Supporting Information

Prussian Blue Analogue Derived Hollow Metal Oxide Heterostructure for High-Performance Supercapacitor

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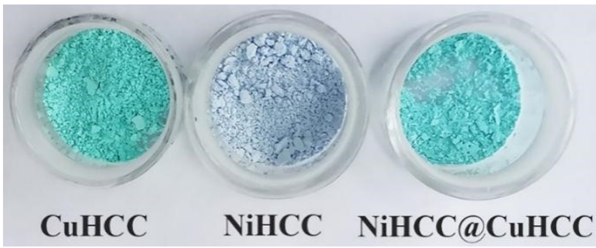

Figure S1 Photographs of CuHCC, NiHCC and NiHCC@CuHCC

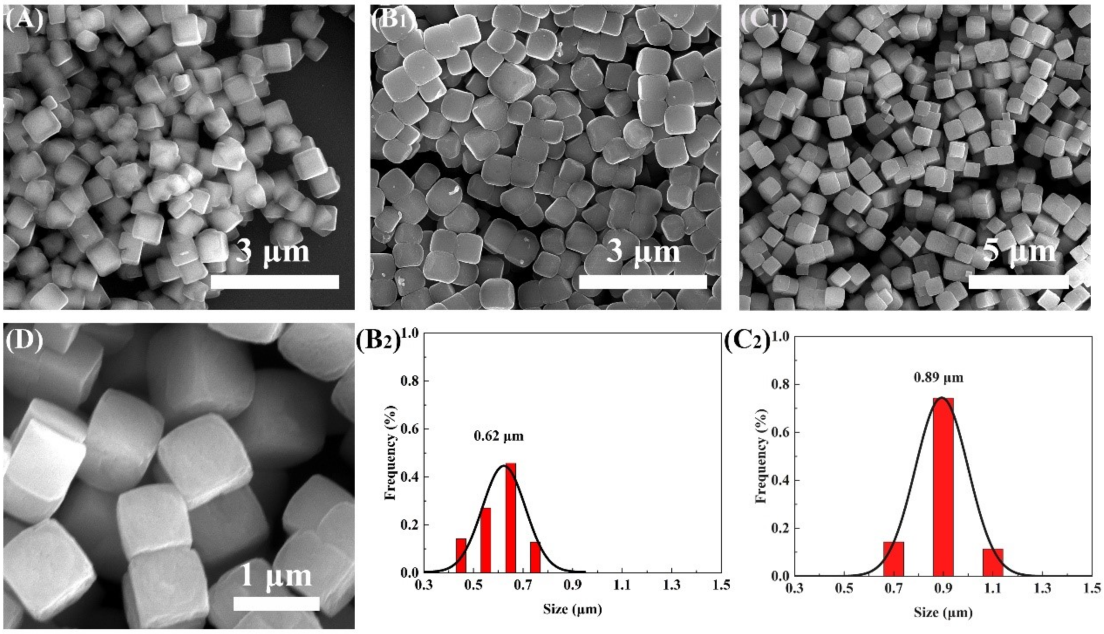

Figure S2 The FESEM images of (A) CuHCC, (B_1) NiHCC and (C_1, D) NiHCC@CuHCC, the size distribution of (B_2) NiHCC and (C_2) NiHCC@CuHCC

Table S1 Electrochemical performances of MOFs- derived metal oxides for SC electrodes

Material	Specific capacitance /(F g^{-1})	Rate performance/(%)	Cycling stability	Refs.
MnO_x	75.6 (0.1 A g^{-1})	23.8% (2 A g^{-1})	426% (500 cycles)	1
$g-C_3N_4/CeO_2/CoFe_2O_4$	255.5 (1 A g^{-1})	56.7%	—	2
WO_3@CuO	248.0 (1 A g^{-1})	58.8% (10 A g^{-1})	85.2% (1500 cycles)	3
Co_3O_4	115.0 (1 A g^{-1})	65.2% (10 A g^{-1})	62.6% (10,000 cycles)	4
Co_3O_4 microflowers	240.2 (0.625 A g^{-1})	84.1% (6.25 A g^{-1})	96.3% (5,000 cycles)	5
Cr_2O_3 nanoribbons	291 (0.25 A g^{-1})	35.4% (2 A g^{-1})	99.5% (3000 cycles)	6
Co_3O_4 nanocages	140.0 (10 A g^{-1})	49.5% (15 A g^{-1})	—	7
$Cuo/NiO/Co_3O_4$	262.5 (1 A g^{-1})	60.3% (10 A g^{-1})	107.9% (3000 cycles)	This work

