Supporting information

Fabrication of NiO-carbon nanotube/sulfur composites for

lithium-sulfur battery application

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Chemical reagents	Specification	Manufacturer	
Carbon Nanotube (CNT)	>95%	Shanghai Aladdin Bio-Chem	
		Technology Co.L7	ГD
NiSO ₄ ·6H ₂ O	Analytically pure	Shanghai Aladdin Bio-Chem	
		Technology Co.LTD	
CO(NH ₂) ₂	Analytically pure	Sinopharm	Chemical
		Reagent Co.LTD	
K ₃ C ₆ H ₅ O ₇ ·H ₂ O	Analytically pure	Sinopharm	Chemical
		Reagent Co.LTD	
Sulfur	Analytically pure	Sinopharm	Chemical
		Reagent Co.LTD	
THF (tetrahydrofuran)	Analytically pure	Sinopharm	Chemical
		Reagent Co.LTD	

 Table S1. Chemical reagents of the experiment

Sample	Elements	Charging ratio/wt %	Real ratio/wt%
NiO-CNT/S	Ni	5.25	4.68
	С	33.33	38.21
	S	60.00	53.10
	0	1.42	1.31

Table S2. Real contents of elements in the NiO-CNT/S sample from EDS data

Composite	Structure	Cycle number	Current density	Holding Reversible capacity	Referenc e
NiO-CNT/S	microflower NiO	160	0.1C	609 mAhg ⁻¹	This work
C/S	hierarchical porous carbon	100	0.5 C	963 mAhg ⁻¹	1
PEG-G/S	Layered graphene	100	0.2 C	600 mAhg ⁻¹	2
GO/S	3D graphene	70	0.5 C	700 mAhg ⁻¹	3
GO/S	3D graphene &RGO	350	0.2 C	Rate capability 68.2%	4
CNT/S	Aminated carbon nanotubes	300	0.5 C	750 mAhg ⁻¹	5
CNT/S	Activate porous carbon nanotubes	100	0.2 C	Rate capability 89%	6
MnO ₂ @S	MnO ₂ shell	200	0.2 C	690 mAhg ⁻¹	7
C@WS ₂ /S	WS ₂ layer &CNFs	500	0.5 C	995 mAhg ⁻¹	8
S@TiO ₂ /Ti ₂ C	S@TiO ₂ /Ti ₂ C nanoarchitecture	200	2C	464 mAhg ⁻¹	9
C/SiO ₂ /S	biomass carbon fiber@SiO ₂	500	1C	618.4 mAhg ⁻¹	10
MnO ₂ /S	Mesoporous MnO ₂ Nanospheres	500	1C	720.7 mAhg ⁻¹	11
NiO/C/S	NiO nanosheets@C	300	2 mA cm ⁻²	520 mAhg ⁻¹	12

Table S3. Comparison of electrochemical properties of different cathode composite in

 lithium sulfur batteries

References

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