Supporting Information

One-step Synthesis of 3D Network-like $Ni_xCo_{1-x}MoO_4$ Porous Nanosheets for High Performance Battery-type Hybrid Supercapacitors

Pengxiao Sun[†], *Chenggang Wang*[†], *Weidong He, Peiyu Hou, Xijin Xu**

[†]*These authors contributed equally to this work and should be considered co-first authors.*

School of Physics and Technology, University of Jinan, 336 West Road of Nan Xinzhuang, Jinan, 250022, Shandong Province, Peoples Republic of China

∗ Corresponding E-mails: sps_xuxj@ujn.edu.cn

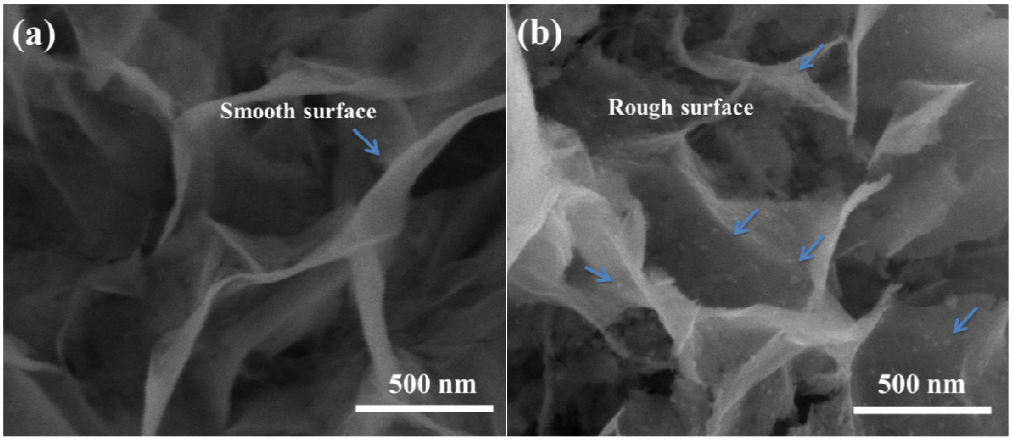


Fig. S1 SEM images: (a) the $CoMoO_4$ nanosheets; and (b) $Ni_xCo_{1-x}MoO_4$ nanosheets.

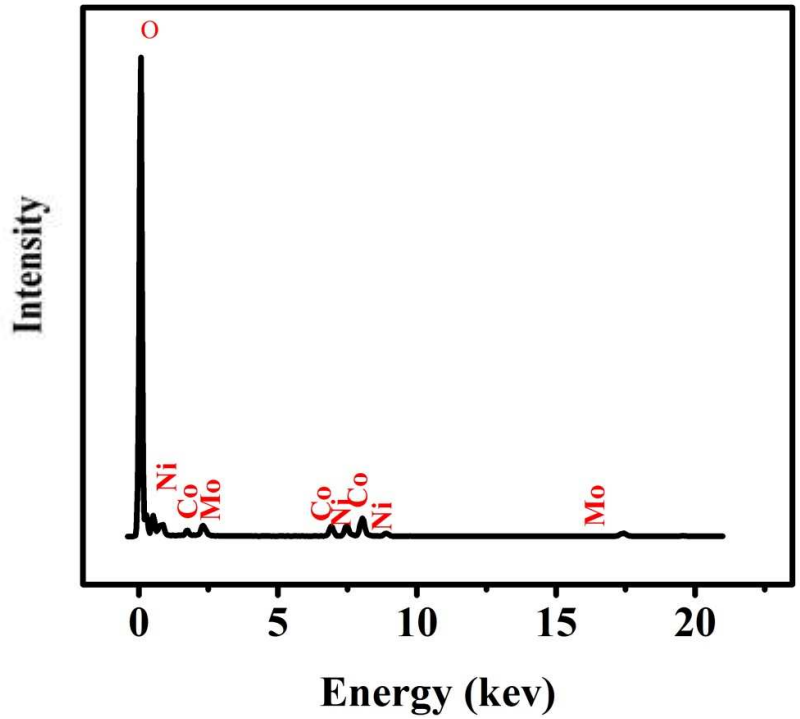


Fig. S2 EDS images of the $Ni_{0.75}Co_{0.25}MoO_4$ nanosheets.

