Supporting information of

Synthesis of SnO_2/MoS_2 composites with Different Component Ratios and their Applications as Lithium Ion Battery Anodes

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	ICP Measured Value		Calculated Value		Component	
Sample Name	Sn (wt%)	Mo (wt%)	O (wt%)	S (wt%)	SnO_2 (wt%)	MoS_2 (wt%)
MoS_2	-	55.63	-	37.18	-	92.82
SnO_2/MoS_2-1	22.90	36.01	6.17	24.06	29.07	60.06
SnO_2/MoS_2-2	33.93	26.53	9.15	17.7	43.08	44.27
SnO_2/MoS_2-3	43.79	17.22	11.81	11.51	55.60	28.73
SnO_2/MoS_2-4	50.75	9.94	13.68	6.64	64.43	16.58

Figure S1. ICP analysis of atomic percentages of pure MoS_2 and various SnO_2/ MoS_2 composites.

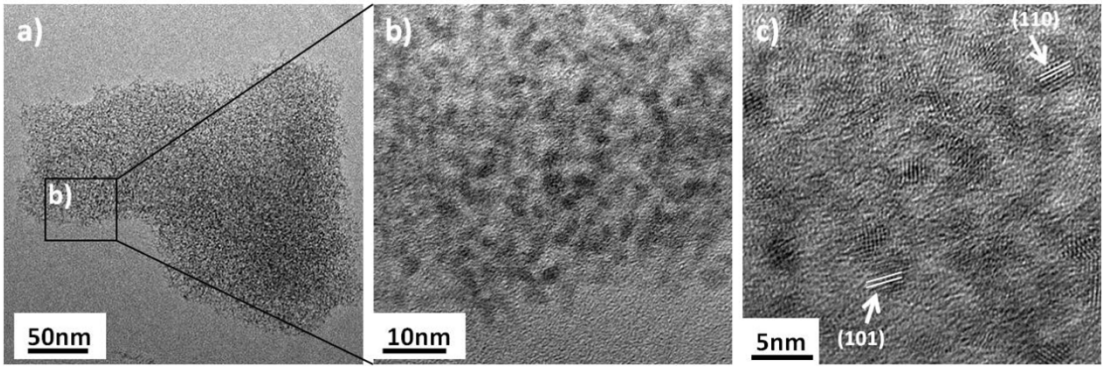

Figure S2. TEM images of SnO_2 nanoparticles under different magnifications.

