

Sulfur doped amorphous NiMoO₄ on crystalline Fe₂O₃ nanosheets for enhanced
lithium storage performance

Hailong Yue, Guangming Wang, Rencheng Jin,* Qingyao Wang, Yuming Cui,*

Shanmin Gao

School of Chemistry & Materials Science, Ludong University, Yantai 264025, P. R.

China. *E-mail: jinrc427@126.com, cmygood2007@163.com

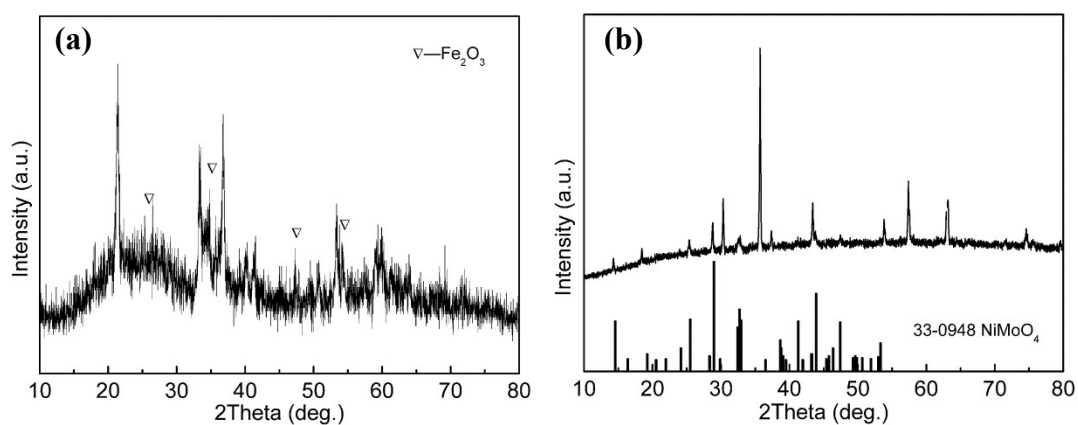


Fig. S1 (a) XRD pattern of the obtained precursors, XRD pattern of the Fe₂O₃@NiMoO₄-S after calcination at 800 °C for 5 h.

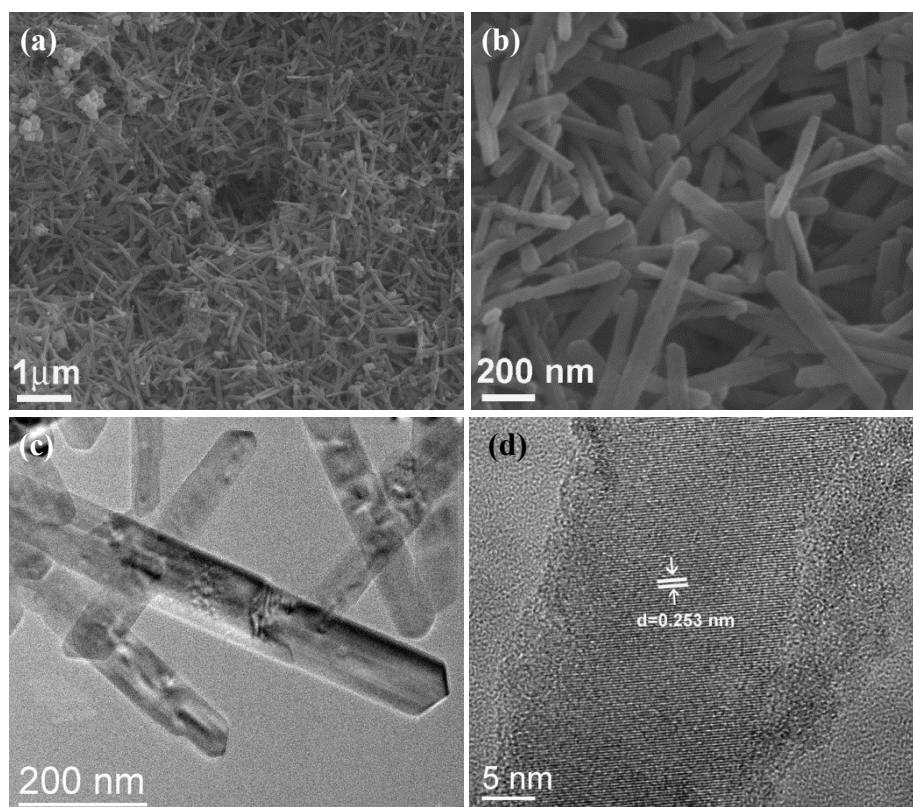


Fig. S2 (a, b) FESEM images of the $\text{Fe}_2\text{O}_3@\text{C}$, (c) TEM and (d) corresponding HRTEM images of the $\text{Fe}_2\text{O}_3@\text{C}$.