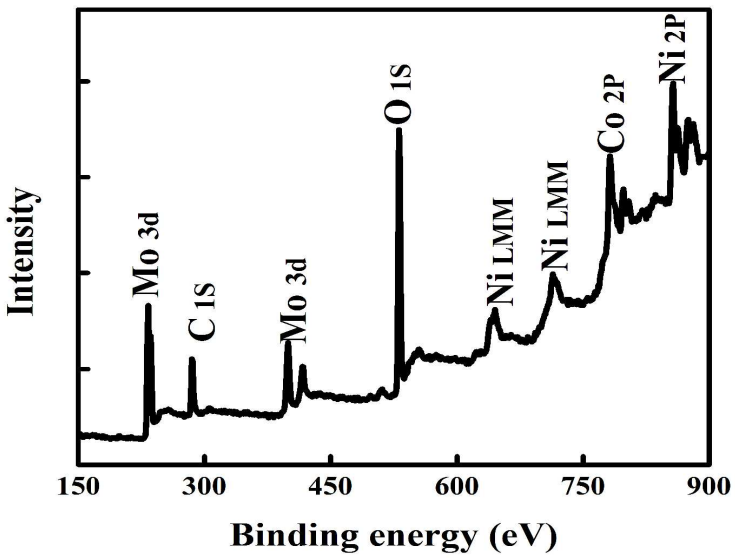
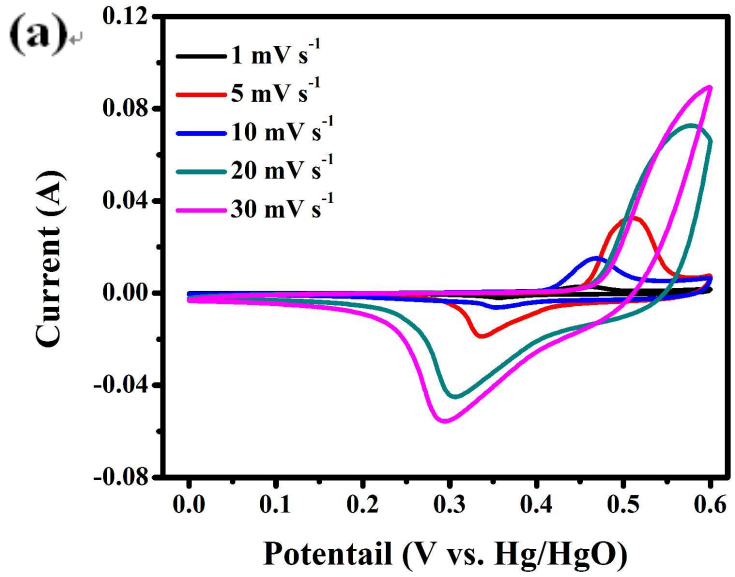
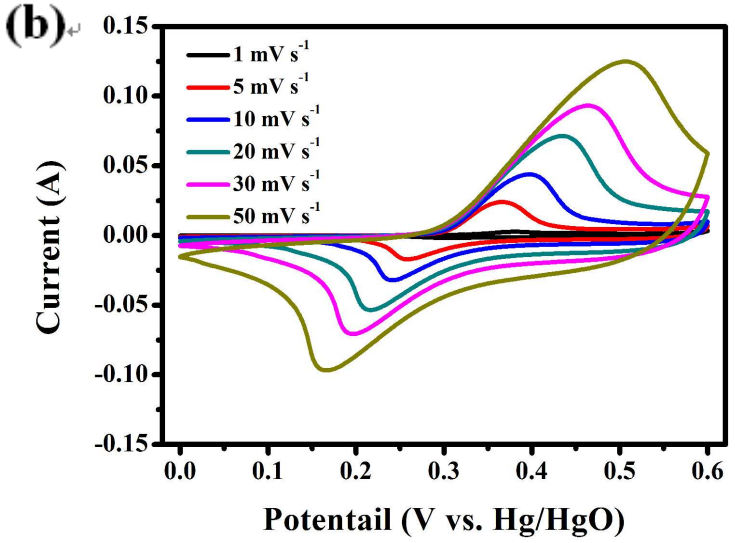
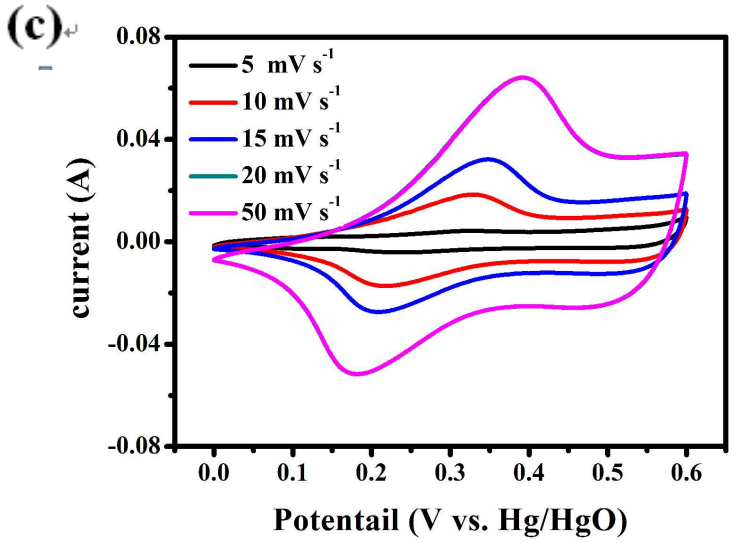


