

Supporting Information

Metallic 1T MoS₂ Nanosheet Arrays Vertically Grown on Activated Carbon Fiber Cloth for Enhanced Li-Ion Storage Performance

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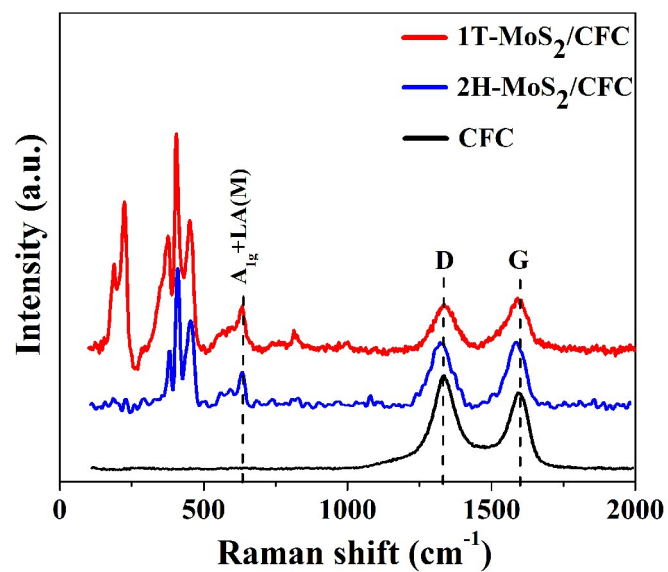


Figure S1. Raman spectra of CFC, 1T-MoS₂/CFC and 2H-MoS₂/CFC.

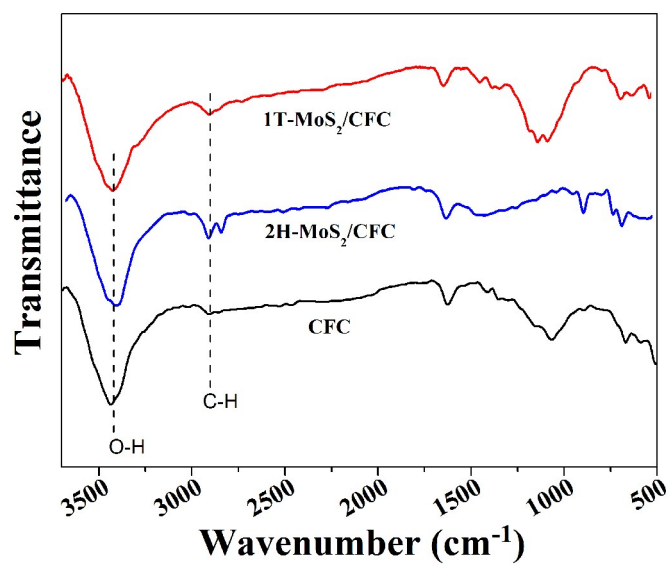


Figure S2. FT-IR spectrum of CFC, 2H-MoS₂/CFC and 1T-MoS₂/CFC.

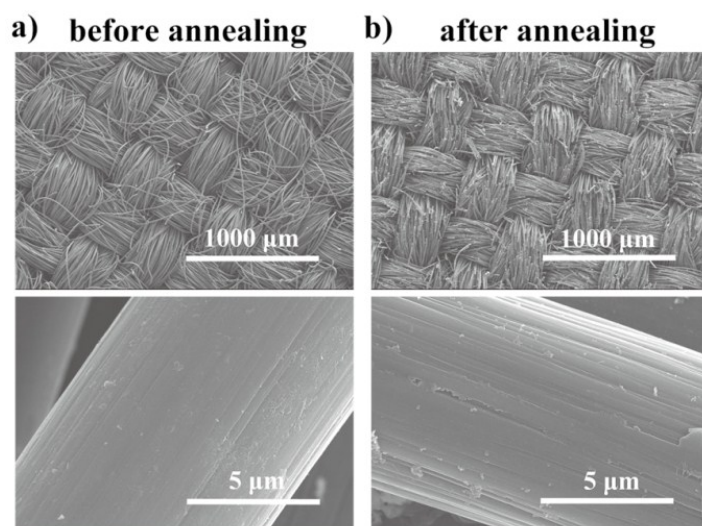


Figure S3. SEM images of the original CFC (a-b) before and (c-d) after annealing at 450 °C in air.