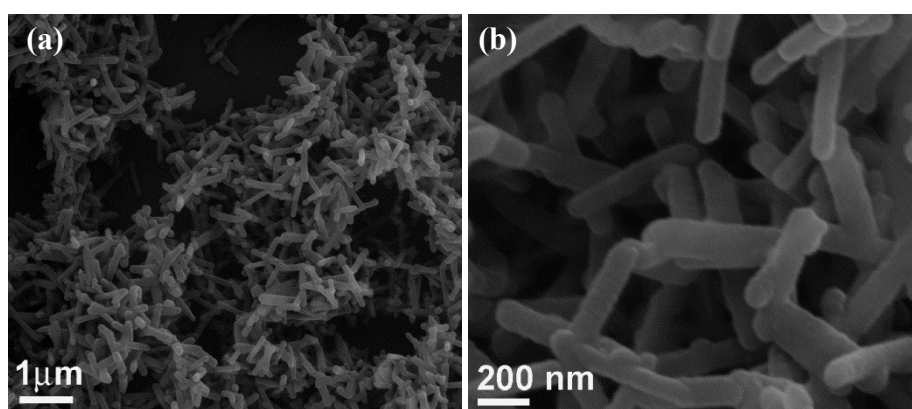


Fig. S3 (a, b) FESEM images of the Fe₂O₃@NiMoO₄.

Table S1. The composition of the obtained samples.

Samples	Fe:Ni:Mo:S
Fe ₂ O ₃ @NiMoO ₄ -S	1:0.412:0.426:0.12
Fe ₂ O ₃ @NiMoO ₄	1:0.401:0.422:0

