

Supporting Information

Effects of Porous Hedgehog-Like Morphology and Graphene Oxide on Cycling Stability and Rate performance of $\text{Co}_3\text{O}_4/\text{NiO}$ Microspheres

Guozhen Zhu,^{†*} Xinsong Xu,^{†b} Yiyao Zhang,^a Jiale Lian,^a Yuhan Li,^a Zhen Yang,^{*a} Renchao Che^{*b}

†These authors contributed equally.

a.School of Chemical Engineering, Jiangxi Normal University, Nanchang 330022, P. R. China

b.Laboratory of Advanced Materials, Shanghai Key Lab of Molecular Catalysis and Innovative Materials, Academy for Engineering & Technology, Advanced Coatings Research Center of Ministry of Education of China, Fudan University, Shanghai 200438, P. R. China

Fig. S1 SEM images of PHCNO/GO microspheres

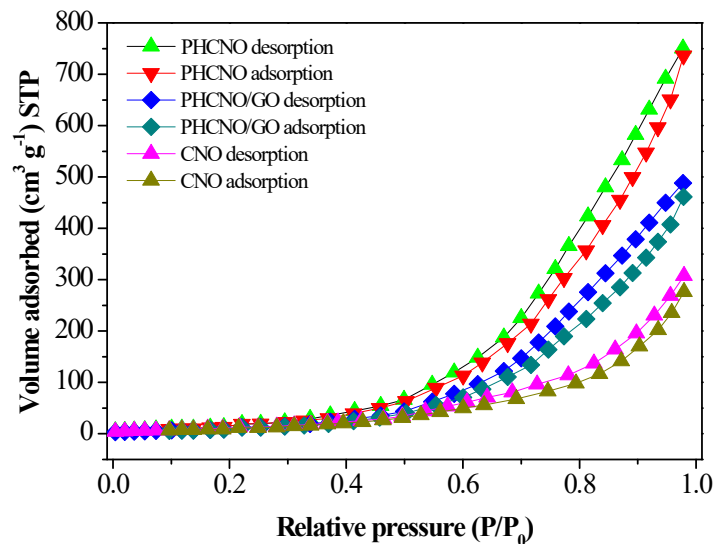


Fig. S2 N₂ adsorption/desorption profiles of PHCNO microspheres, PHCNO/GO microspheres and CNO nanospheres

Fig. S3 SEM images of PHCNO/GO microspheres after 1000 cycles at 3000 mA g⁻¹

Fig. S4 Charge and discharge profiles of (a) PHCNO/GO microspheres, (b) PHCNO microspheres and (c) CNO nanospheres

Fig. S5 TEM image of PHCNO/GO microspheres after 3 cycles cyclic voltammetry profiles

Fig. S6 σ values of PHCNO/GO microspheres, PHCNO microspheres and CNO nanospheres

Fig. S7 Log(i) vs. log(v) plots for (a) oxidation, and (b) reduction peaks and slopes of the fitted lines of PHCNO/GO microspheres

Table S1 Rate capability comparison of the reported cobalt/nickel oxide and PHCNO/GO microspheres

Materials	Specific capacity (mA h g ⁻¹)	Current density (mA g ⁻¹)	Reference
Co ₃ O ₄ /NiO/NC	493	5000	35
CoO@N-C nanocubes	309	1000	36
Carbon-nickel composite nanowires	420	200	37
PDA@NiO@Graphite	402	500	38
cPAN/Co ₃ O ₄ composite nanofiber	396.5	1000	39
CoO/NiO/CoNi	267	2000	40
Ni ₂ Co ₂ O ₄ /activated carbon	621	2000	41
CNO nanospheres	244.6	5000	This work
PHCNO microspheres	348.3	5000	This work
PHCNO/GO microspheres	526.7	5000	This work

Table S2. The resistance values of PHCNO microspheres, PHCNO/GO microspheres, and CNO nanospheres after fitting of EIS data

Materials	R _s (ohm/cm ²)	Q ₁ (μF/cm ²)	R _{ct} (ohm/cm ²)	Q ₂ (μF/cm ²)
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PHCNO/GO microspheres	1.29	1.87	86.68	2741.85
PHCNO microspheres	1.15	1.52	115.26	5929.17
CNO nanospheres	1.23	1.75	186.34	2924.95
