Supporting Information

Synthesis and characterization of $MnIn_2S_4$/SWCNT composites as an anode material for Lithium-ion batteries

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Table S1. Grain size of pristine MIS and as-synthesis MIS/SWCNTs.

Samples	Grain Size (Å)
MIS	159
MIS/SWCNTs	103

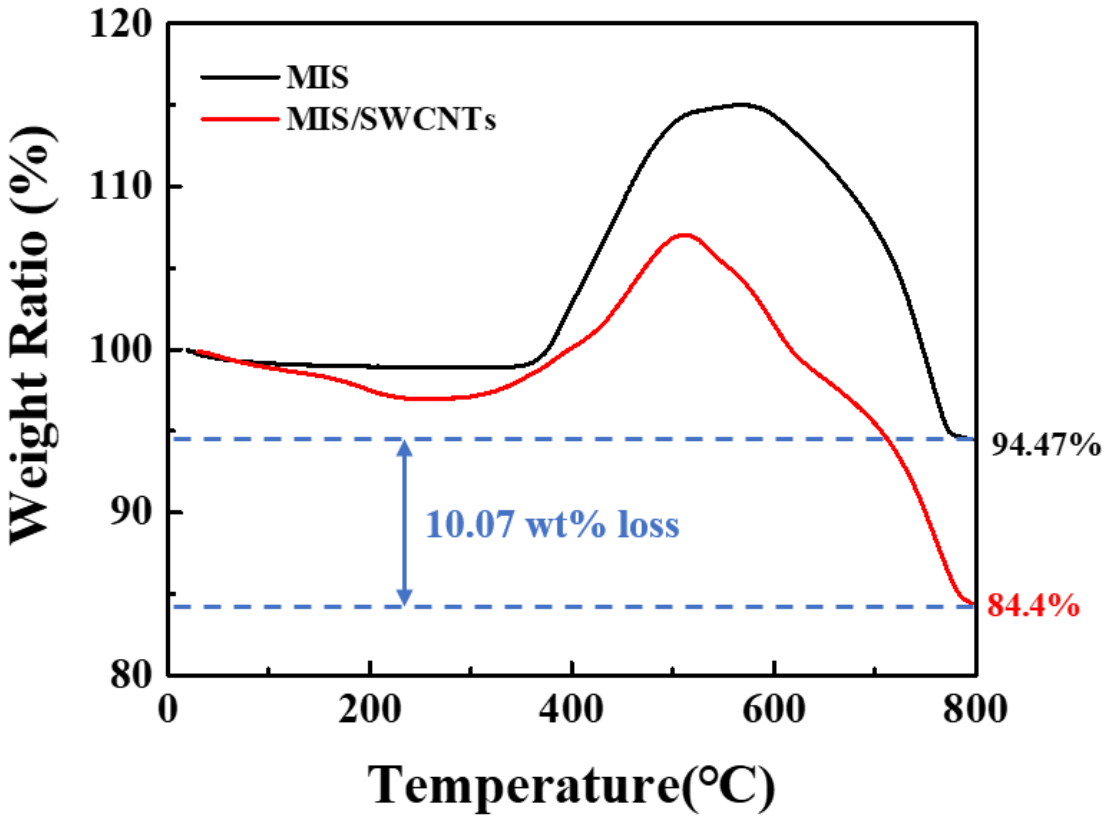

Figure S1. TGA of MIS and MIS/SWCNTs at heating rate of 10°C/min in air atmosphere.

