Supporting Information

Scalable and Bendable Organized Mesoporous TiN Films Templated by a Dual-function Amphiphilic Graft Copolymer for Solid Supercapacitors

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Figure S1. Cross-sectional FE-SEM image of om-TiO_2.

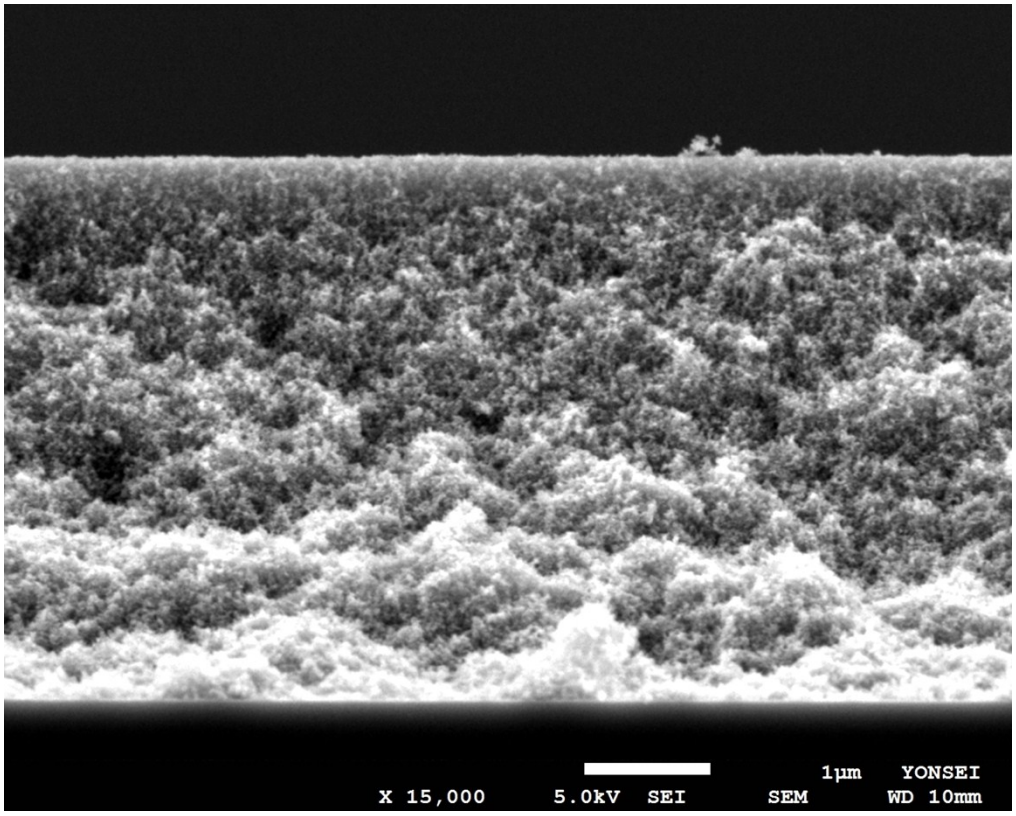
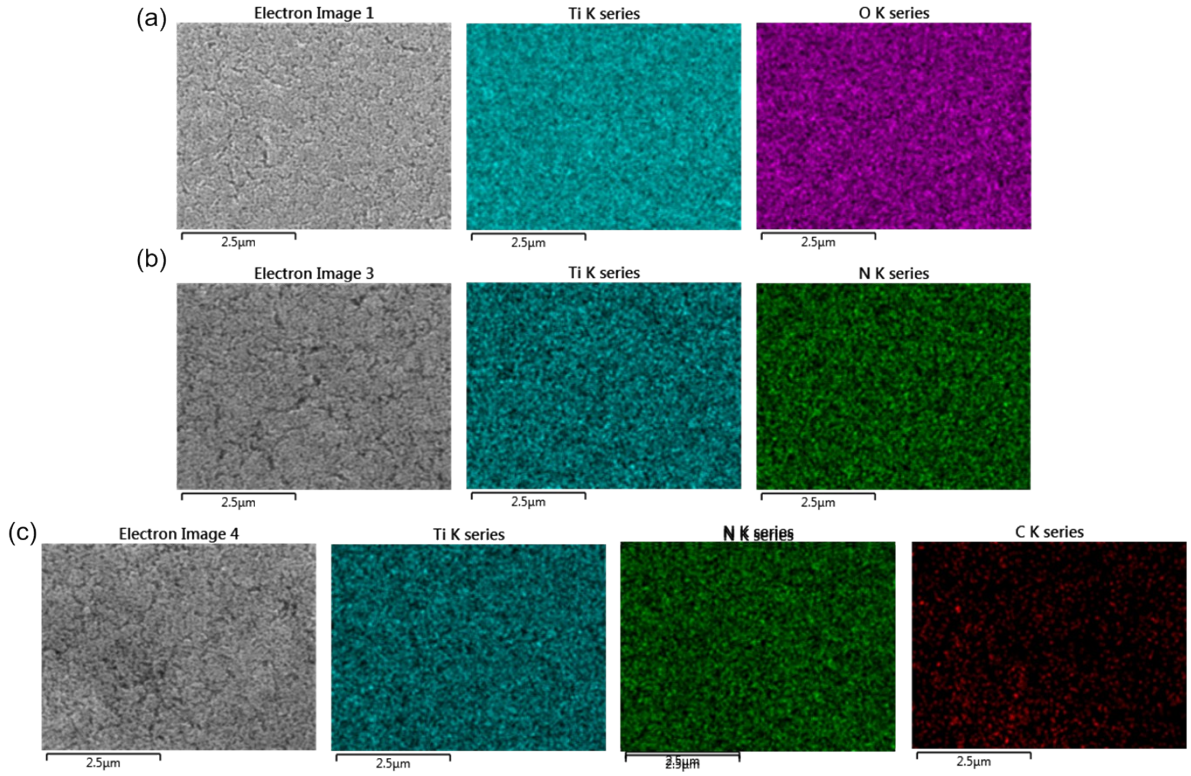