Fig. S3 XPS spectrum of $Ni_xCo_{1-x}MoO_4$ (x=0.75).


(a)
1 mV s-1
5 mV s-1
10 mV s-1
20 mV s-1
30 mV s-1
Current (A)
Potentail (V vs. Hg/HgO)


(b)
1 mV s-1
5 mV s-1
10 mV s-1
20 mV s-1
30 mV s-1
50 mV s-1
Current (A)
Potentail (V vs. Hg/HgO)


(c)
5 mV s-1
10 mV s-1
15 mV s-1
20 mV s-1
50 mV s-1
current (A)
Potentail (V vs. Hg/HgO)

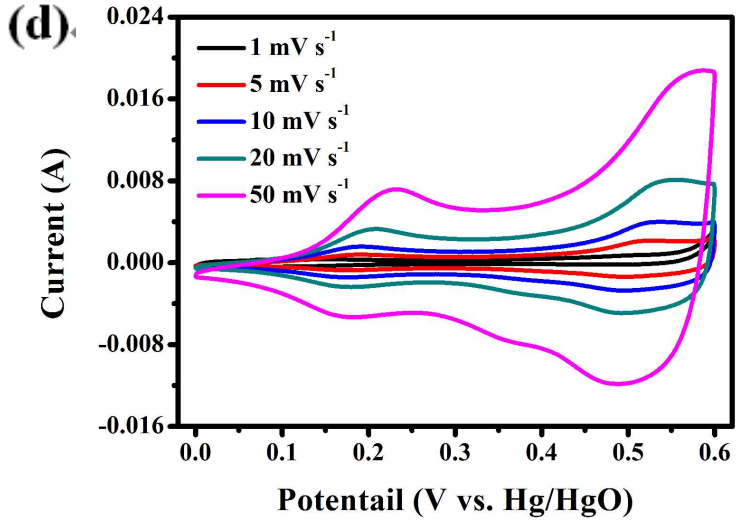
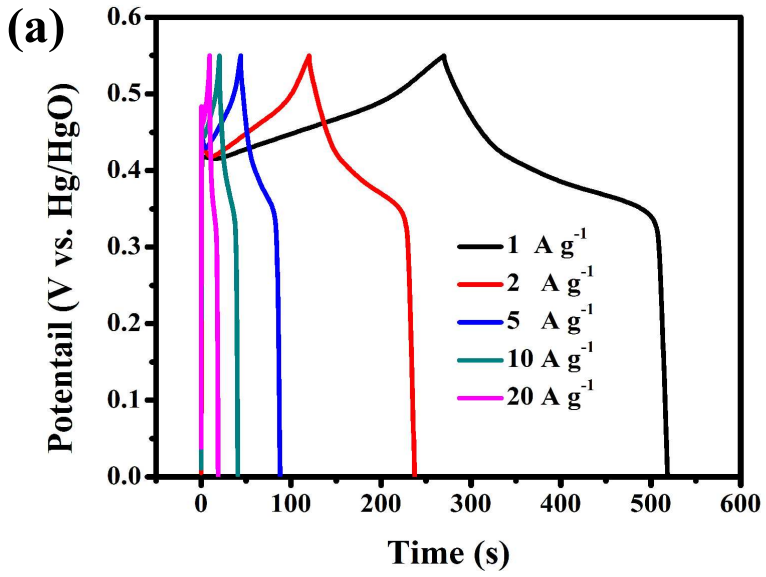
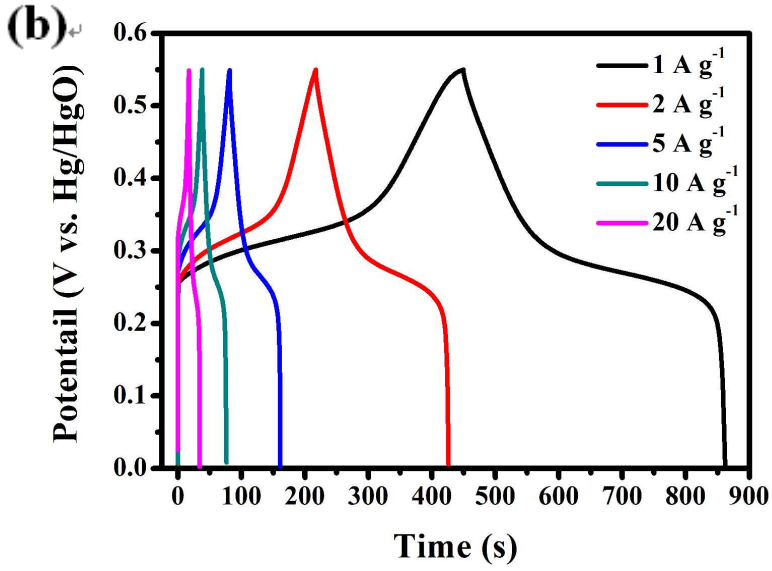
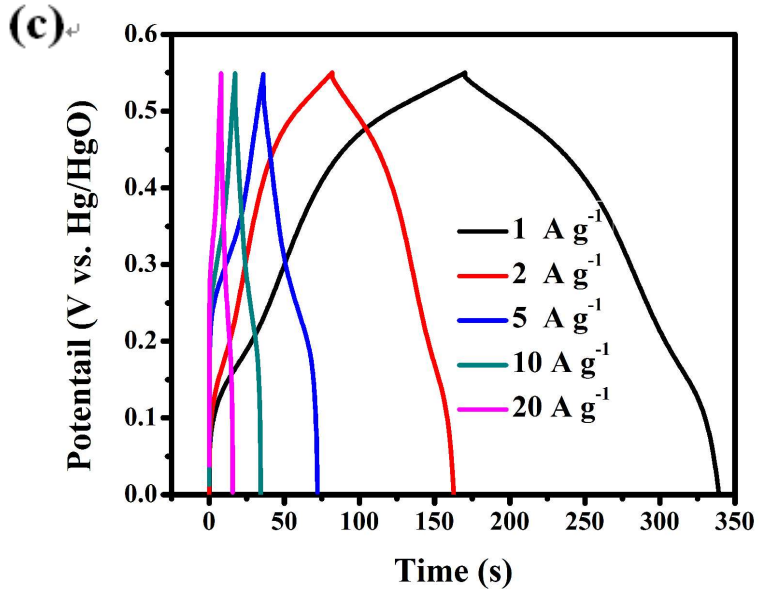