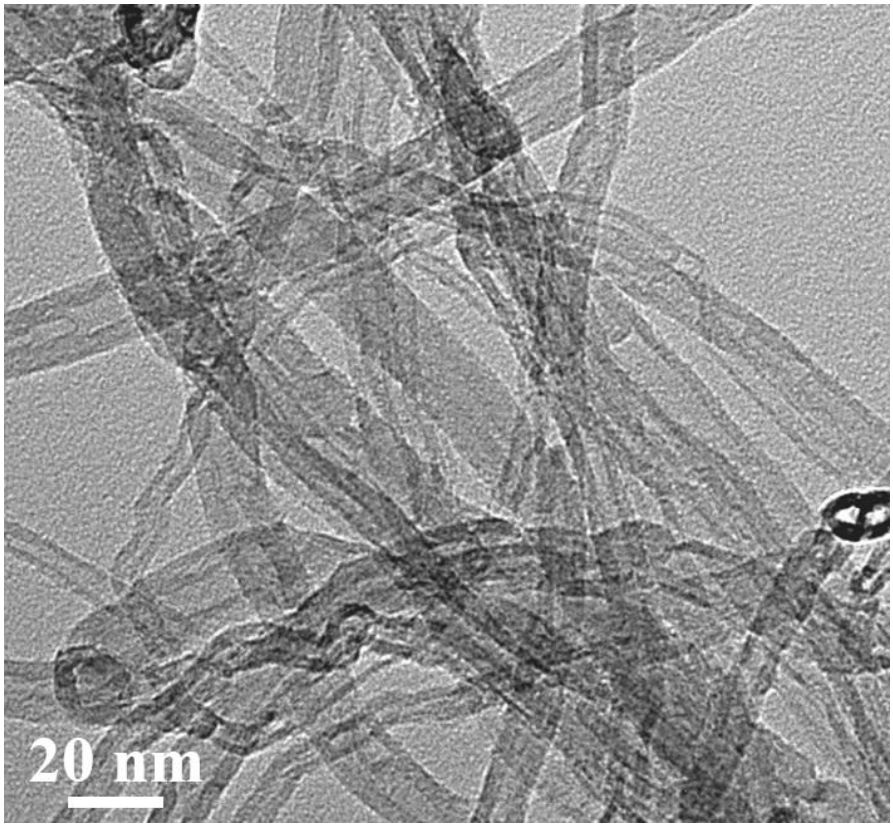

Figure S2. HRTEM of image of SWCNTs.

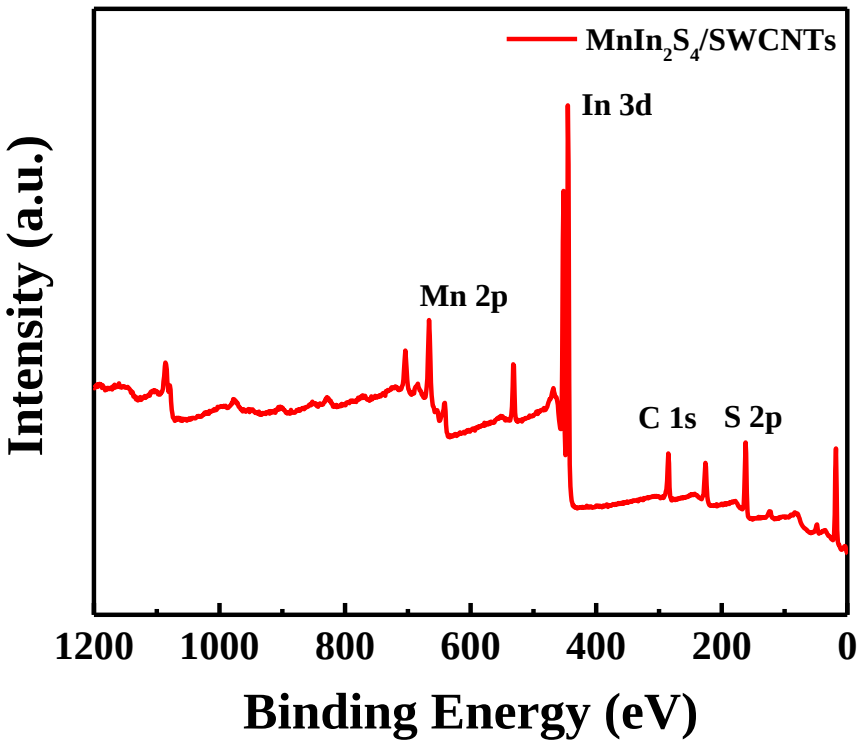

Figure S3. XPS survey spectrum of MIS/SWCNTs with high resolution.