Figure S2. EDS mapping images of (a) om-TiO_2, (b) om-TiN, and (c) om-TiN/C and (d) atomic concentrations of samples.



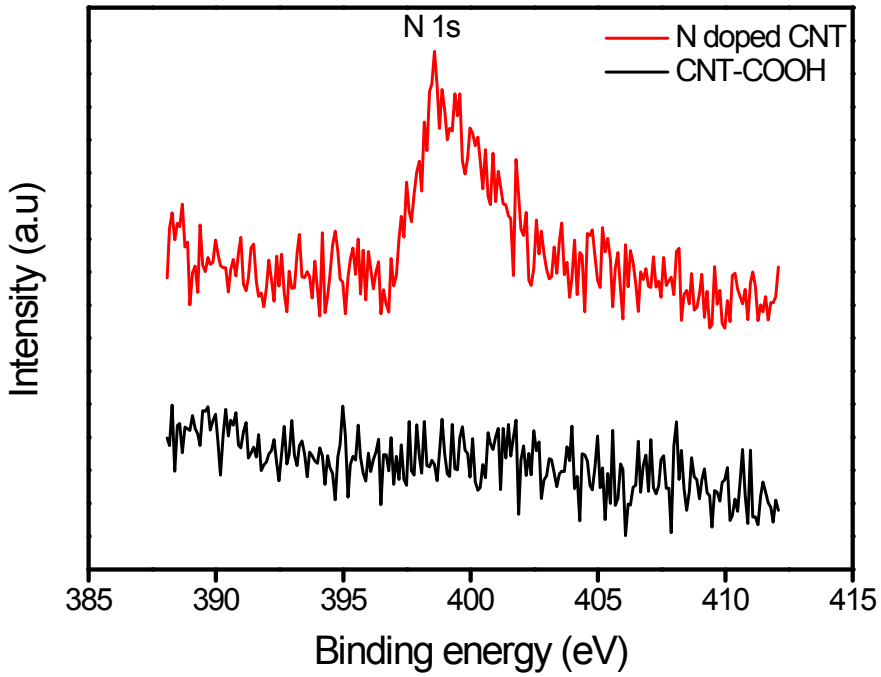
(d)

	Ti (%)	O (%)	N (%)	C (%)
om-TiO_2	25.58	74.42	-	-
om-TiN	49.74	-	50.26	-
om-TiN/C	42.79	-	50.11	7.09

Table S1. Atomic concentrations of each sample derived from XPS data.

Atom (%)	om-TiO_2	om-TiN	om-TiN/C
Ti2p	22.6	24.6	24.3
O1s	55.7	28.3	28.8
N1s	-	25.9	24.4
C1s	21.7	21.2	22.5

Figure S3. XPS spectra and atomic concentrations of COOH-CNT and N-CNT.



