

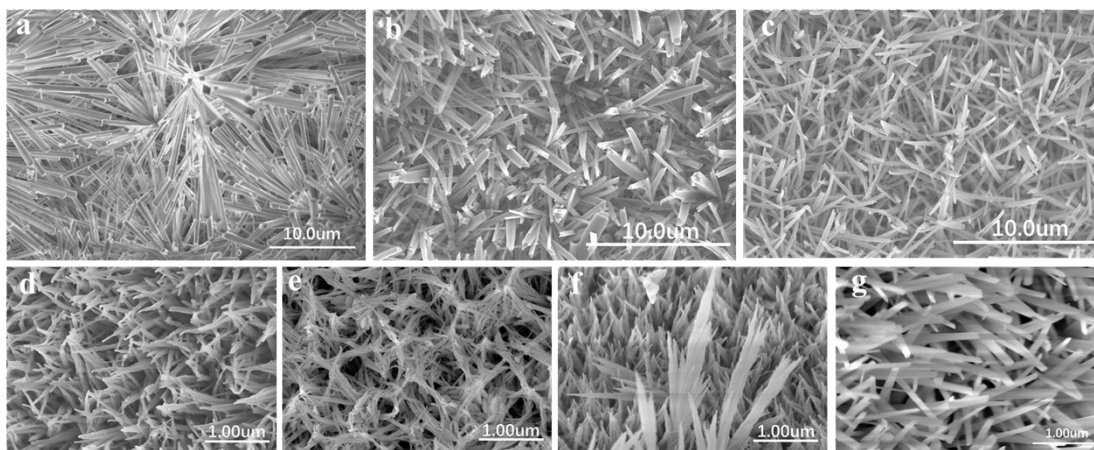
## **Synergistic effect of bimetal NiCo-MOF on foamed nickel for application in high performance supercapacitors**

Fuhuai Cao, Xinlong Zhang, Qingyang Yin, Chao Yang\*, Jing Liu, Na Liu, Rongmei Liu\*

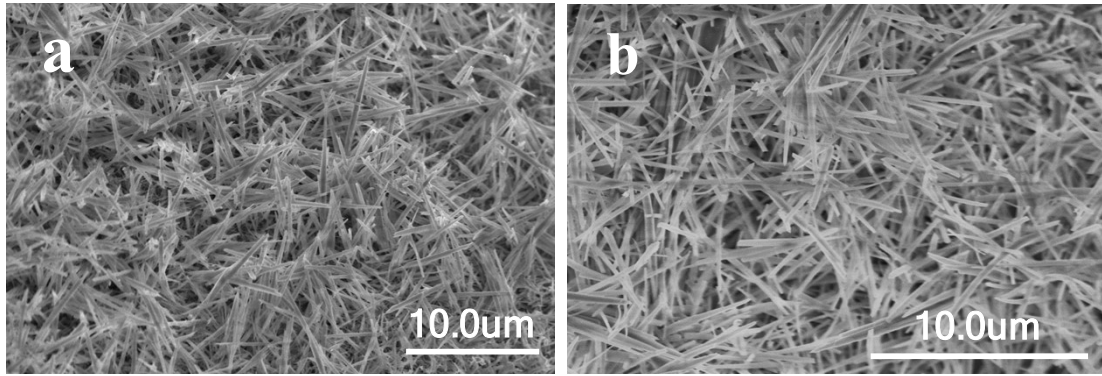
*Anhui Province Key Laboratory of Functional Coordinated Complexes for Materials Chemistry and Application,  
School of Chemical and Environmental Engineering, Anhui Polytechnic University, Wuhu Anhui 241000, P. R.  
China*

*Fax: +86 553 2871 004; Tel: +86 553 2871 004*

*E-mail: [liurongmei@ahpu.edu.cn](mailto:liurongmei@ahpu.edu.cn), [yangchao@ahpu.edu.cn](mailto:yangchao@ahpu.edu.cn)*



**Fig. S1.** SEM images of (a) Co-MOF, (b) NiCo-MOF-1, (c) NiCo-MOF-2, (d) NiCo-MOF-3, (e) NiCo-MOF-4, (f) NiCo-MOF-5, (g) Ni-MOF.