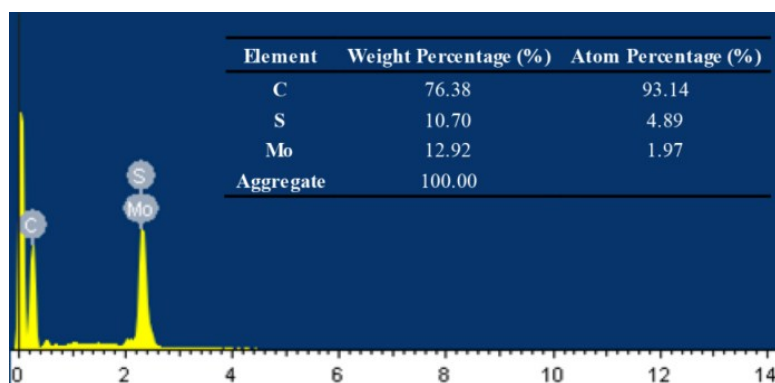


Figure S4. EDX spectrum of MoS₂/ACF

Table S1. Comparison of MoS₂ based anode materials

Active material	Phase of MoS ₂	Current density (mA/g)	Reversible capacity (mAh/g)	CE (%)	Reference
1T-MoS ₂ /CFC	1T	100	1789	81	Our work
2H-MoS ₂ /CFC	2H	100	1026	83	Our work
2H /1T-MoS ₂ /Graphene	2H/1T	2000	715	--	1
MoS ₂ /CNT	2H	100	1726	91	2
MoS ₂ /RGO/o-MWCNT	2H	100	1275	75	3
MoS ₂ +MoC/MWCNT	2H	100	963	--	4
MoS ₂ /Cnanosheet	2H	100	1191	76	5

C@MoS ₂ nanoboxes	2H	100	1164	59	6
MoS ₂ /PNFs	2H	100	1210	--	7
PVP-C@MoS ₂	2H	100	1136	--	8
Mesoporous-Carbon/MoS ₂	2H	100	1750	64	9
MoS ₂ @N-CF	2H	1000	839	85	10
MoS ₂ /RGO/CFC	2H	200	1225	--	11
MoS ₂ / Carbon nanofiber	2H	100	1267	74	12
MoS ₂ /CFC	2H	100	1125	81	13
C@MoS ₂ nanoboxes	2H	100	1164	59	14

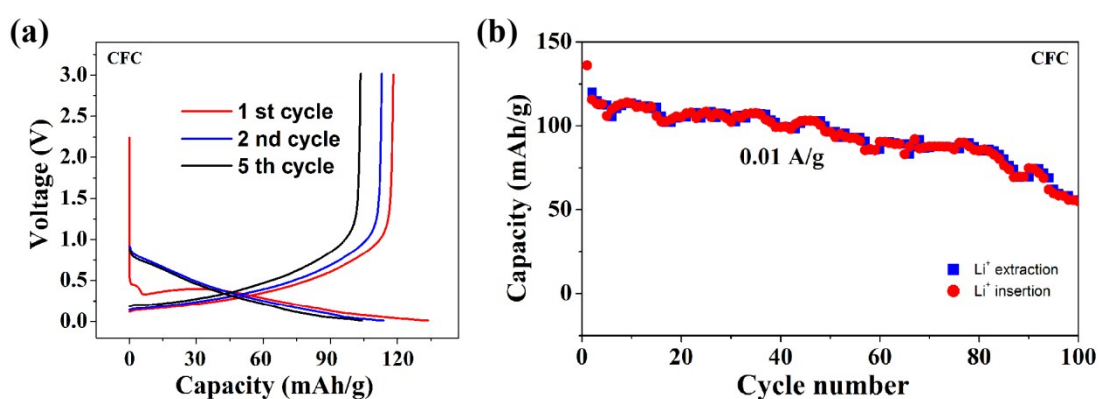


Figure S5. (a) Galvanostatic charge-discharge profiles of CFC at current densities of 0.01 A/g. (b) Cycling performance of CFC at current densities of 0.01 A/g (the weight of CFC is 18.85 mg; the reversible capacity is 117 mAh/g in the first cycle)