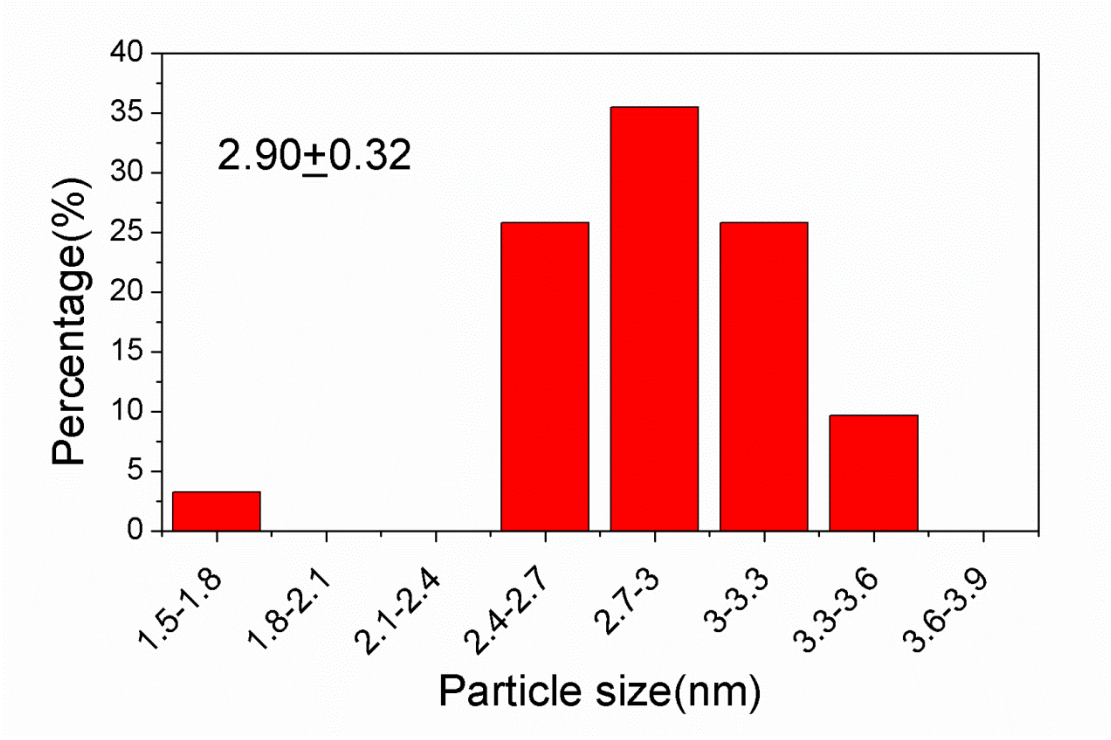

Figure S3. Size distribution of SnO_2 nanoparticles from SnO_2/MoS_2 composites.

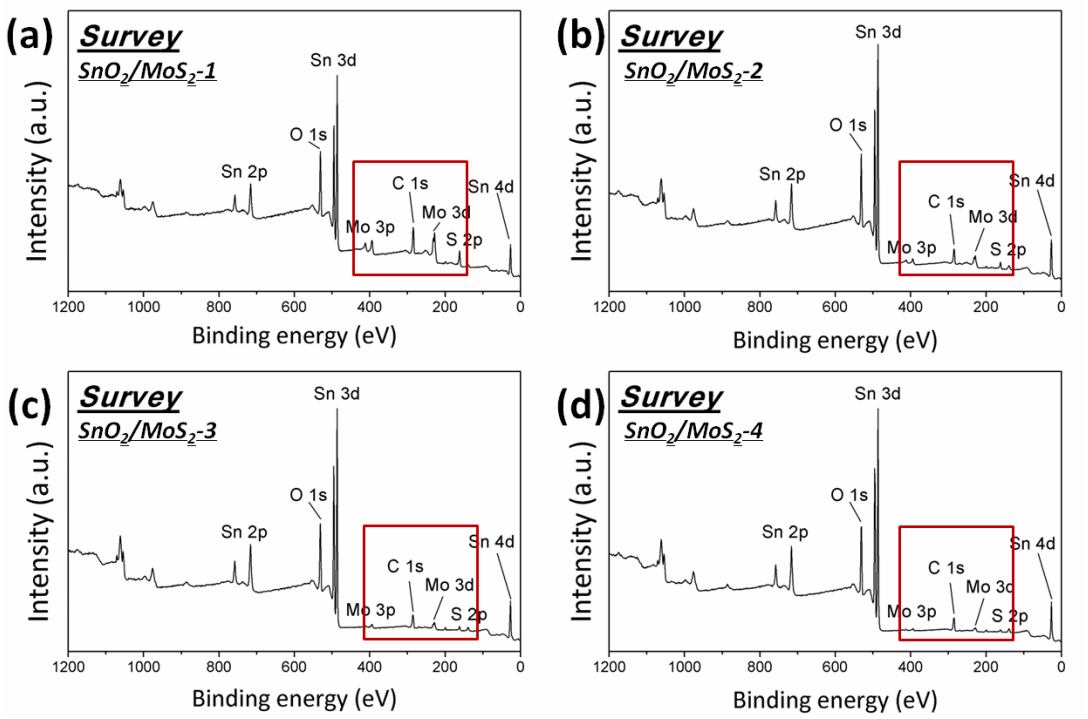

Figure S4. XPS survey spectra of (a) SnO_2/MoS_2-1, (b) SnO_2/MoS_2-2, (c) SnO_2/MoS_2-3, and (d) SnO_2/MoS_2-4.