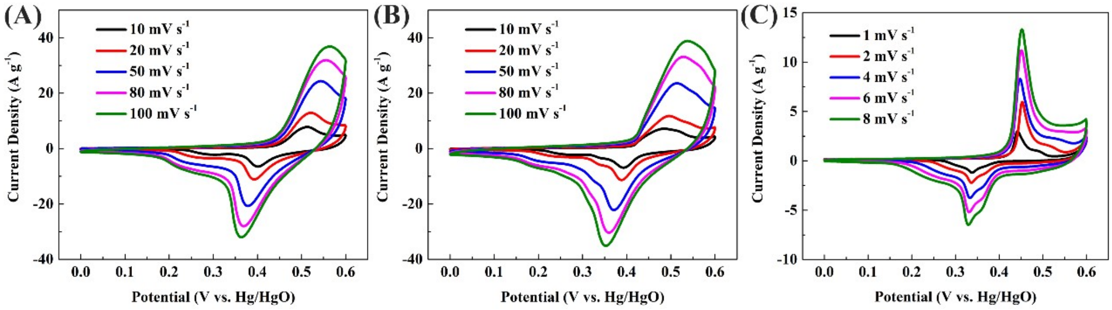

Figure S3 CV curves at various scan rates of 10-100 mV s^{-1} of (A) CuO/Co_3O_4 and (B) NiO/Co_3O_4. (C) CV curves at various scan rates of 1-8 mV s^{-1} of $CuO/NiO/Co_3O_4$

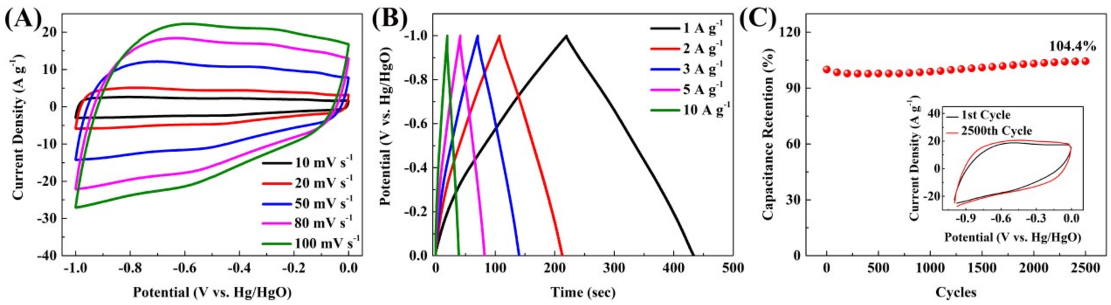

Figure S4 (A) CV curves of NDGH at various scan rates from 10 to 100 mV s^{-1}, (B) GCD curves of NDGH at different current densities of 1-10 A g^{-1}, (C) Cycling stability of NDGH (inset: CV curves of NDGH for the 1st and 2500th cycles)

Table S2 Electrochemical performances of reported ASCs

System	Specific capacitance/(F g^{-1})	Rate performance/(%)	Cycling stability	Refs.
CNF@Ni-CAT//AC	68.58 (0.5 A g^{-1})	65% (10 A g^{-1})	106.19% (5000 cycles)	8
MnO_2//AC	50 (0.25 A g^{-1})	—	90.4% (3000 cycles)	9
$Mn_{1.5}Co_{0.75}O$/NF//Graphene	69 (0.5 A g^{-1})	59.9% (10 A g^{-1})	86% (10000 cycles)	10
cP/rGO/Co_9S_8//AC	55 (0.5 A g^{-1})	—	94.2% (10000 cycles)	11
$ZnCo_2O_4$//Nanoporous Carbon	94.4 (0.5 A g^{-1})	—	87.2% (5000 cycles)	12
IL-CNT-rGO//MnO_2-rGO	57 (1 A g^{-1})	70% (20 A g^{-1})	90% (10000 cycles)	13
Ni-MOF/CNTs-5//rGO/C_3N_4-3	103 (0.5 A g^{-1})	45% (20 A g^{-1})	95% (5000 cycles)	14
NCMO//NC	76.3 (1 A g^{-1})	69.3% (10 A g^{-1})	92.6% (10000 cycles)	15
MnO_2/rGO//rGO	59.6 (1 A g^{-1})	86.9% (8 A g^{-1})	89.4% (1000 cycles)	16
$CuO/NiO/Co_3O_4$//NDGH	76.3 (1 A g^{-1})	60.9% (10 A g^{-1})	100.7%	This