	Atomic Conc. (%)	
Atom	CNT-COOH	N-CNT
C 1s	92.56	96.85
O 1s	7.3	2.12
N 1s	0.14	1.03

Figure S4. Change in capacitance retention of an om-TiN/C solid supercapacitor with a PVA/H_3PO_4 electrolyte as a function of the CV scan rate.

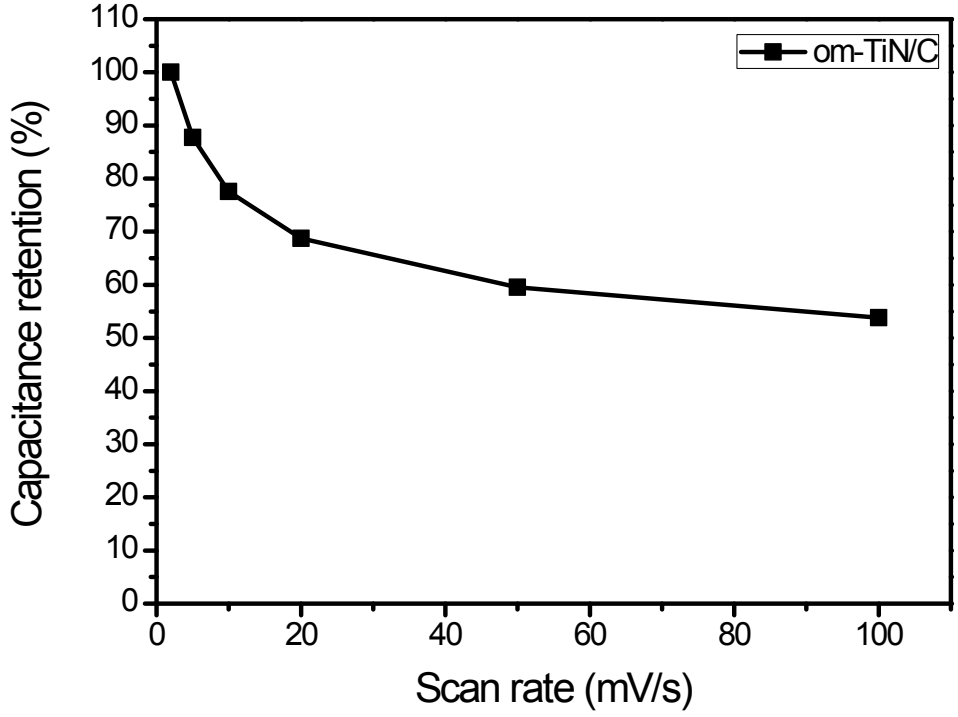


Figure S5. Change in capacitance retention of an om-TiN/C solid supercapacitor with a PVA/H_3PO_4 electrolyte as a function of charge–discharge cycle number.