Fig. S4 CV curves of $Ni_xCo_{1-x}MoO_4$ nanosheets with different scan rates: (a) $NiMoO_4$;(b) $Ni_{0.25}Co_{0.75}MoO_4$; (c) $Ni_{0.5}Co_{0.5}MoO_4$; (d) $CoMoO_4$.


(a)
Potentail (V vs. Hg/HgO)
Time (s)
1 A g-1
2 A g-1
5 A g-1
10 A g-1
20 A g-1


(b)
Potentail (V vs. Hg/HgO)
Time (s)
1 A g-1
2 A g-1
5 A g-1
10 A g-1
20 A g-1



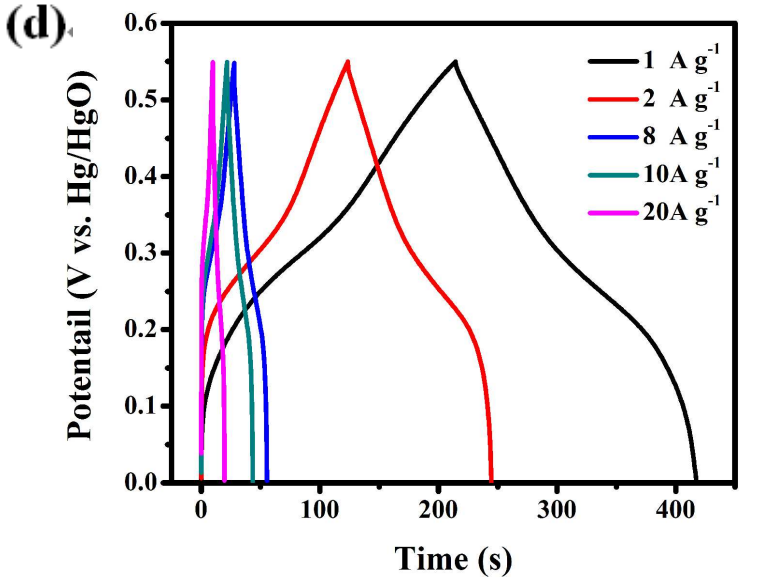


Fig. S5 GCD curves of $Ni_xCo_{1-x}MoO_4$ at different current densities: (a) $NiMoO_4$ (b) $Ni_{0.5}Co_{0.5}MoO_4$(c) $Ni_{0.75}Co_{0.25}MoO_4$ (d) $CoMoO_4$.