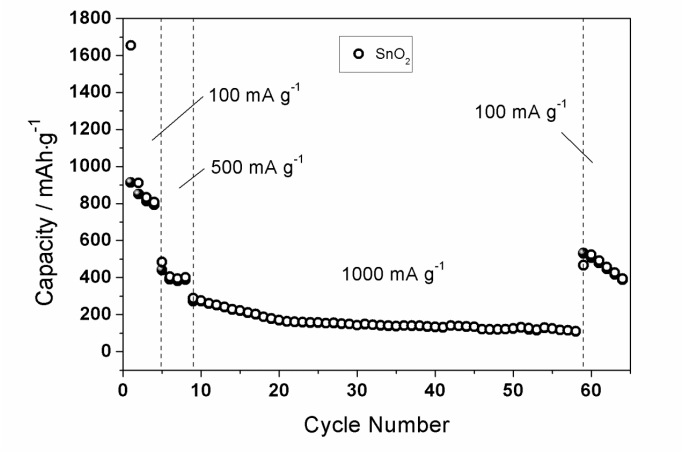

Figure S5. Electrochemical performance of pristine SnO_2 nanoparticles.

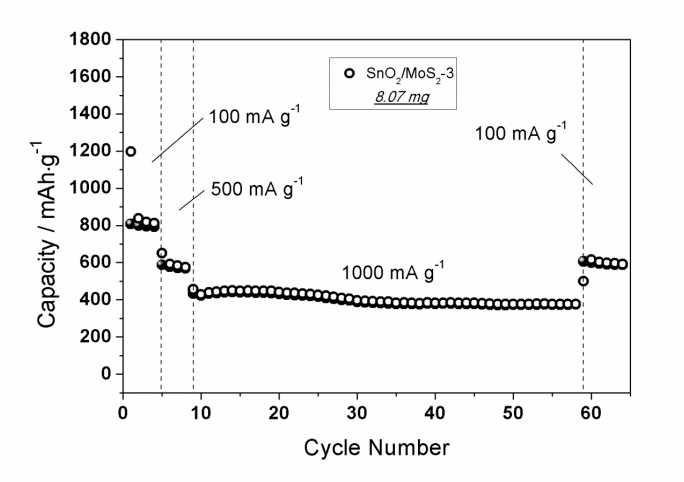

Figure S6. Electrochemical performance of SnO_2/MoS_2-3 with high loading amount.

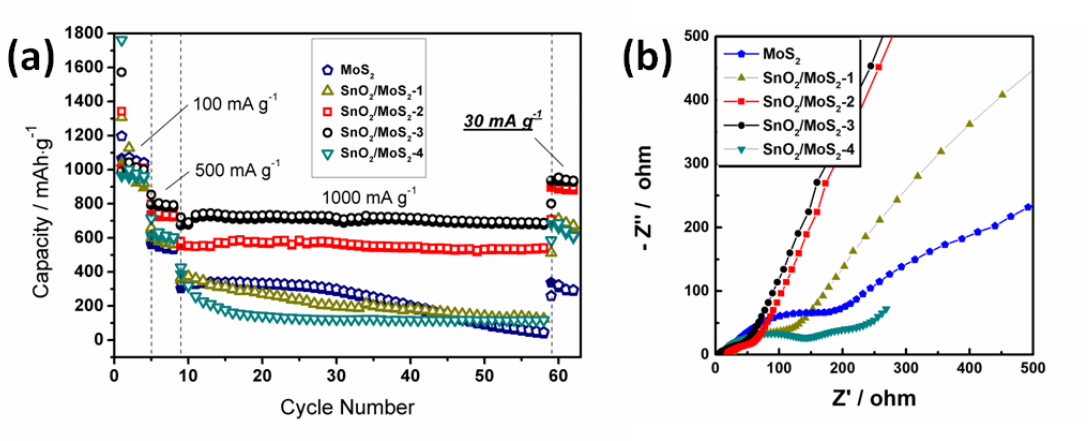

Figure S7 (a) Electrochemical behaviors and (b) corresponding Nyquist plots of all four composites and pure MoS_2 nanosheets when the current density returned to a lower value of 30 mA g^{-1} at 59th cycle.