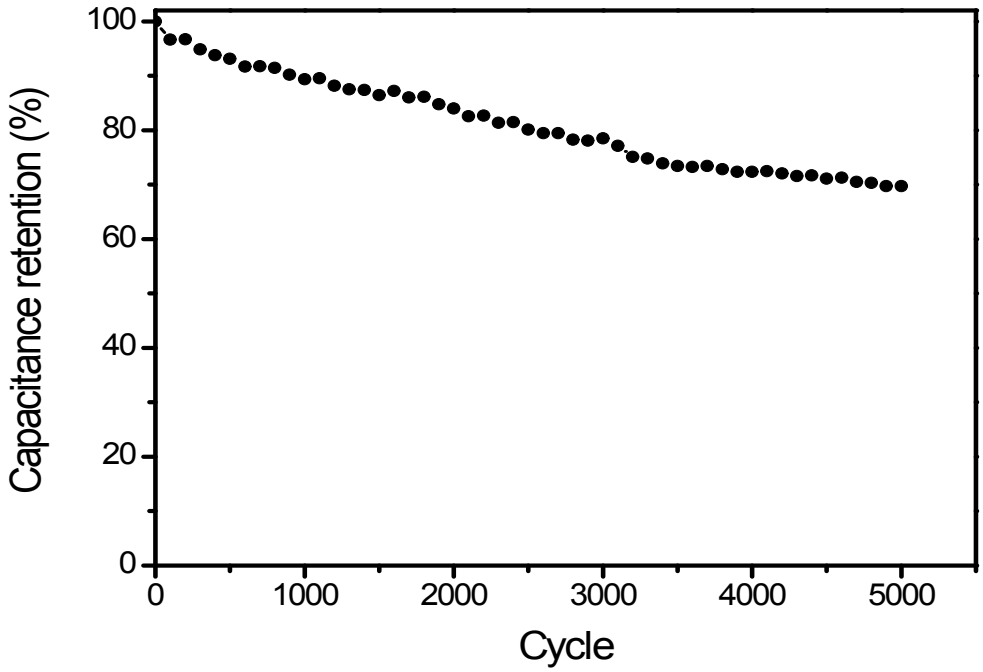


Figure S6. Galvanostatic charge–discharge measurements of an om-TiN/C supercapacitor at high specific currents.

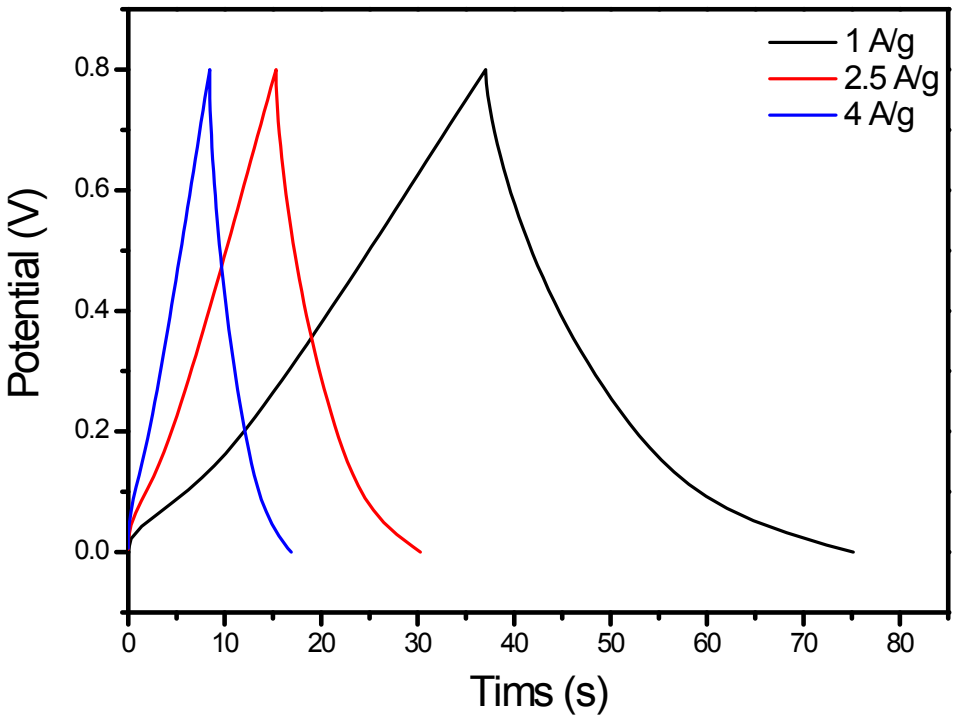


Figure S7. Open circuit voltage of each supercapacitor after charging to 0.8V.