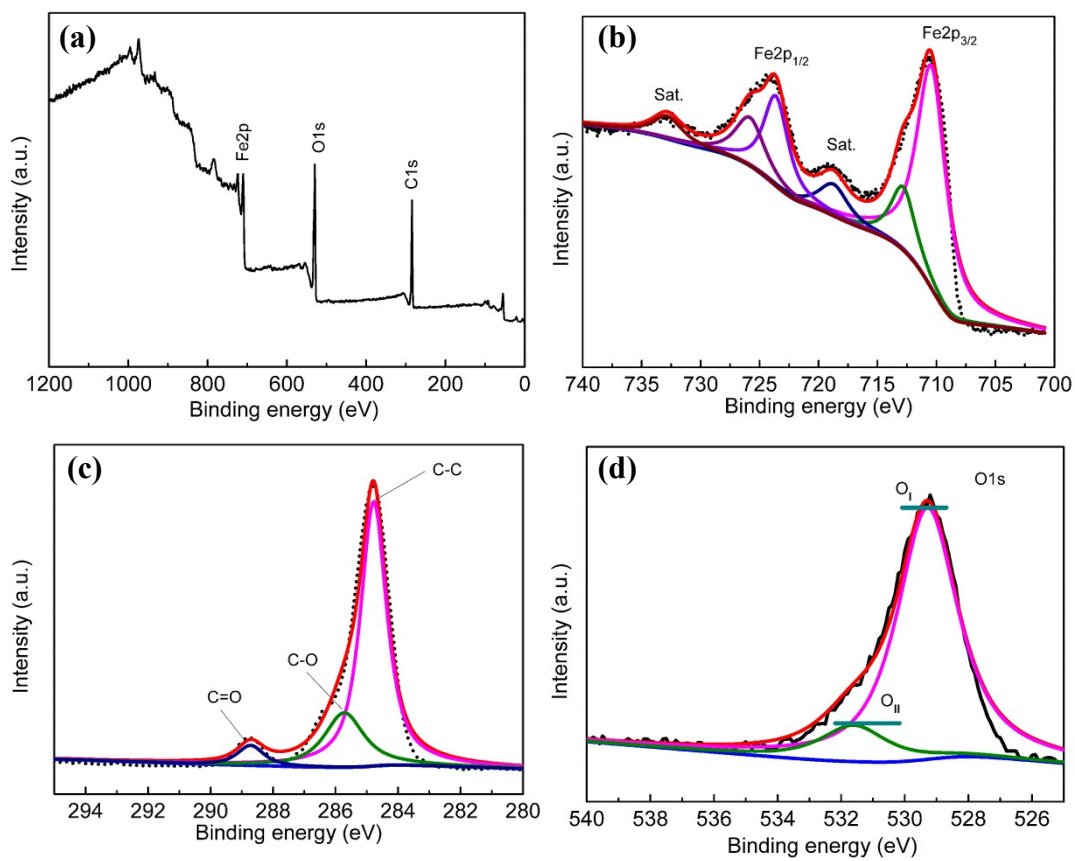


Fig. S4 XPS spectra of the obtained $\text{Fe}_2\text{O}_3@\text{C}$: (a) survey spectrum, (b) Fe 2p, (c) C 1s, (d) O 1s.

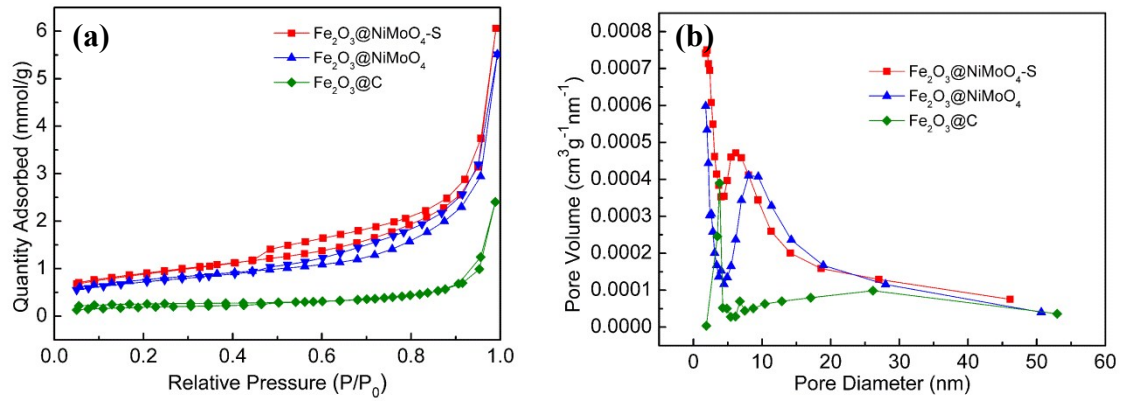


Fig. S5 (a) Nitrogen gas adsorption/desorption isotherm and (b) size distribution of the $\text{Fe}_2\text{O}_3@NiMoO_4\text{-S}$, $\text{Fe}_2\text{O}_3@NiMoO_4$ and $\text{Fe}_2\text{O}_3@C$.