**Fig. S2.** SEM images of Nickel-cobalt ratio (a) 1:3 and (b) 1:5.

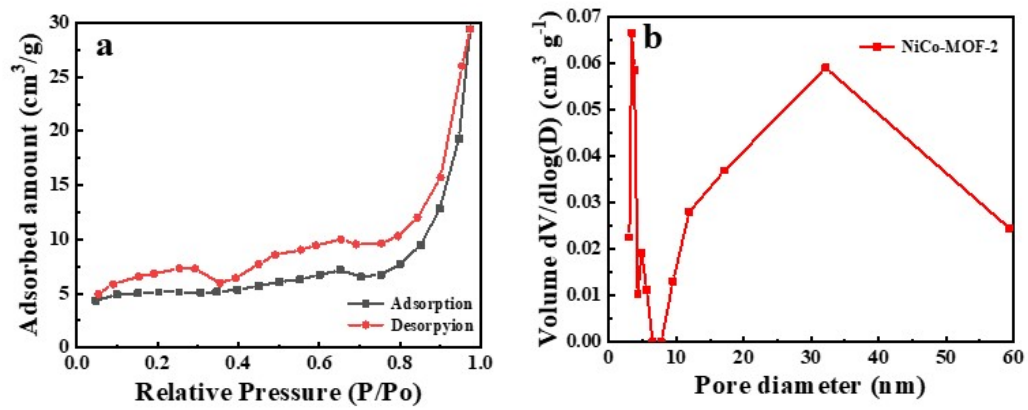
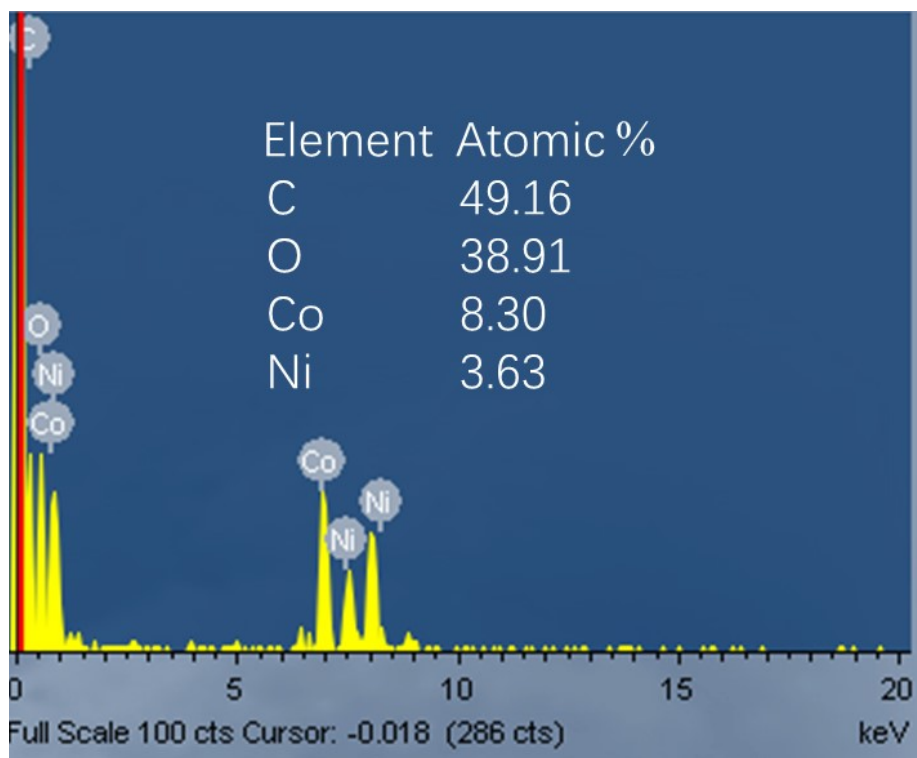


Fig. S3. (a)  $N_2$  adsorption/desorption isotherms, (b) pore size distribution profiles of NiCo-MOF-2.



