | |
| Porous NiCo ₂ O ₄ nanowires | 743 F g ⁻¹ @ 1 A g ⁻¹ | 93.8% after 3000 cycles | Ref [4] |
| | 584 F g ⁻¹ @ 40 A g ⁻¹ | | |
| NiCo ₂ O ₄ nanowires | 760 F g ⁻¹ @ 1 A g ⁻¹ | 81% after 3000 cycles | Ref [5] |
| | 532 F g ⁻¹ @ 20 A g ⁻¹ | | |

Reference

- [1] B. Wang, T. Zhu, H. B. Wu, R. Xu, J. S. Chen, X. W. Lou, *Nanoscale*, 2012, **4**, 2145.
[2] S. K. Meher, G. R. Rao, *J. Phys. Chem. C*, 2011, **115**, 15646.
[3] G. Q. Zhang, X. W. Lou, *Sci. Rep.*, 2013, **3**, 1470.
[4] H. Jiang, J. Ma, C. Z. Li, *Chem. Commun.*, 2012, **48**, 4465.
[5] H. L. Wang, Q. M. Gao, L. Jiang, *Small*, 2011, **7**, 2454.