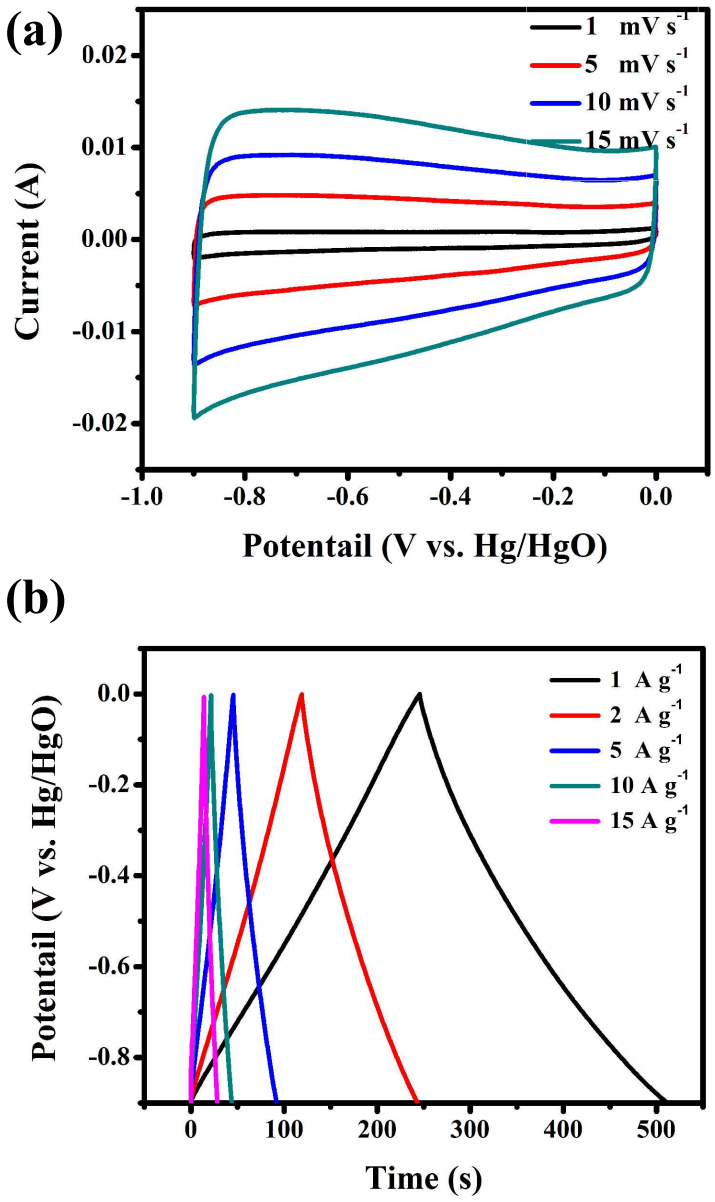


Fig. S6 (a) CV curves of activated carbon with different scan rates; (b) GCD curves of activated carbon at different current densities.

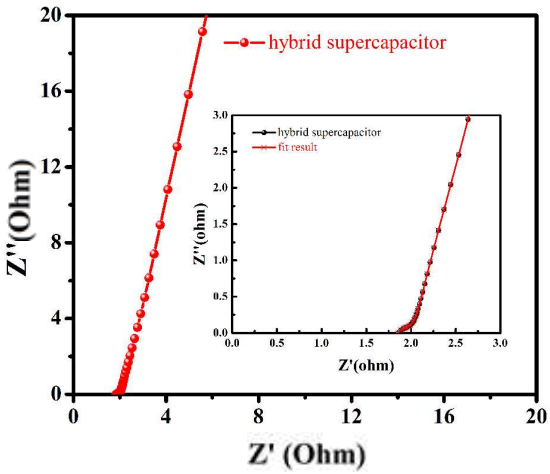


Fig. S7 the typical EIS result of the full cell by fitting the Nyquist plots.

Table S1 The EIS simulation of hybrid supercapacitors

electrodes	Rs/Ω	Rct/Ω
hybrid supercapacitors	1.88	0.17