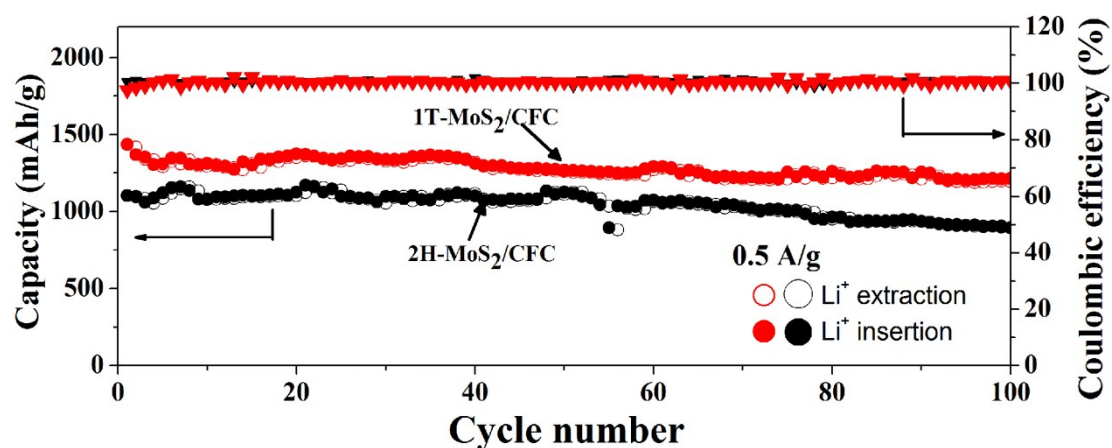


Figure S6. Cycling performance of 1T-MoS₂/CFC and 2H-MoS₂/CFC at current density of 0.5 A/g for 100 cycles.

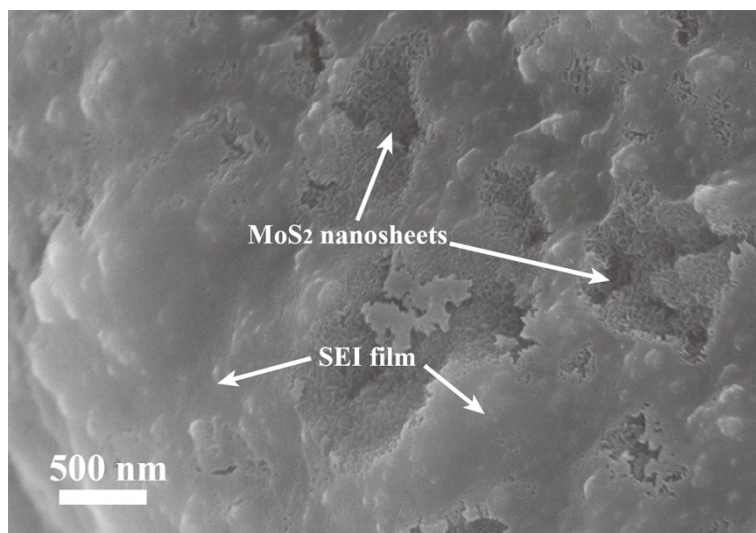


Figure S7. SEM images of 1T-MoS₂/CFC electrodes recharged to 3.00 V after 100 cycles at current densities of 0.5 A/g.

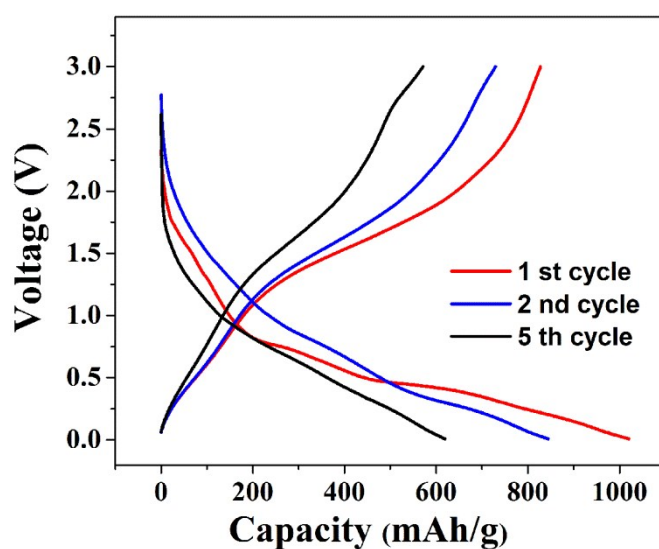


Figure S8. Galvanostatic charge-discharge profiles of 1T-MoS₂ nanosheet powder at current densities of 0.1 A/g.

For contrast, the 1T-MoS₂ nanosheet powder electrode was prepared by collecting the precipitate (1T-MoS₂ nanosheet powder) after completing the same reaction without CFC, mixing 10 wt % of acetylene black as conducting agent and 10 wt % of polyvinylidene fluoride as binder to form a homogeneous slurry, and then spreading

uniformly onto a copper foil with the mass loading of about 1.3 ± 0.2 mg/cm².