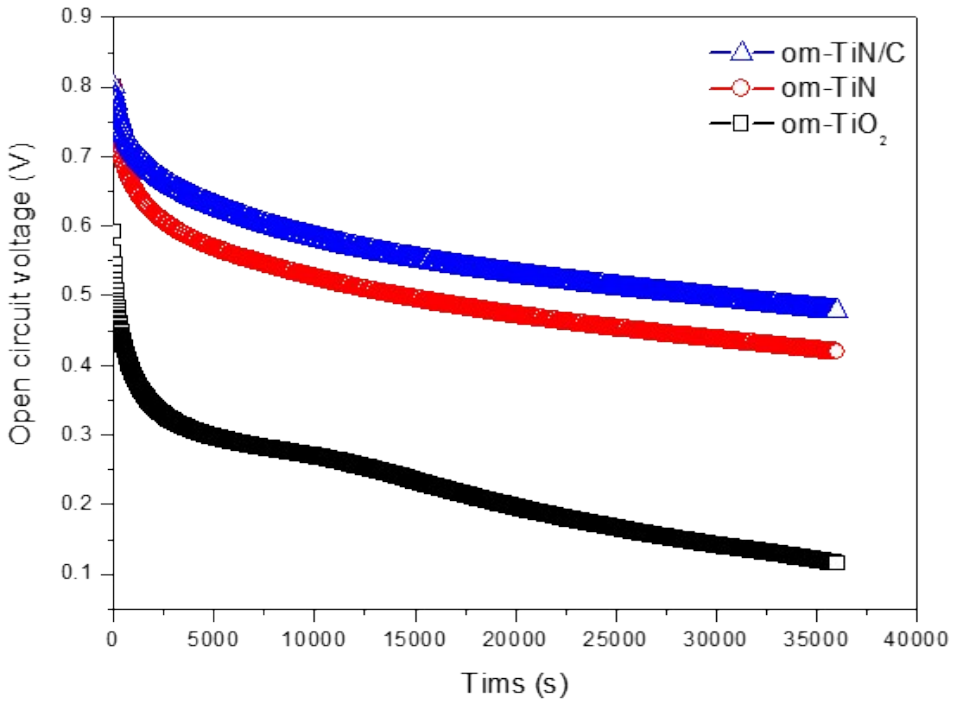


Figure S8. (a-c) N_2 adsorption-desorption curves of om-TiO_2, om-TiN and om-TiN/C films and (d) pore size distributions of the films determined using the BJH method.

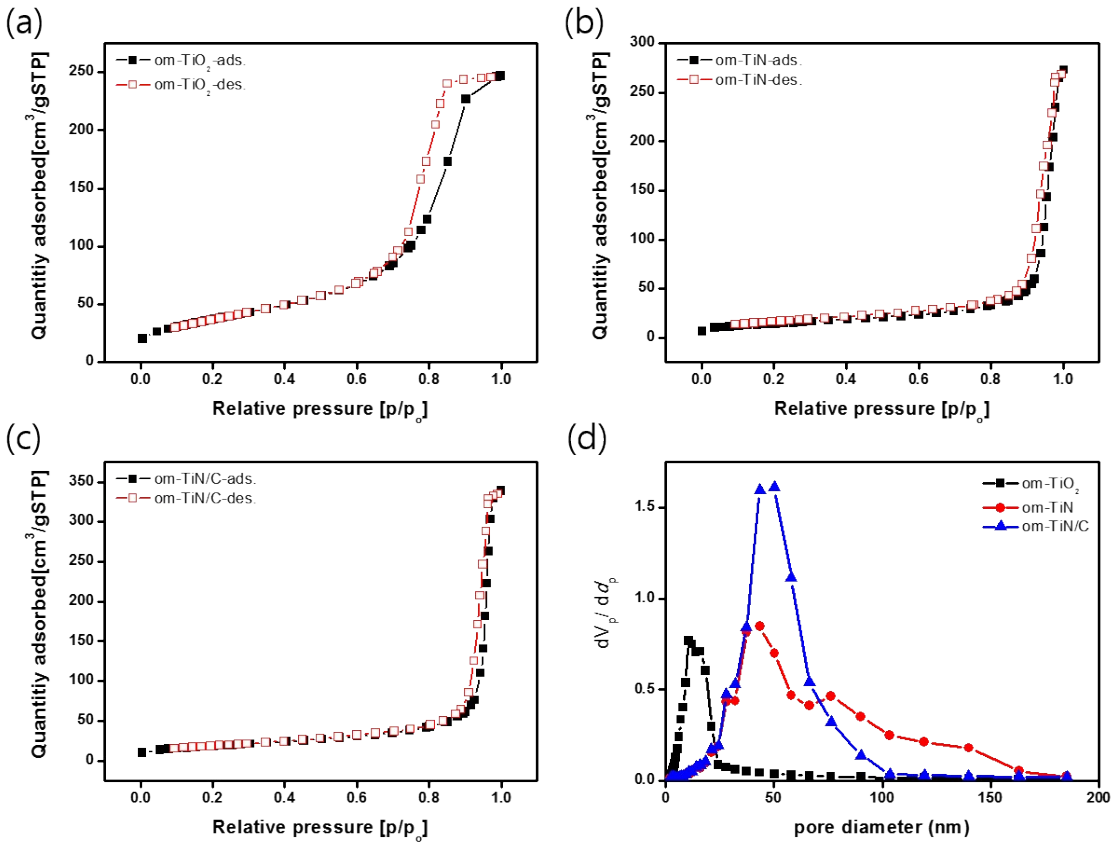


Figure S9. CV curves of a solid supercapacitor with a PVC-g-POEM/EMIM_TFSI solid electrolyte at different scan rates.

