

Supplementary Information

Three Dimensional Manganese Oxide on Carbon Nanotube Hydrogels for Asymmetric Supercapacitors

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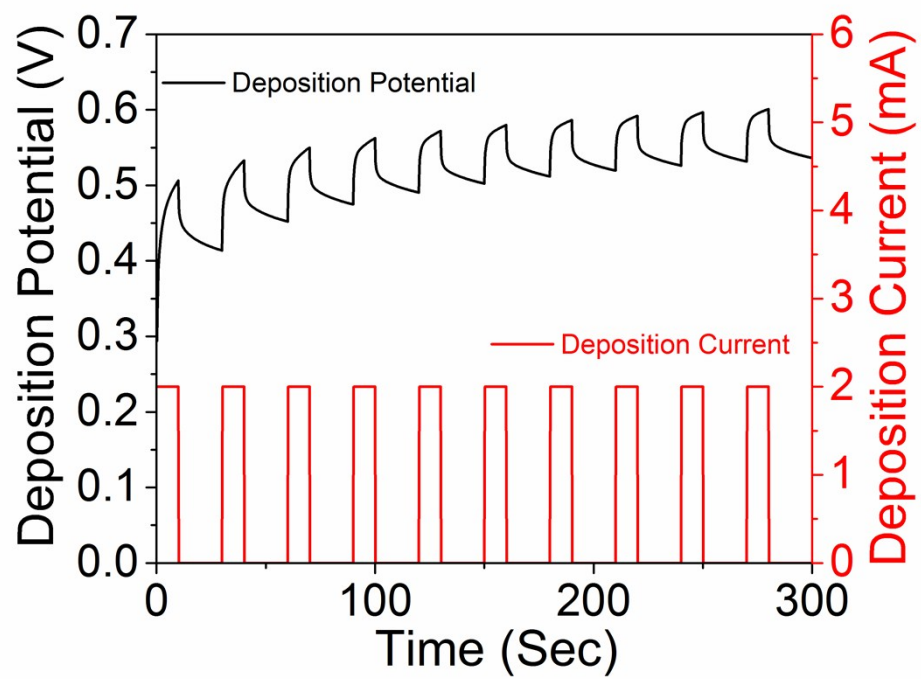


Fig. S1 First ten cycles of deposition potential and current patterns of Mn_3O_4 on CNT hydrogel

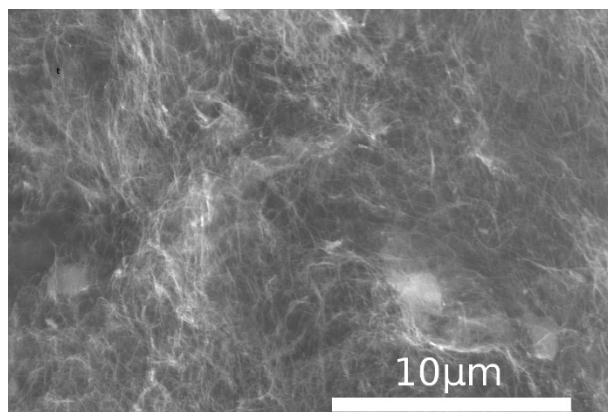


Fig. S2 FESEM image of the CNT hydrogels on nickel foam.

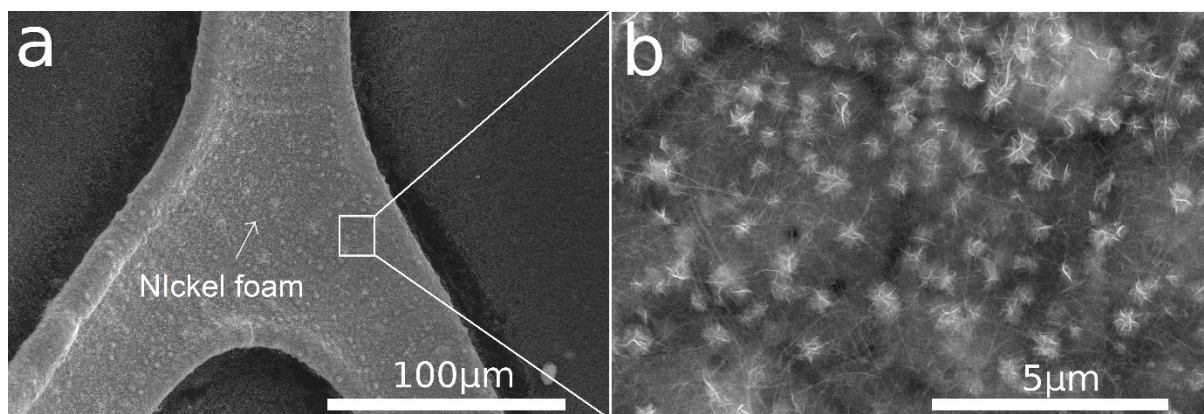


Fig. S3 FESEM images of the $\text{Mn}_3\text{O}_4/\text{CNTs}$ on nickel foam back foams with (a) low and (b) high magnification.