Table S2. Electrochemical impedance parameters estimated from equivalent circuit.

Samples	R_s (Ω)	R_{SEI} (Ω)	R_{CT} (Ω)	Slope	R^2	D_{Li}^+(cm^2/s)
MIS	3.78	106.3	72.96	14.57	0.890	1.7 x10^{-14}
MIS/SWCNTs	14.83	60.2	27.93	4.63	0.927	1.7 x10^{-13}

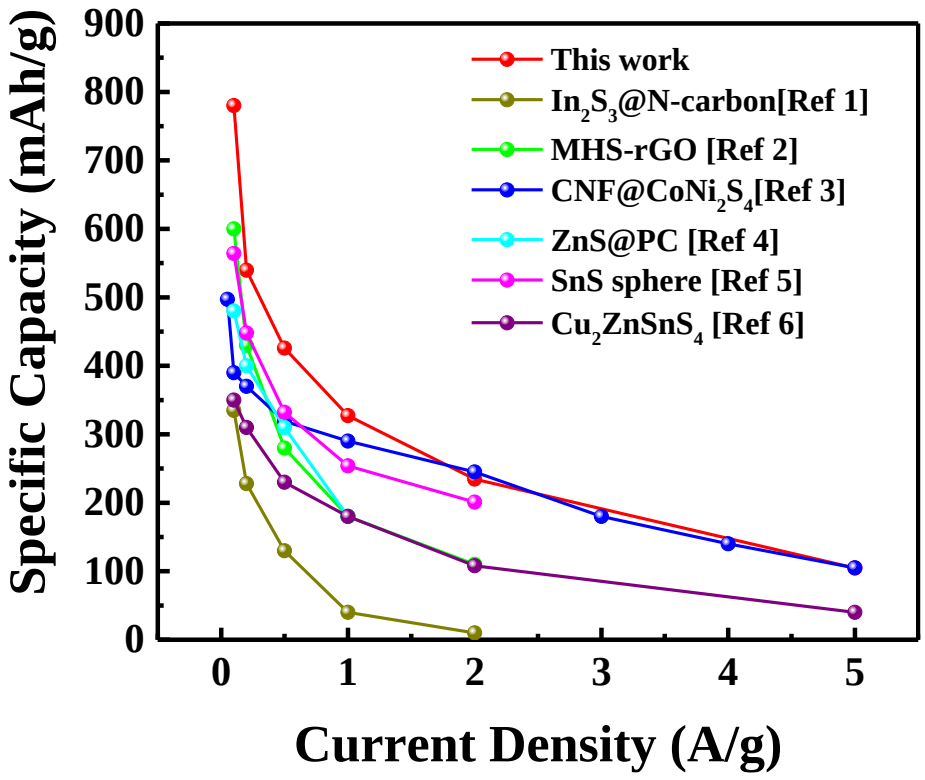

Figure S4. Rate performance comparison of as-earlier studies of transition metal sulfide anode for LIBs.

Table S3. Comparison of electrochemical performance with reported transition metal sulfide as anode materials for Lithium-ion batteries.

Samples	*ICE	Capacity (mAh/g)	After n^{th} cycles	Current density (A/g)	Ref.
MIS/SWCNTs	61%	536	100	0.2	This work
In_2S_3@N-carbon	44%	485	200	0.1	[1]
MHS-rGOs	69%	500	50	0.2	[2]
CNF@$CoNi_2S_4$	n/a	~520	100	0.1	[3]
ZnS@PC	n/a	438	300	0.1	[4]
SnS sphere	64%	414	100	0.1	[5]
Cu_2ZnSnS_4	34%	234	30	0.1	[6]

References

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