**Fig. S4.** EDAX spectra and EDS data of NiCo-MOF-2 electrode.

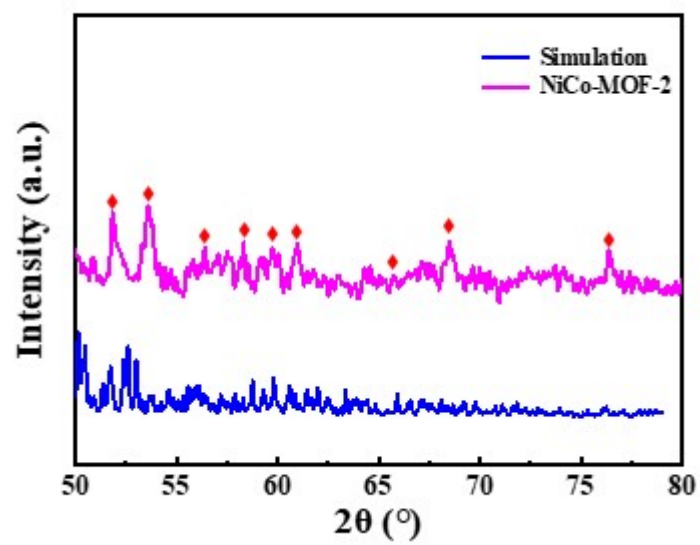
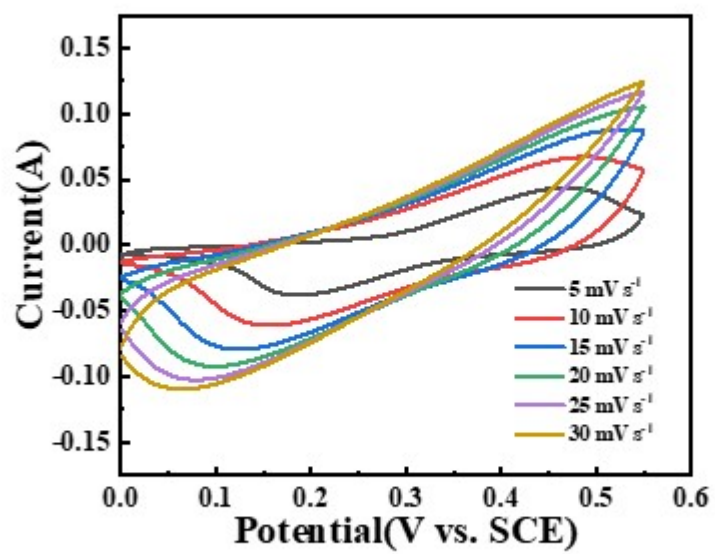


Fig. S5. Enlarged XRD patterns of NiCo-MOF-2 sample.



**Fig. S6.** CV curves of NiCo-MOF-2 at the scan rates of 5, 10, 15, 20, 25, and 30 mV s<sup>-1</sup>.

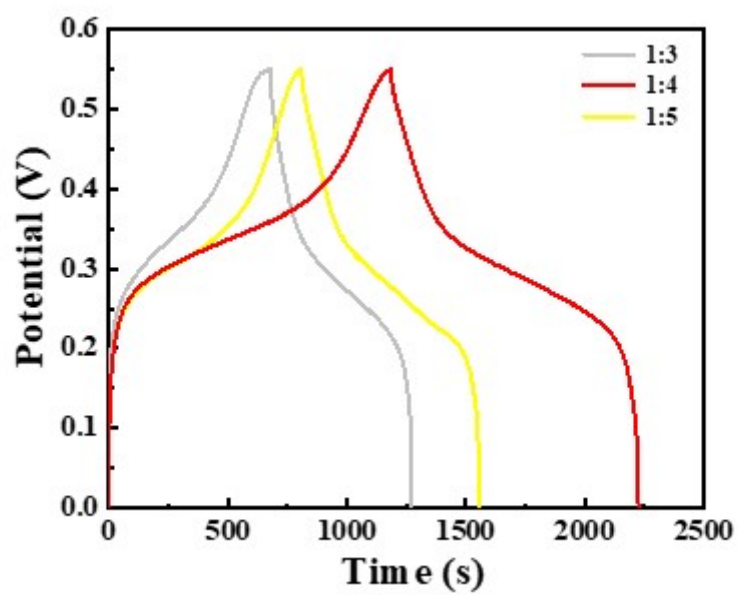


Fig. S7. Charge-discharge comparison diagram of different Nickel-cobalt ratio.