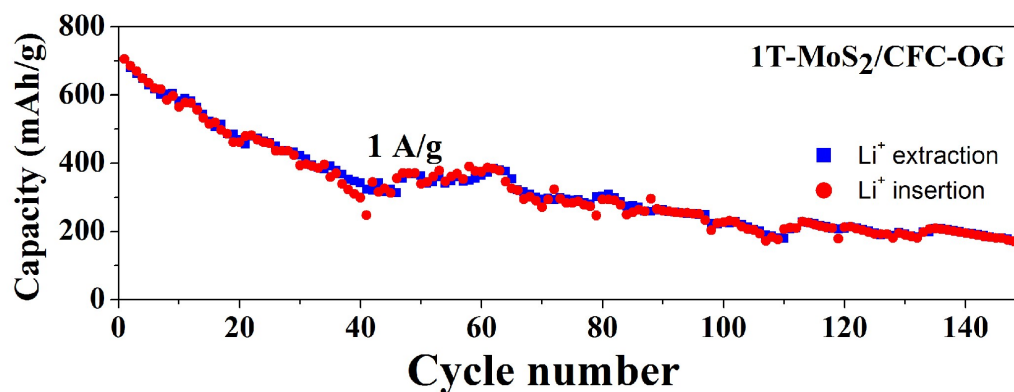


Figure S9. Cycling performance of the MoS₂/CFC grown under DMF:H₂O = 0.5:1.0 vol/vol at current density of 1 A/g.

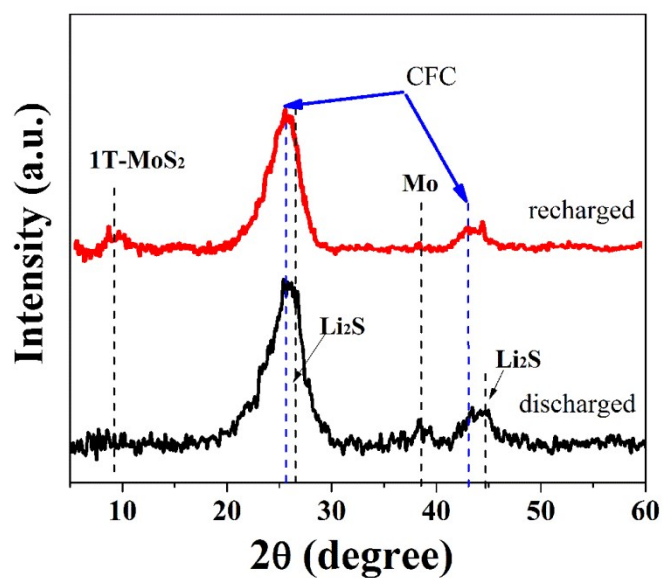


Figure S10. XRD patterns of 1T-MoS₂/CFC discharged to 0.01 V and then recharged to 3.00 V after 10 cycles at current density of 1 A/g.

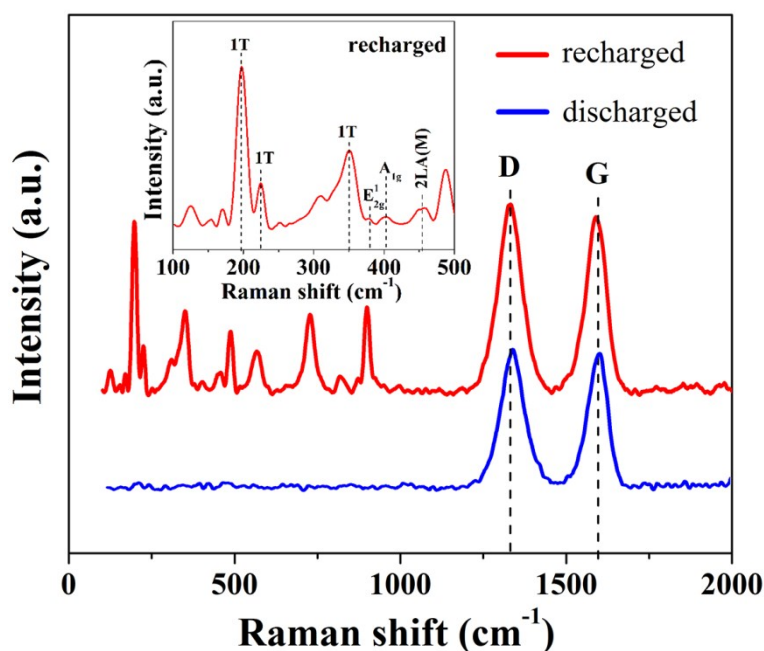


Figure S11. Raman patterns of 1T-MoS₂/CFC discharged to 0.01 V and then recharged to 3.00 V after 10 cycles at current density of 1 A/g.

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