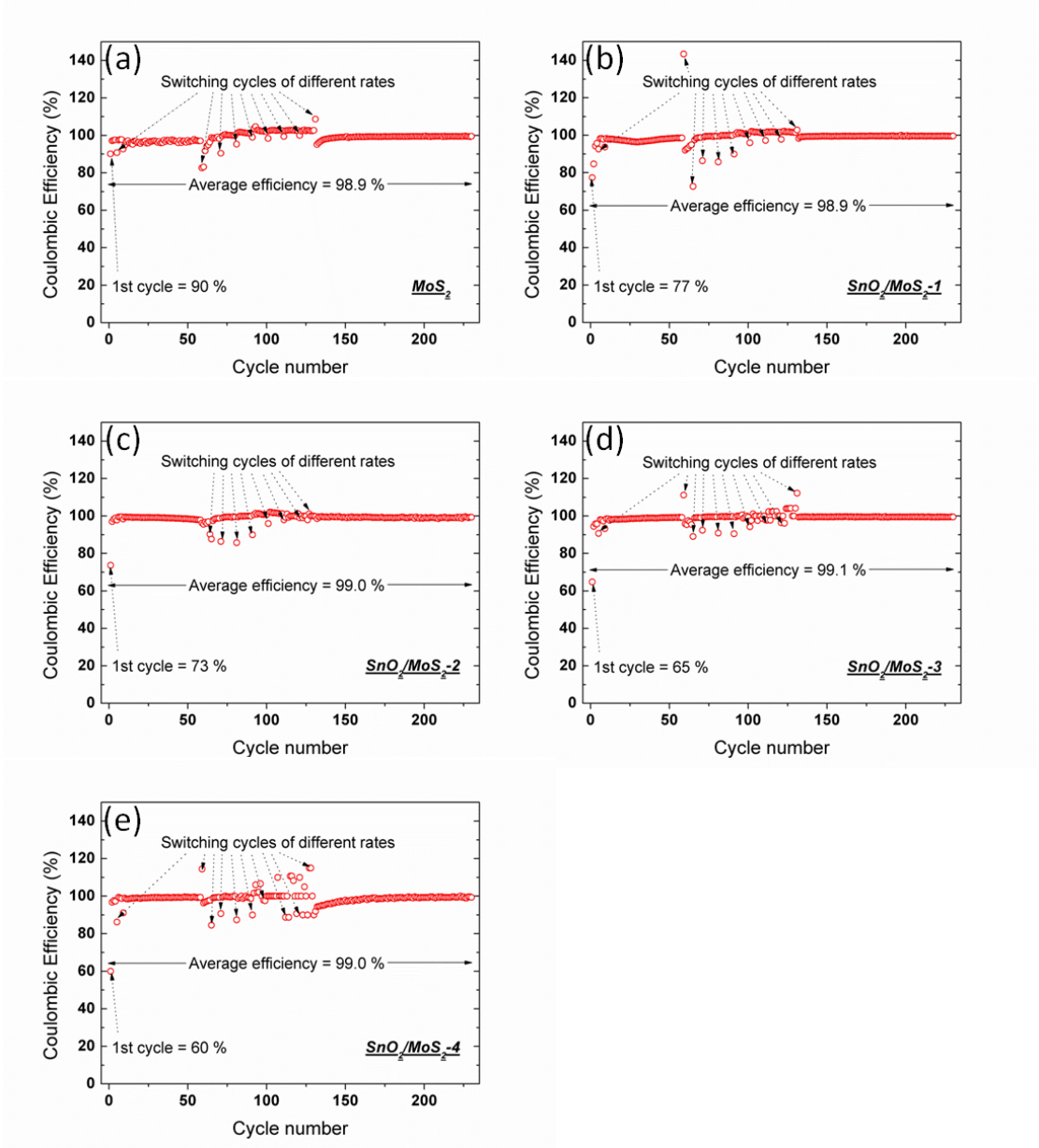

Figure S8. Coulombic efficiencies of a) MoS_2, b) SnO_2/MoS_2-1, c) SnO_2/MoS_2-2, d) SnO_2/MoS_2-3, and e) SnO_2/MoS_2-4.

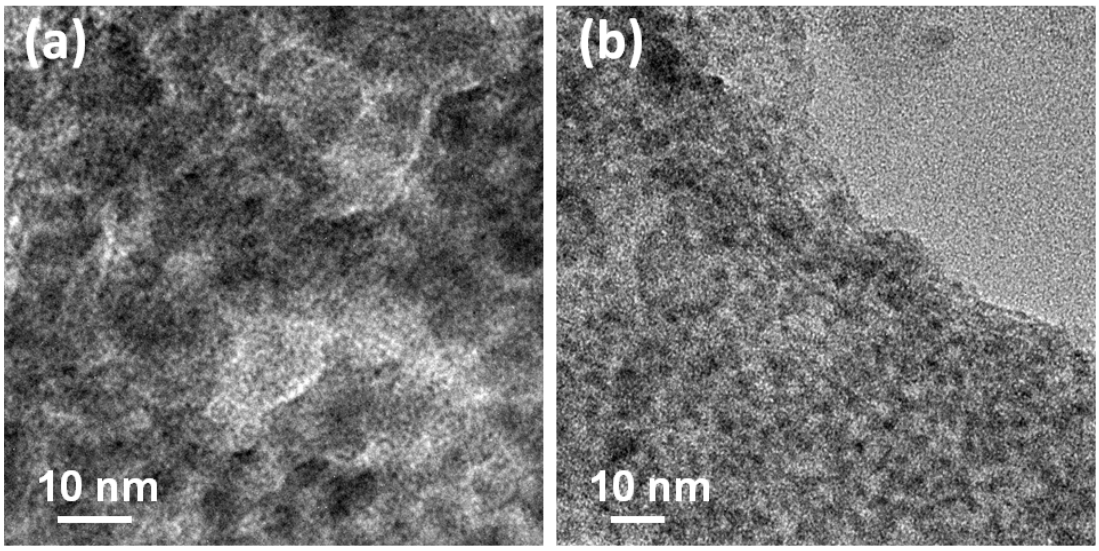

Figure S9. TEM images of (a) MoS_2 nanosheets and (b) SnO_2/MoS_2-3 composite after electrochemical tests.

Anodes	SnO_2/MoS_2 -3	SL-MoS_2-GNS02	MoS_2/G/ PEO	SnO_2/G	3D Sn-G
Initial capacity capacity @ current density ($mAh\,g^{-1}$@$mA\,g^{-1}$)	979 @100	912 @100	730 @100	978 @67	1081 @293
Rate capability capacity @ current density ($mAh\,g^{-1}$@$mA\,g^{-1}$)	658 @1000	571 @1000	500 @1000	400 @1000	460 @879
Cyclic Stability Capacity change (cycle number) @ current density ($mAh\,g^{-1}$@$mA\,g^{-1}$)	+18(100) @1000	~ -30(55) @100	~ -20(5) @1000	-200 (50) @100	+6(4000) @879
Reference	This work	[23]	[33]	[34]	[35]

Figure S10. Comparison of electrochemical performance of SnO_2/MoS_2-3 and those of similar works in literature.