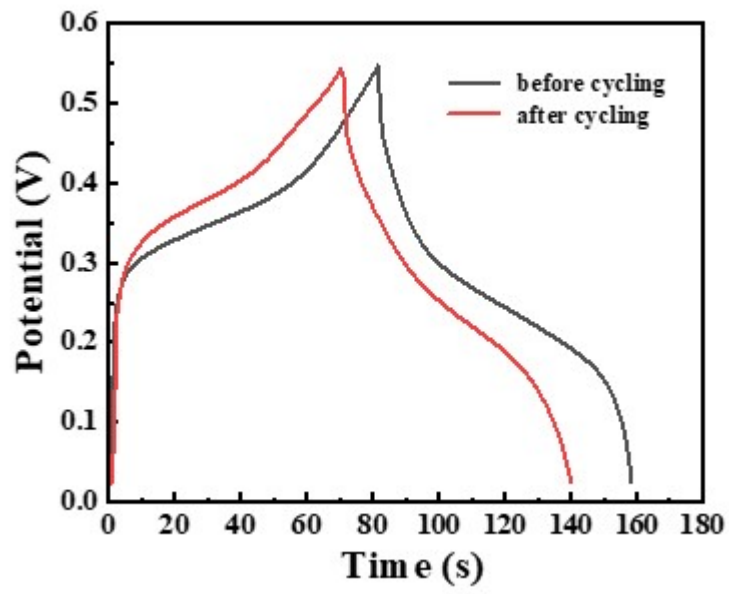
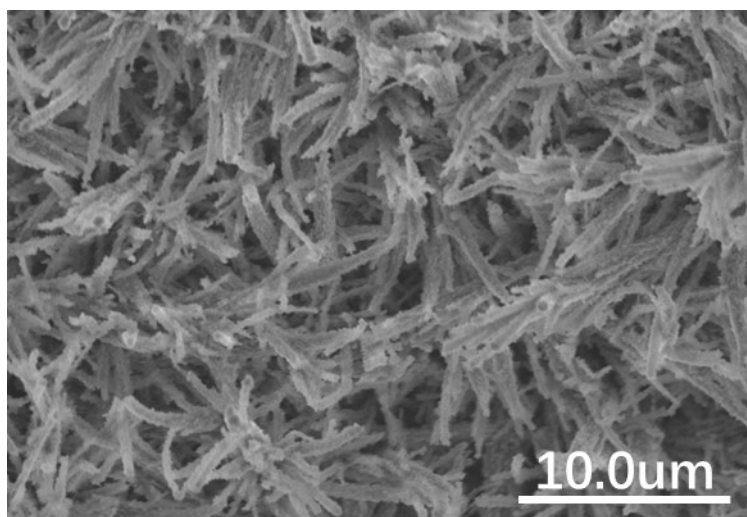


Fig. S8. GCD images of NiCo-MOF-2 before and after cycling.



