

Supporting Information

New Energy Storage Option: Toward ZnCo_2O_4 Nanorods/Nickel Foam Architectures for High-Performance Supercapacitors

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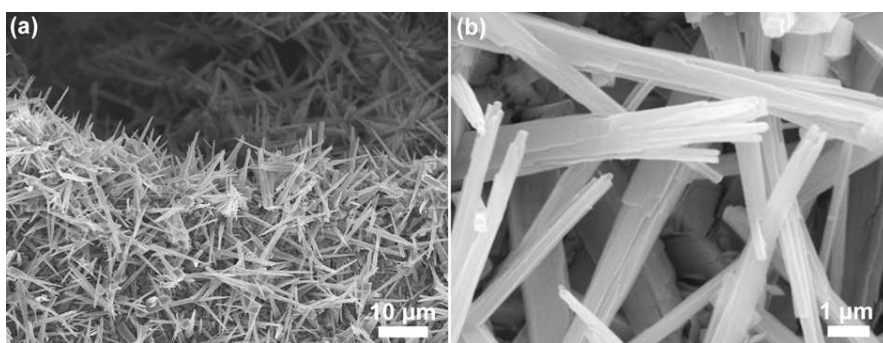


Figure S1. (a) Low- and (b) high-resolution SEM images of hierarchical ZnCo₂O₄ nanorods/nickel foam architectures.

Table S1. The corresponding EDS microanalysis for *Wt%* and *At%* of elements in the as-prepared sample, indicating that the molar ratio of Zn: Co: O is ~1: 2: 4 within it.

<i>Element</i>	<i>Wt%</i>	<i>At%</i>
<i>O K</i>	32.56	56.95
<i>Co K</i>	43.49	28.77
<i>Zn K</i>	23.95	14.28

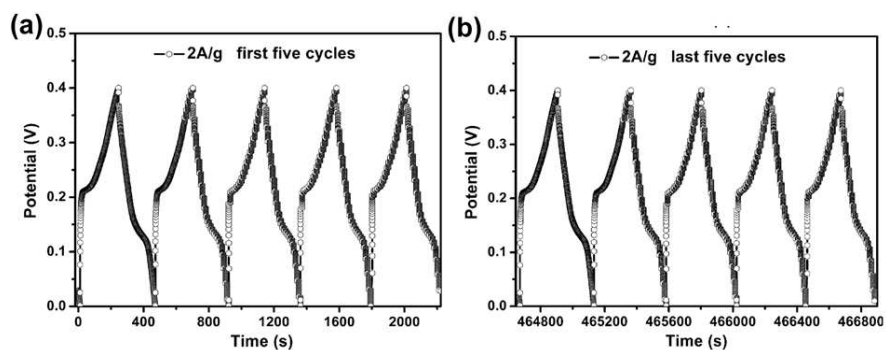


Figure S2. The charge–discharge curves of first (a) and last 5 cycles (b) at the current density of 2 A g⁻¹ for ZnCo₂O₄/nickel foam electrodes, showing their excellent cycling capability.

Table S2. A comparison of the desired performance between existing ZnCo₂O₄/nickel foam composite

electrodes and other reported ZnCo₂O₄-based electrodes for supercapacitors.

ZnCo ₂ O ₄ -based electrochemical systems	Three electrodes			Two electrodes			Ref
	Capacitance	Potential range	Cycling retention & stability	Capacitance	Potential range	Cycling retention & stability	
ZnCo ₂ O ₄ nanoparticle/CNF	-	-	-	77 F g ⁻¹	0-1.2 V	high	1
ZnCo ₂ O ₄ nanocrystals	568 F g ⁻¹	0.05-0.5 V	95 %, low	-	-	-	2
ZnCo ₂ O ₄ NWs arrays/carbon fibers	-	-	-	650 mF g ⁻¹	0-1.5 V	94 %, high	3
ZnCo ₂ O ₄ nanorods/nickel foam	1400 F g ⁻¹	0-0.4 V	97 %, high	39 F g ⁻¹	0-1.0 V	97 %, high	This work

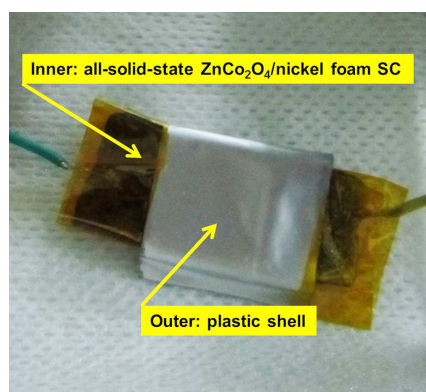


Figure S3. Optical image of the as-assembled all-solid-state ZnCo₂O₄/nickel foam devices.

References

(1) Karthikeyan, K.; Kalpana, D.; Renganathan, N. G. *Ionics* **2009**, *15*, 107-110.

(2) Davis, M.; Gumeci, C.; Black, B.; Korzeniewski, C.; Hope-Weeks, L. *RSC Adv.* **2012**, *2*, 2061-2066.

(3) Liu, B.; Tan, D. S.; Wang, X. F.; Chen, D.; Shen, G. Z. *Small* **2013**, *9*, 1998-2004.