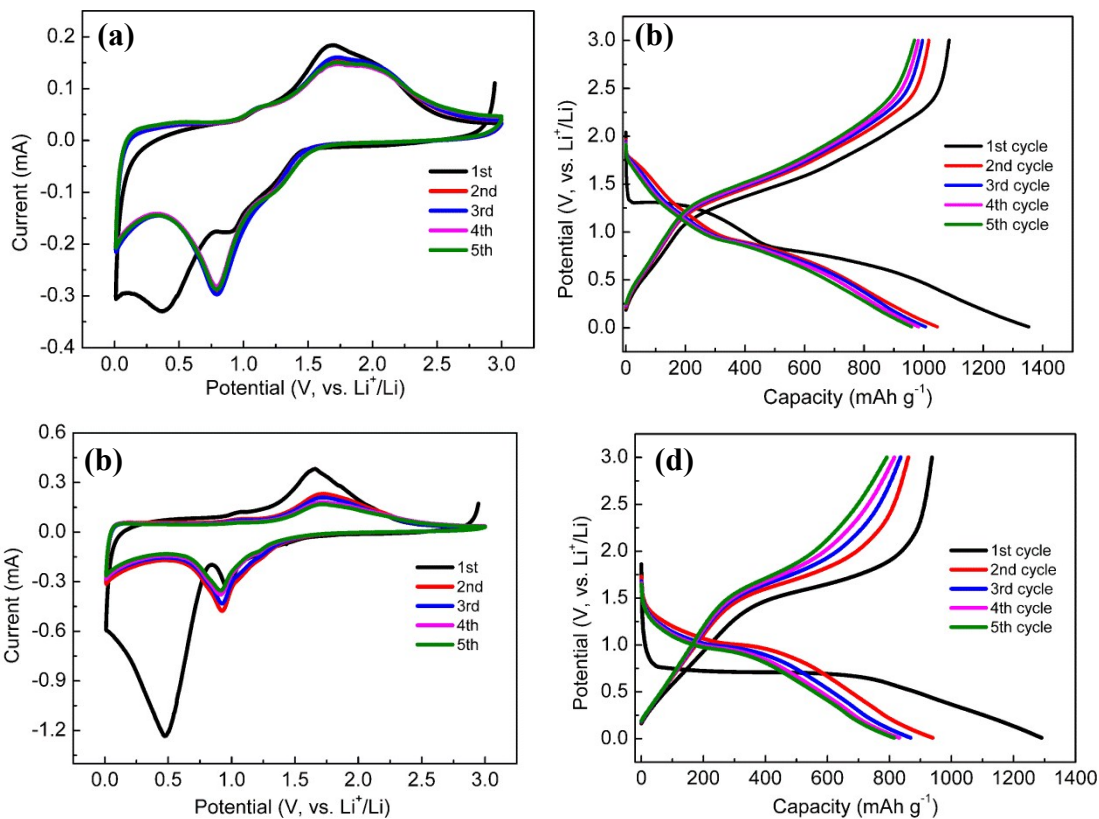


Fig. S6 (a) CV curves of the $\text{Fe}_2\text{O}_3@\text{NiMoO}_4$ over the voltage range of 0.01-3.0 V at a scan rate of 0.2 mV s^{-1} . (b) Charge/discharge voltage profiles of the $\text{Fe}_2\text{O}_3@\text{NiMoO}_4$ at 0.1 A g^{-1} . (c) CV curves of the $\text{Fe}_2\text{O}_3@\text{C}$ over the voltage range of 0.01-3.0 V at a scan rate of 0.2 mV s^{-1} . (d) Charge/discharge voltage profiles of the $\text{Fe}_2\text{O}_3@\text{C}$ at 0.1 A g^{-1} .

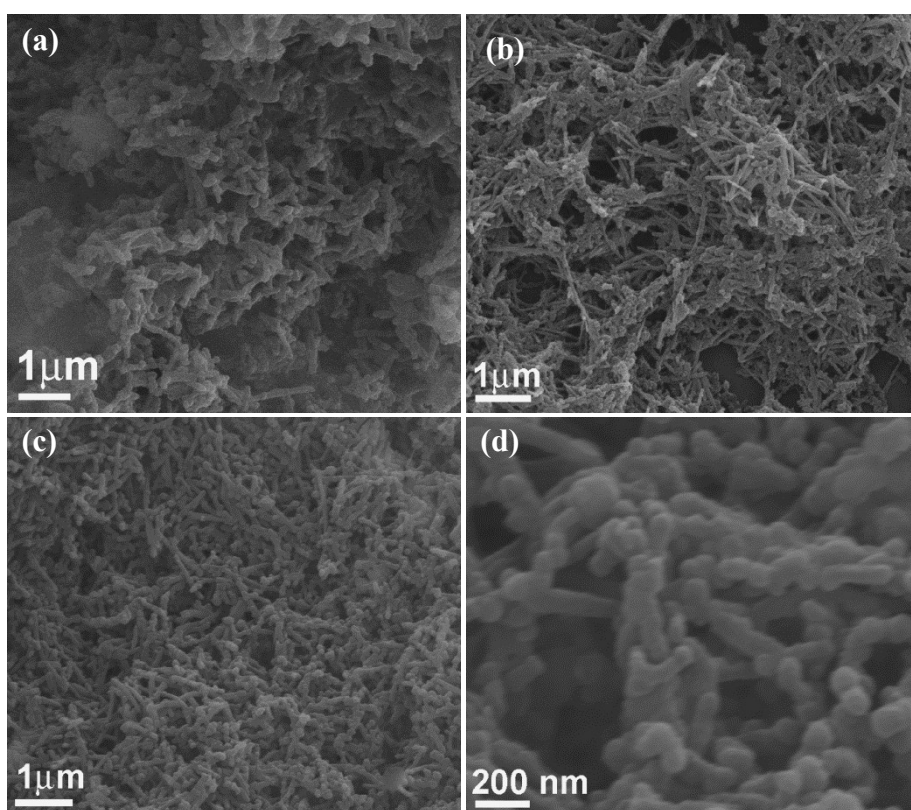


Fig. S7 FESEM images of the electrodes after 100 cycles at the current density of 0.1 A g⁻¹: (a) Fe₂O₃@C, (b) Fe₂O₃@NiMoO₄, (c, d) Fe₂O₃@NiMoO₄-S.