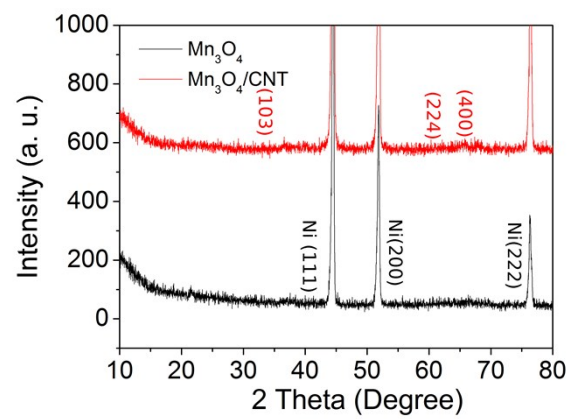
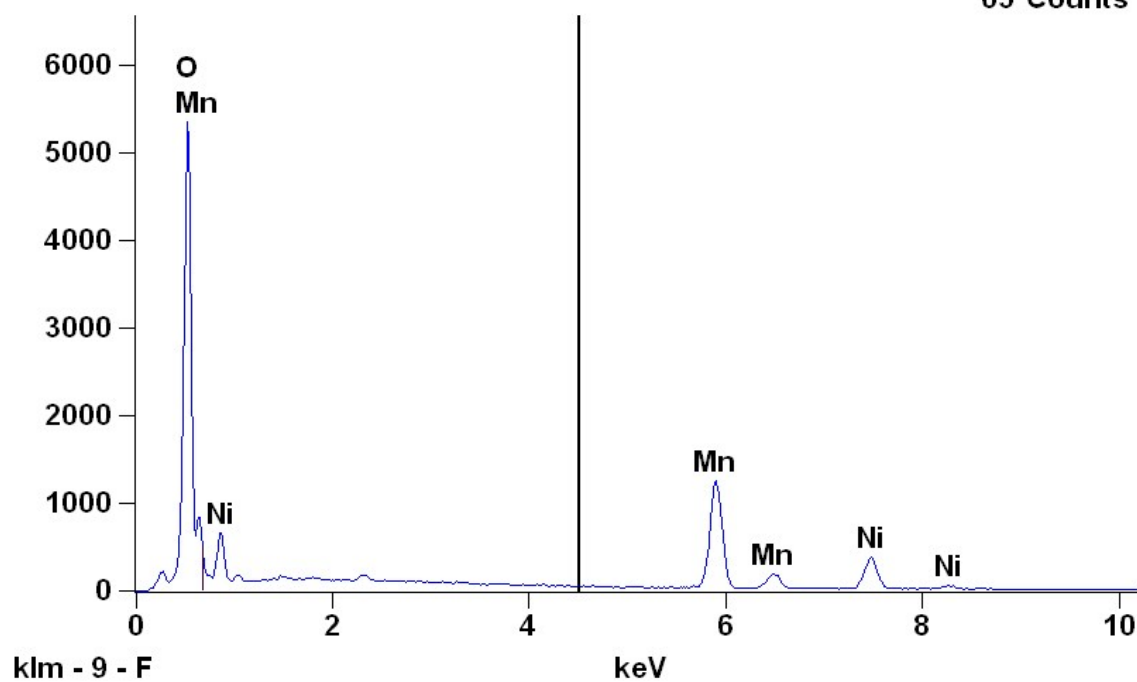


Fig. S4 XRD patterns of the Mn_3O_4 and $\text{Mn}_3\text{O}_4/\text{CNT}$ composites.

