

Supporting Information (SI)

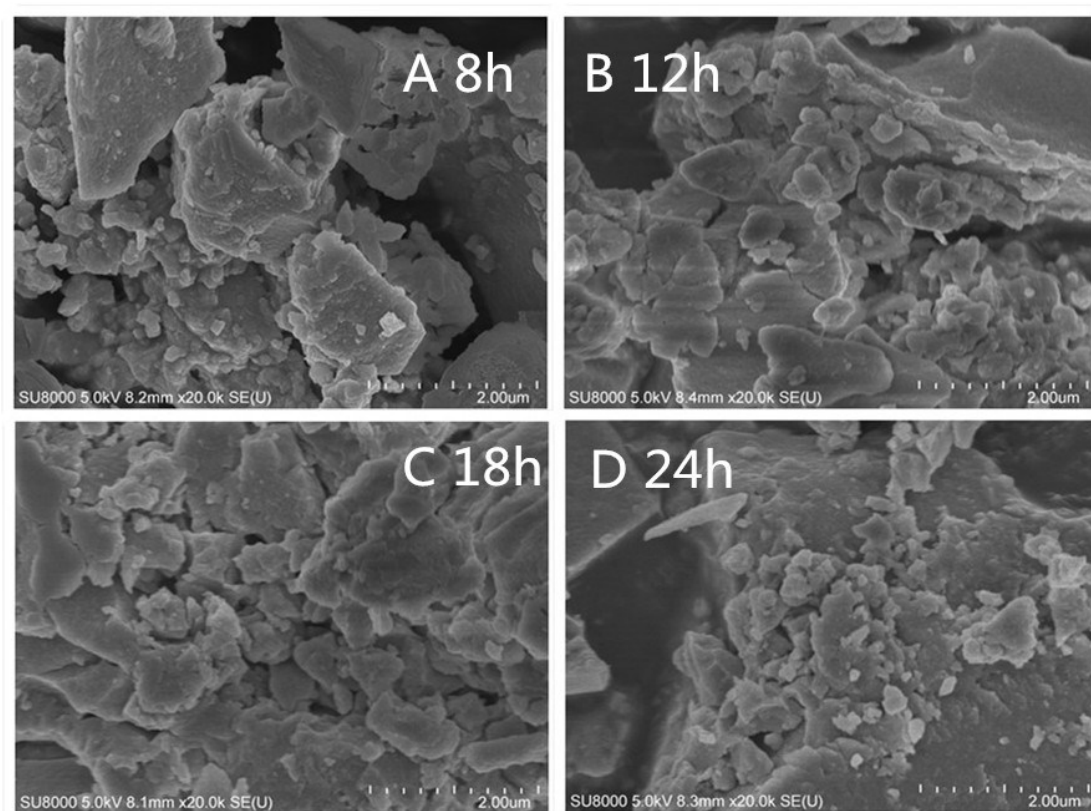


Figure S1. SEM image of (A) NiWO₄-8h, (B) NiWO₄-12h, (C) NiWO₄-18h and (D) NiWO₄-24h

Table S1 Structural parameters of NiWO₄ different reaction time

Sample	NiWO ₄ -8h	NiWO ₄ -12h	NiWO ₄ -18h	NiWO ₄ -24h
Surface area/m ² g ⁻¹	6.7	199.7	85.39	121.33
Volume/ml g ⁻¹	0.032	0.1394	0.0557	0.0821

Table S2. Comparison of NiWO₄-based materials reported in our work and the recent NiWO₄ nanostructures from literatures.

Electrodes	Capacitance	Cycling number [Retention(%)]	References (Year)
NiWO ₄ /rGO	1031.3 F g ⁻¹ at 0.5 A g ⁻¹	5000, (99.24%)	[1] (2016)
NiWO ₄ @CoWO ₄	196.7 C g ⁻¹ at 0.5 A g ⁻¹	5000, higher than initial value	[2] (2016)
NiWO ₄ -CoWO ₄ //AC	128.2C g ⁻¹ at 0.5 A g ⁻¹	5000, (100%)	[2] (2016)
NiWO ₄	586.2 F g ⁻¹ at 0.5 A g ⁻¹	1000, (90%)	[3] (2013)
NiWO ₄ //AC	71.1 F g ⁻¹ at 0.25 A g ⁻¹	5000, (91.4%)	[3] (2013)
NiCo ₂ O ₄ @NiWO ₄	1384 F g ⁻¹ at 1 A g ⁻¹ □	6000, (87.6%)	[4] (2017)
NiCo ₂ O ₄ @NiWO ₄ //AC	131.7 F g ⁻¹ at 1 A g ⁻¹	---	[4] (2017)
NiWO ₄ /Ni/CF	792.2 F g ⁻¹ at 1 A g ⁻¹	10,000, (174.8%)	[5] (2016)
NiWO ₃ and NiWO ₄	171.28 F g ⁻¹ at 0.25 A g ⁻¹	---	[5](2016)
NiWO ₄ /CF	1,190.2 F g ⁻¹ at 2 A g ⁻¹	1000, (92%)	[6] (2015)
CoWO ₄ @NiWO ₄	746 F g ⁻¹ at 0.8 A g ⁻¹	2000, (91.3%)	[7] (2015)
RGO/NiWO ₄	560 F g ⁻¹ at 0.8 mV s ⁻¹	10000, (82 %)	[8] (2016)
NiWO ₄	1190 F g ⁻¹ at 0.5 A g ⁻¹	2000, (90.6%)	this work
NiWO ₄ //AC	160 F g ⁻¹ at 0.5 A g ⁻¹	5000, (92.8%)	this work

[1] Xu X, Pei L, Yang Y, Shen J, Ye M. Facile synthesis of NiWO₄/reduced graphene oxide nanocomposite with excellent capacitive performance for supercapacitors. *Journal of Alloys and Compounds*. 2016;654:23-31.

[2] Wang Y, Shen C, Niu L, Sun Z, Ruan F, Xu M, et al. High rate capability of mesoporous NiWO₄-CoWO₄ nanocomposite as a positive material for hybrid supercapacitor. *Materials Chemistry and Physics*. 2016;182:394-401.

[3] Niu L, Li Z, Xu Y, Sun J, Hong W, Liu X, et al. Simple synthesis of amorphous NiWO₄ nanostructure and its application as a novel cathode material for asymmetric supercapacitors. *ACS applied materials & interfaces*. 2013;5:8044-52.

[4] Chen S, Yang G, Jia Y, Zheng H. Three-dimensional NiCo₂O₄@NiWO₄ core-shell nanowire arrays for high performance supercapacitors. *Journal of Materials Chemistry A*. 2017;5:1028-34.

[5] He Y, Wang L, Jia D, Zhao Z, Qiu J. NiWO₄ /Ni/Carbon Composite Fibres for Supercapacitors with Excellent Cycling Performance. *Electrochimica Acta*. 2016;222:446-54.

[6] Nagaraju G, Kakarla R, Cha SM, Yu JS. Highly flexible conductive fabrics with hierarchically nanostructured amorphous nickel tungsten tetraoxide for enhanced electrochemical energy storage. *Nano Research*. 2015;8:3749-63.

[7] Xu X, Gao J, Huang G, Qiu H, Wang Z, Wu J, et al. Fabrication of CoWO₄@NiWO₄ nanocomposites with good supercapacitive performances. *Electrochimica Acta*. 2015;174:837-45.

[8] Xing X, Wang J. Reduced graphene oxide incorporated NiWO₄ for high-performance energy storage. *Journal of Materials Science: Materials in Electronics*. 2016;27:11613-22.