Supplementary Information (SI) for Nanoscale.

SUPPORTING INFORMATION

In-Situ Growth of Layered 1T-MoS_2 onto Carbon Nanofibers as a Strategy Towards Advanced Hybrid Materials for Electrochemical Energy Storage and Catalysis

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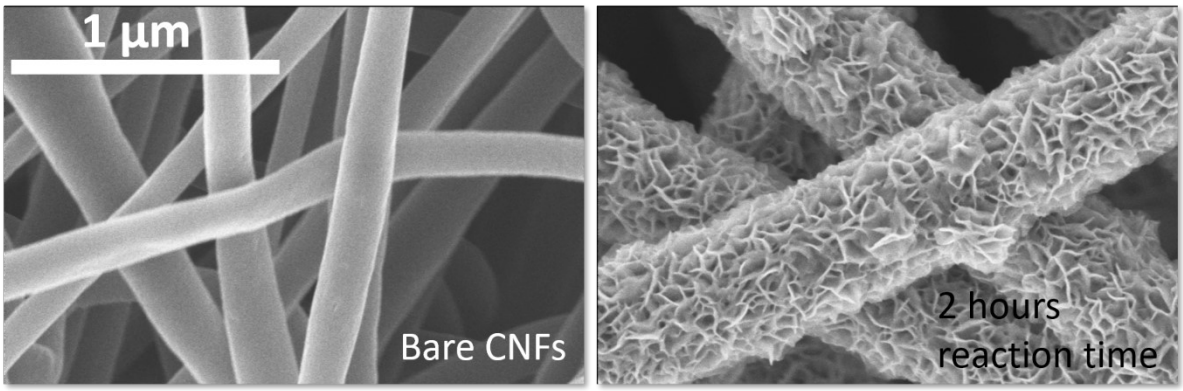

Figure S1. High resolution SEM of bare CNFs and 1T-MoS_2/CNFs 2 h.

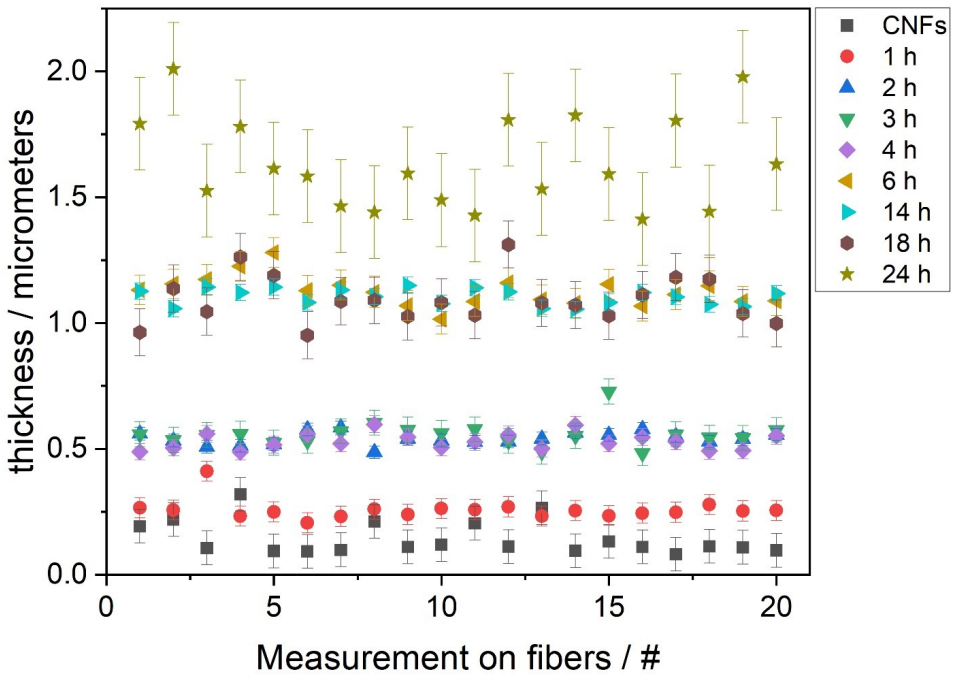

Figure S2 Thickness distribution of all the samples measured by pixels.

Table S1 Values of average thickness of all the samples.

Reaction time / h	Thickness / nm	Standard deviation / nm
0	144.17	0.06686
1	257.35	0.03978
2	541.37	0.02526
3	557.82	0.04935
4	530.09	0.03312
6	1126.34	0.05918
14	1103.69	0.03223
18	1092.89	0.09372
24	1637.08	0.18421

Table S2 weight ratios of all the elements detected from EDX in all the samples.

1 h	**Wt %**	**2 h**	**Wt %**
C	84.2	C	7.7
S	5.8	S	34.2
N	4.8	N	1.1
Mo	3.1	Mo	54.5
O	1.6	O	2.5
W	0.4		
Cl	0.1		
Na	0.1		
3 h	**Wt %**	**4 h**	**Wt %**
C	3.8	C	4.4
S	36.0	S	38.0
N	0.9	N	1.1
Mo	57.9	Mo	54.8
O	1.3	O	1.4
		Al	0.3

Table S3 quantification of Mo compounds in 1T MoS_2/CNFs 2 h, 1T MoS_2/CNFs 6 h and 1T MoS_2/CNFs 24 h from XPS spectra.

	1T MoS_2/CNFs 2 h	1T MoS_2/CNFs 6 h	1T MoS_2/CNFs 24 h

1T MoS_2 ratio	57.25%	81.52%	87.09%
2H MoS_2 ratio	19.73%	8.71%	12.91%
MoO_3 ratio	23.02%	9.77%	0

Table S 4 Specific capacitances of all the samples calculated from CVs.

Scan rate / mV s^{-1}	**Bare CNFs / F g^{-1}**	**CNFs MoS_2 2h / F g^{-1}**	**CNFs MoS_2 6h / F g^{-1}**	**CNFs MoS_2 24h / F g^{-1}**
10	20.41	29.67	20.92	18.96
20	18.69	27.50	15.07	12.58
50	15.68	20.63	6.16	5.59
100	13.19	15.19	2.89	2.62
150	11.72	12.10	1.77	1.63
200	10.73	10.07	1.25	1.14
250	9.98	8.59	0.95	0.86
500	7.75	5.02	0.39	0.34

Table S 5 fitting values of PEIS of all the samples.

	Serial Resistance / Ω	**Charge Transfer Resistance / Ω**	**Capacitance CPE / F**
CNFs	0.94851	0.85149	$4.33 \cdot 10^{-5}$
CNFs 2h MoS_2	1.2314	2.3122	$2.67 \cdot 10^{-5}$
CNFs 6h MoS_2	1.0613	11.0387	$2.87 \cdot 10^{-5}$
CNFs 24h MoS_2	2.5593	9.6437	0.0129

Table S 6 potential at 10 mA/cm2 of all the samples.

Sample	**V at 10 mA/cm²**
CNF bare	- 0.66
CNF MoS_2 2h	- 0.26

CNF MoS_2 6h	- 0.20
CNF MoS_2 24h	- 0.24

Table S 7 ECSA of all the samples.

Sample	**ECSA (mF/cm^2)**
CNF bare	2.29
CNF MoS_2 2h	0.067
CNF MoS_2 6h	0.094
CNF MoS_2 24h	0.050