**Fig. S9.** SEM images of NiCo-MOF-2 after cycling.

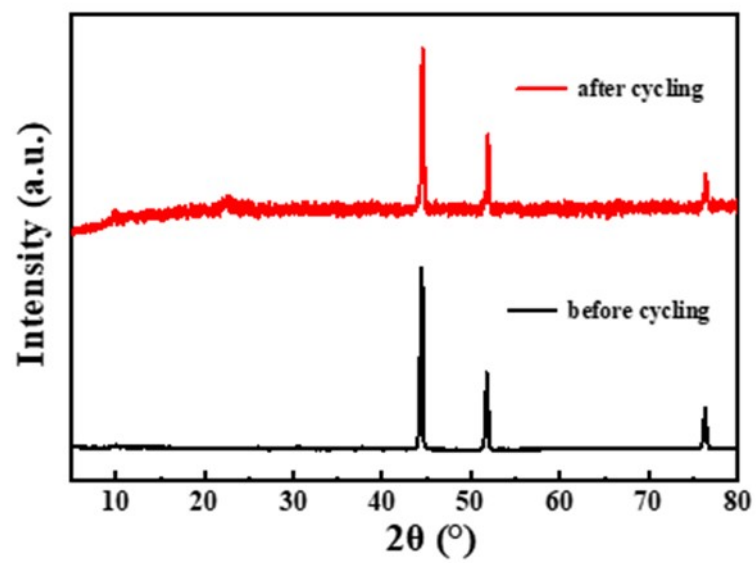
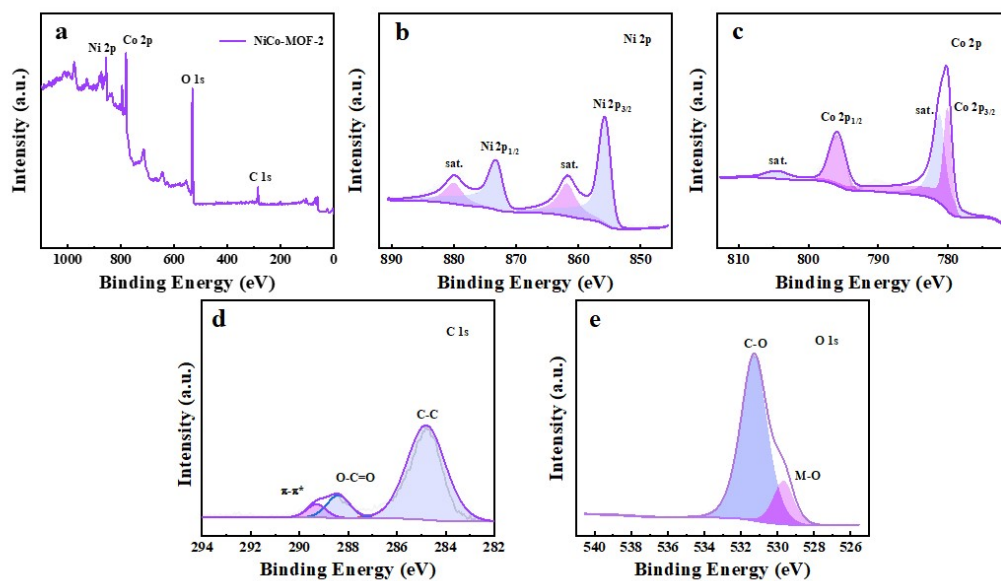
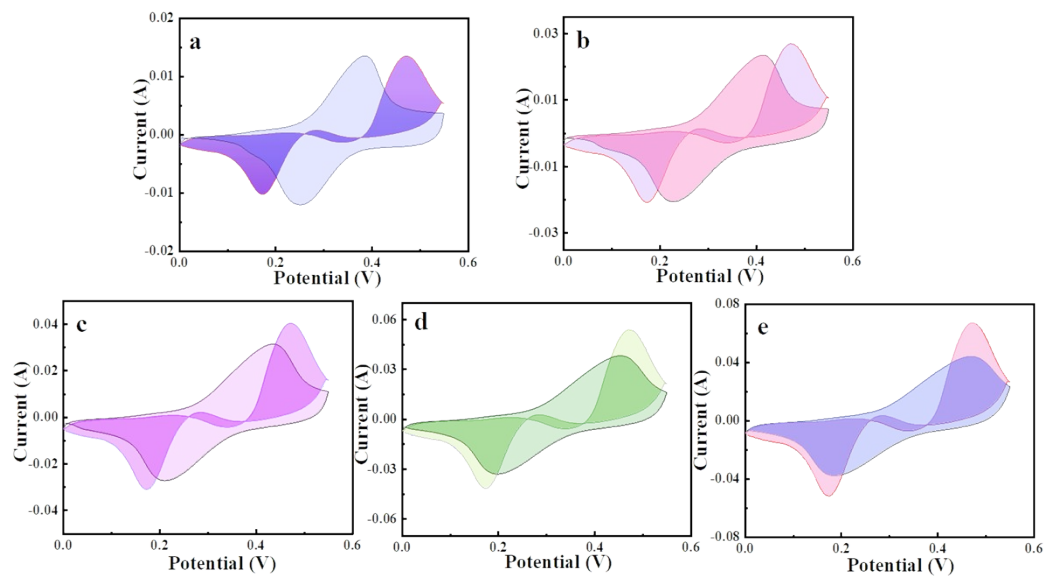


Fig. S10. XRD patterns of NiCo-MOF-2 before and after cycling.