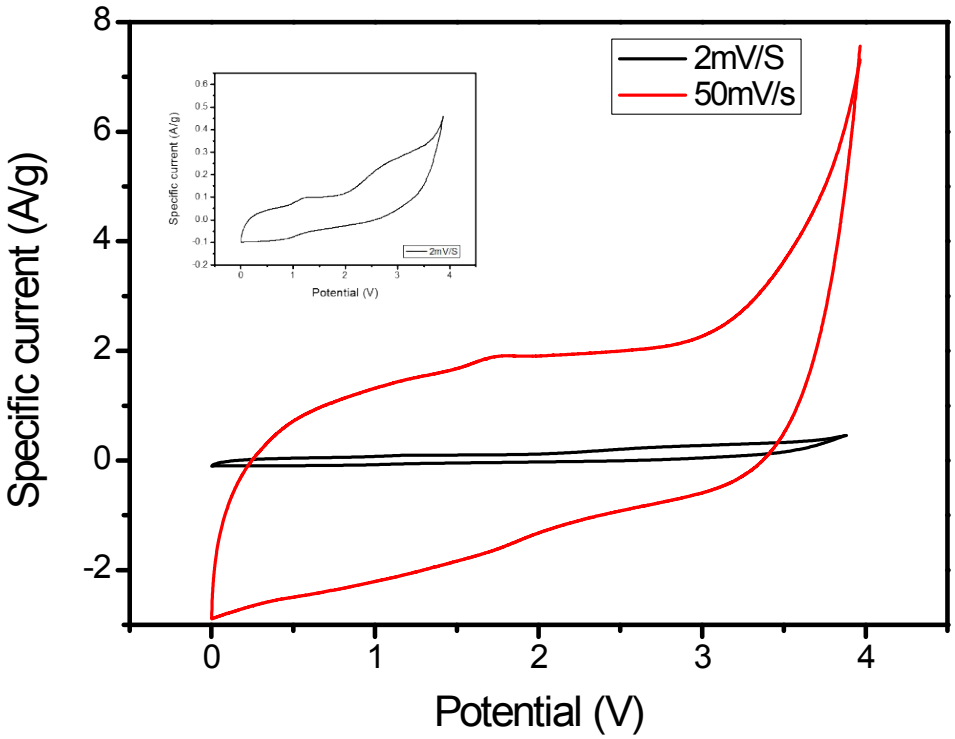


Table S2. Reported capacitance values of supercapacitors based on TiN as the active material.

Materials	Electrolyte	State	Capacitance	Reference
om-TiN	PVA/H_3PO_4	Solid	128.5 F/g	Our work
om-TiN/CNT	PVA/H_3PO_4	Solid	213.6 F/g	Our work
om-TiN/CNT	PVC-g-POEM/EMIM_TFSI	Solid	266.8 F/g	Our work
TiN/carbon	2M KOH	Liquid	38.5 F/g	*J. Solid State Chem.* **2011**, *184*, 1333
TiN/VN/carbon	1M KOH	Liquid	170 F/g	*Mater. Res. Bull.* **2011**, *46*, 835
TiN/CNT	0.5M K_2SO_4	Liquid	116 F/cm^3	*J. Power Sources* **2015**, *300*, 525
TiN/carbon	1M $LiPF_6$	Liquid	135 F/g	*ACS Appl. Mater. Interfaces* **2011**, *3*, 93
TiN/CNT	0.5M K_2SO_4	Liquid	25.5 mF/cm^2	*Nano Energy* **2014**, *7*, 104
TiN/carbon	1M KOH	Liquid	238 F/g	*J. Electrochem. Soc.* **2006**, *153*, A2298
TiN/CNT	1M KOH	Liquid	17.85	*J. Am. Ceram. Soc.* **2006**, *89*, 156
TiN/carbon	1M KOH	Liquid	~160 F/g	*Adv. Energy Mater.* **2014**, 4, 1300994
TiN	PVA/KOH	Solid	123 F/g	*Nano Lett.* **2012**, *12*, 5376
TiN/graphene	1M LiCl	Liquid	~170 F/g	*Adv. Mater.* **2015**, *27*, 4566
TiN/Fe_2N/graphene	PVA/LiCl	Solid	~60 F/g	