Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Supporting Information

Biomolecule-assisted synthesis of porous network-like Ni_3S_2 nanoarchitectures assembled with ultrathin nanosheets as integrated negative electrodes for high-performance lithium storage

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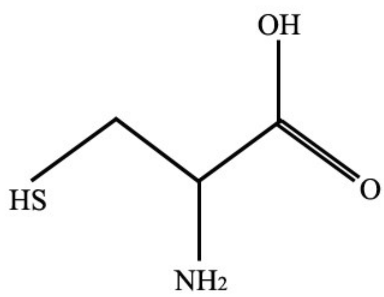

Fig. S1 Chemical structure of L-cysteine.

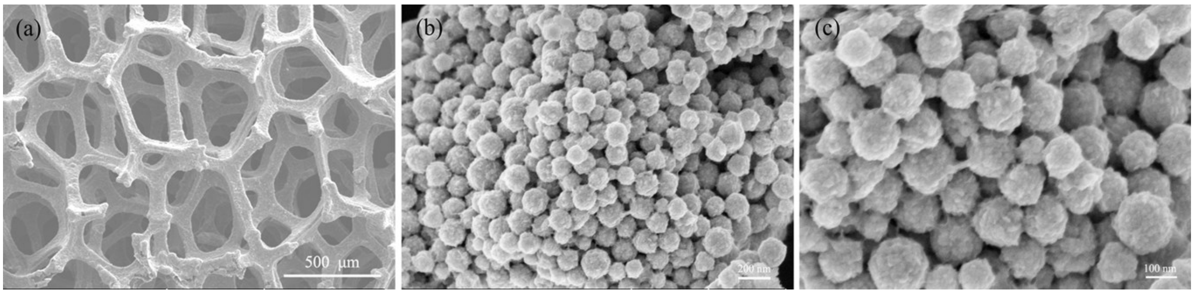

Fig. S2 SEM images of the (a) bare NF and (b and c) as-prepared Ni_3S_2 powders at different magnifications.

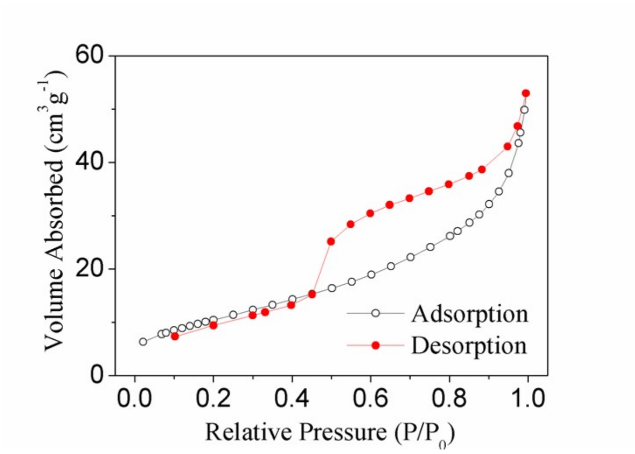

Fig. S3 N_2 adsorption-desorption isotherms of the as-prepared Ni_3S_2@NF composites.

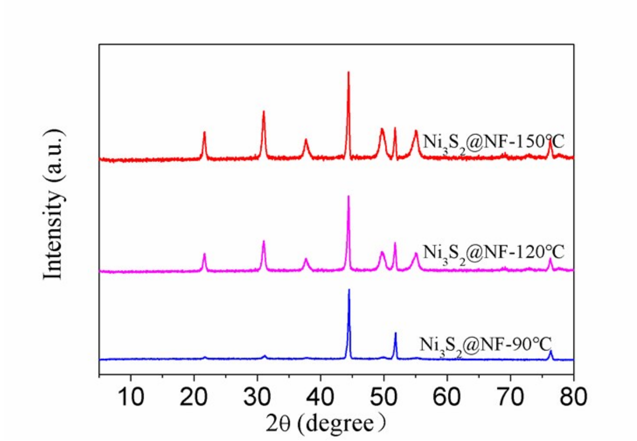

Fig. S4 XRD pattern of the as-prepared Ni_3S_2@NF composites under different reaction temperatures.

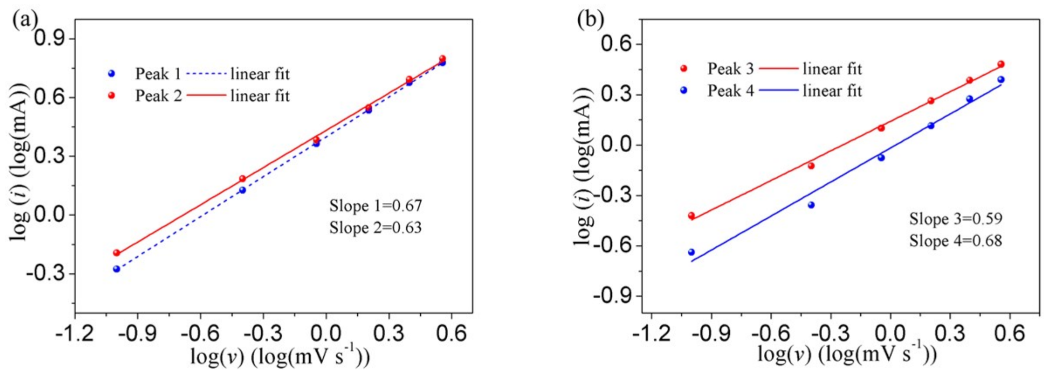

Fig. S5 The relationship between log (*i*) and log (*v*) of (a) Ni_3S_2@NF and (b) Ni_3S_2 powder pasted electrodes.

Table S1 The elemental composition of the Ni_3S_2@NF composites from the EDS （Fig. 3f）.

Element	*Weight %*	*Atomic %*
C K	06.47	09.15
O K	03.44	06.50
Ni K	67.64	51.22
S K	22.45	33.13

Table S2. Comparison of electrochemical performance of the Ni_3S_2@NF in this work with some other Ni_3S_2-based electrodes reported in recent literature.

Type of material	Initial reversible specific capacity	Specific capacity after cycling	Capacity retention	Referance
Ni_3S_2/C fibers	550 mAh g^{-1} at 50 mA g^{-1}	421.4 mAh g^{-1} after 50 cycles	35.7% from 200 to 2000 mA g^{-1}	1
Electrodeposition of Ni_3S_2/Ni_4 composites	338 mAh g^{-1} at 170 mA g^{-1}	322 mAh g^{-1} after 100 cycles	～60% from 170 to 1700 mA g^{-1}	2
Ni_3S_2@N-doped carbon core/shell arrays	420 mAh g^{-1} at 100 mA g^{-1}	368 mAh g^{-1} after 100 cycles	91.6% from 100 to 2000 mA g^{-1}	3
3D porous Ni_3S_2 electrode	593 mAh g^{-1} at 150 mA g^{-1}	622 mAh g^{-1} after 55 cycles	73% from 150 to 1200 mA g^{-1}	4
Ni_3S_2 nanoslices anchored on reduced graphene oxide	608.4 mAh g^{-1} at 100 mA g^{-1}	465 mAh g^{-1} after 100 cycles	67.2% from 100 to 1000 mA g^{-1}	5
Porous Ni_3S_2 nanosheets Network grown on NF	987.8 mAh g^{-1} at 200 mA g^{-1}	569.86 mAh g^{-1} after 300 cycles	45.4% from 200 to 3200 mA g^{-1}	This work

References

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