Full scale counts: 5346

Base

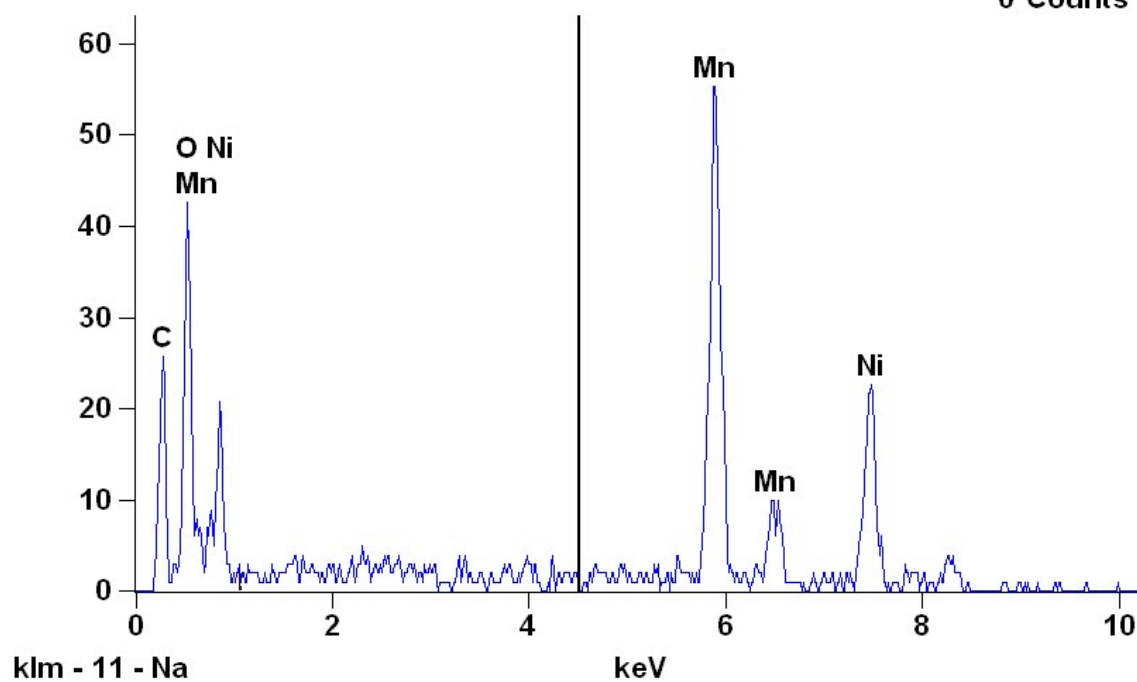
Cursor: 4.500 keV
65 Counts

Element	Weight %	Weight % Error	Norm. Wt. %	Norm. Wt. % Err	Atom %	Atom % Error
O	13.76	+/- 0.12	13.76	+/- 0.12	36.30	+/- 0.31
Mn	34.40	+/- 0.45	34.40	+/- 0.45	26.43	+/- 0.34
Mn	---	---	---	---	---	---
Ni	51.84	+/- 1.54	51.84	+/- 1.54	37.27	+/- 1.10
Ni	---	---	---	---	---	---
Total	100.00		100.00		100.00	

Fig. S5 EDX results of Mn_3O_4 deposited at nickel foam

Full scale counts: 56

Base

Cursor: 4.500 keV
0 Counts

<i>Element</i>	<i>Weight %</i>	<i>Weight % Error</i>	<i>Norm. Wt. %</i>	<i>Norm. Wt. % Err</i>	<i>Atom %</i>	<i>Atom % Error</i>
<i>C</i>	16.99	+/- 1.00	16.99	+/- 1.00	39.24	+/- 2.31
<i>O</i>	16.09	+/- 0.87	16.09	+/- 0.87	27.90	+/- 1.51
<i>Mn</i>	38.56	+/- 2.38	38.56	+/- 2.38	19.47	+/- 1.20
<i>Mn</i>	---	---	---	---	---	---
<i>Ni</i>	28.35	+/- 3.43	28.35	+/- 3.43	13.40	+/- 1.62
<i>Ni</i>	---	---	---	---	---	---
<i>Total</i>	100.00		100.00		100.00	

Fig. S6 EDX results of Mn₃O₄/CNT hydrogel.

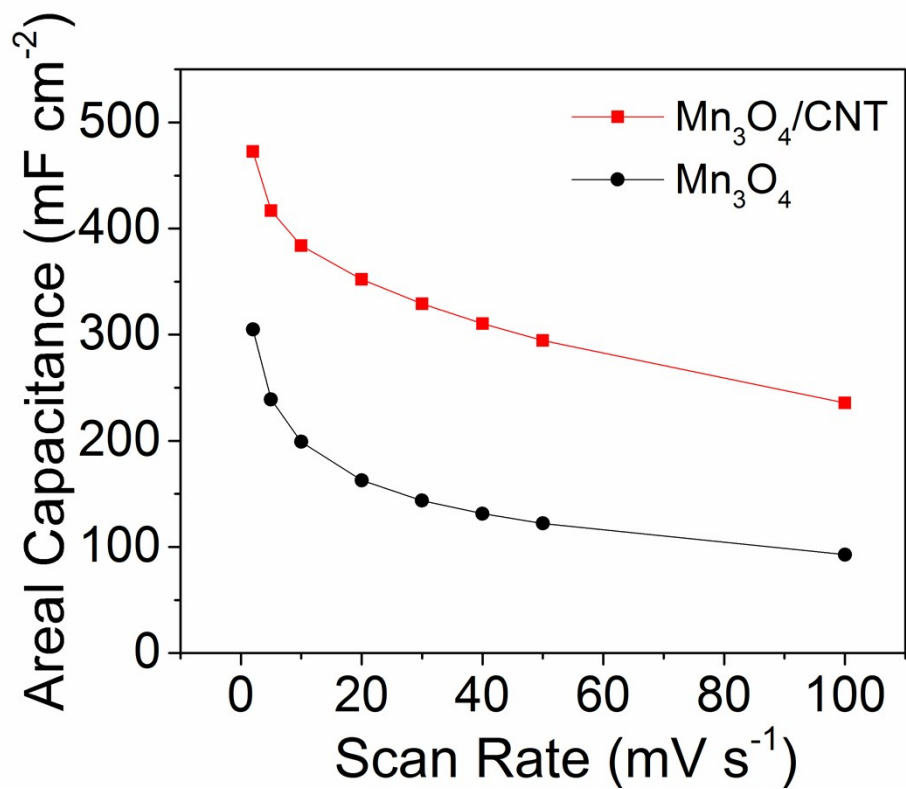


Fig. S7 Areal Capacitances of Mn₃O₄/CNT hydrogel composite and Mn₃O₄ at different scan rates.