(4000 cycles)	work

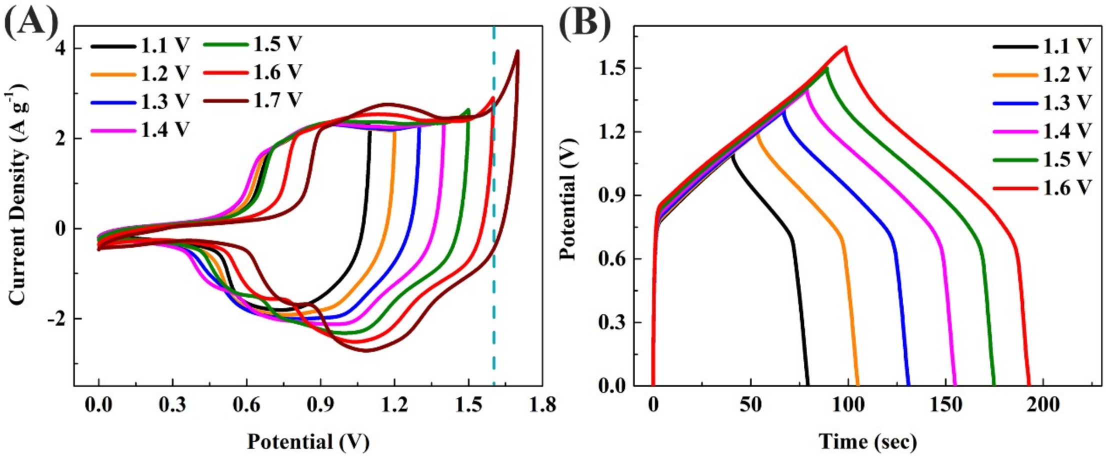

Figure S5 (A) CV curves at different potential ranges at a scan rate of 20 mV s^{-1}. (B) GCD curves at different potential ranges at a current density of 1 A g^{-1}

References

1. L. D. Chen, Y. Q. Zheng and H. L. Zhu, *J. Mater. Sci.*, 2017, **53**, 1346-1355.
2. B. Chameh, N. Khosroshahi, M. Bakhtian, M. Moradi and V. Safarifard, *Ceram. Int.*, 2022, **48**, 22254-22265.
3. J. Tian, B. Lin, Y. Sun, X. Zhang and H. Yang, *Mater. Lett.*, 2017, **206**, 91-94.
4. S. Chen, M. Xue, Y. Li, Y. Pan, L. Zhu and S. Qiu, *J. Mater. Chem. A*, 2015, **3**, 20145-20152.
5. G.-C. Li, X.-N. Hua, P.-F. Liu, Y.-X. Xie and L. Han, *Mater. Chem. Phys.*, 2015, **168**, 127-131.
6. S. Ullah, I. A. Khan, M. Choucair, A. Badshah, I. Khan and M. A. Nadeem, *Electrochim. Acta*, 2015, **171**, 142-149.
7. H. Zhang, B. Yan, C. Zhou, J. Wang, H. Duan, D. Zhang and H. Zhao, *Energy Fuels*, 2021, **32**, 16925-16932.
8. S. Zhao, H. Wu, Y. Li, Q. Li, J. Zhou, X. Yu, H. Chen, K. Tao and L. Han, *Inorg. Chem. Front.*, 2019, **6**, 1824-1830.
9. M. Huang, Y. Zhang, F. Li, L. Zhang, R. S. Ruoff, Z. Wen and Q. Liu, *Sci. Rep.-UK*, 2014, **4**, 3878.
10. G. Li, M. Chen, Y. Ouyang, D. Yao, L. Lu, L. Wang, X. Xia, W. Lei, S.-M. Chen, D. Mandler and Q. Hao, *Appl. Surf. Sci.*, 2019, **469**, 941-950.
11. T. Yao, Y. Li, D. Liu, Y. Gu, S. Qin, X. Guo, H. Guo, Y. Ding, Q. Liu, Q. Chen, J. Li and D. He, *J. Power Sources*, 2018, **379**, 167-173.
12. D. He, Y. Gao, Y. Yao, L. Wu, J. Zhang, Z. H. Huang and M. X. Wang, *Front. Chem.*, 2020, **8**, 1-11.
13. Y. Sun, Y. Cheng, K. He, A. Zhou and H. Duan, *RSC Adv.*, 2015, **5**, 10178-10186.
14. P. Wen, P. Gong, J. Sun, J. Wang and S. Yang, *J. Mater. Chem. A*, 2015, **3**, 13874-13883.
15. X. Wei, H. Peng, Y. Li, Y. Yang, S. Xiao, L. Peng, Y. Zhang and P. Xiao, *ChemSusChem*, 2018, **11**, 3167-3174.
16. S. Wu, W. Chen and L. Yan, *J. Mater. Chem. A*, 2014, **2**, 2765-2772.