**Fig. S11.** (a) XPS spectra and high-resolution XPS spectra (b) Ni 2p (c) Co 2p (d) C 1s (e) O 1s of NiCo-MOF-2 after cycling.



**Fig. S12.** (a-e) Function of log (peak current) vs. log (scan rate).

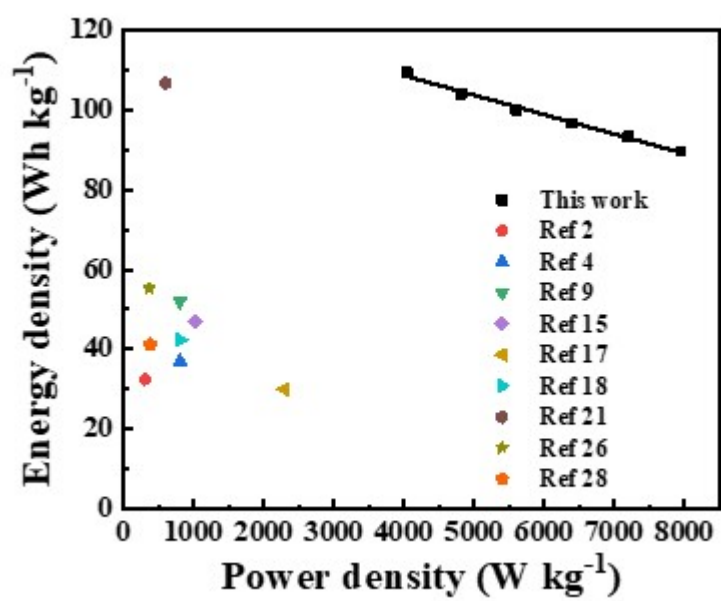


Fig. S13. Comparison of the NiCo-MOF-2 device Ragone graph with previous reports.

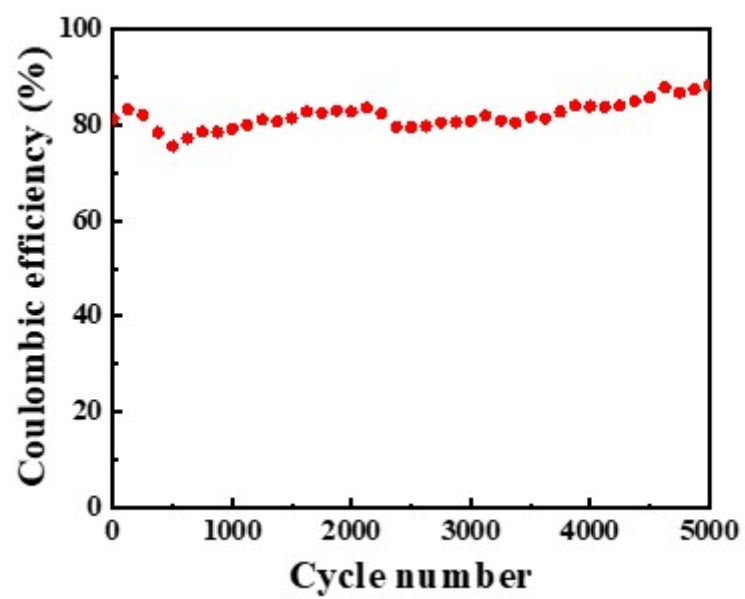


Fig. S14. Coulomb efficiency diagram.

**Tab. S1.** Correlation properties of samples with different Nickel-cobalt ratios.

<b>Nickel-cobalt ratio</b>	<b>specific capacitance (1 A g<sup>-1</sup> )</b>	<b>cycling stability</b>
0: 1	808.8 F g <sup>-1</sup>	90.8%
1: 7	1270.5 F g <sup>-1</sup>	87.0%
1: 5	1363.0 F g <sup>-1</sup>	81.3%
1: 4	1894.3 F g <sup>-1</sup>	80.2%
1: 3	1097.9 F g <sup>-1</sup>	78.8%
1: 1	528.3 F g <sup>-1</sup>	82.7%
4: 1	912.8 F g <sup>-1</sup>	72.1%
7: 1	828.5 F g <sup>-1</sup>	60.3%
1: 0	289.0 F g <sup>-1</sup>	91.4%