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Supplementary Information

Electrospun MXene/Carbon Nanofibers as Supercapacitor Electrodes

Ariana S. Levitt,[ab] Mohamed Alhabeb,[a] Christine B. Hatter,[a] Asia Sarycheva,[a] Genevieve Dion,[b] Yury Gogotsi[a]*

[a] A.J. Drexel Nanomaterials Institute and Department of Materials Science and Engineering, Drexel University, 3141 Chestnut St, Philadelphia, PA 19104, USA

[b] Center for Functional Fabrics, Drexel University, 3141 Chestnut St, Philadelphia, PA 19104, USA

Corresponding author: Gogotsi@drexel.edu

Supplementary Figures and Tables

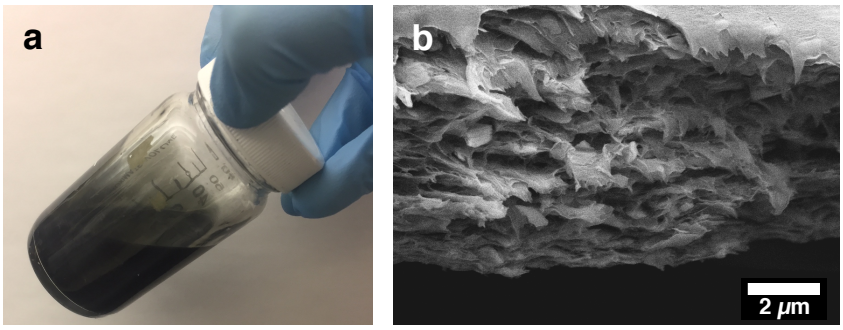

Figure S1. a) Optical image of a 2 wt.% $Ti_3C_2T_x$ MXene/8 wt.% PAN electrospinning solution; b) SEM image of a $Ti_3C_2T_x$ MXene/PAN film prepared through vacuum-assisted filtration.

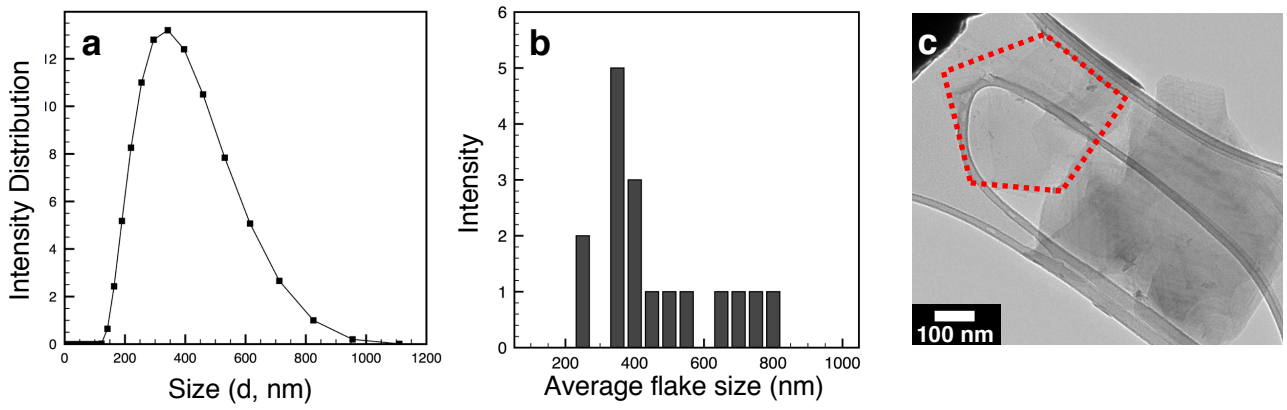

Figure S2. a) $Ti_3C_2T_x$ MXene flake size distribution analyzed using dynamic light scattering; b) histogram showing average $Ti_3C_2T_x$ flake size analyzed using TEM; c) TEM image of $Ti_3C_2T_x$ MXene flakes. A dilute solution of $Ti_3C_2T_x$ MXene in DMF was drop-casted onto a TEM grid for imaging.

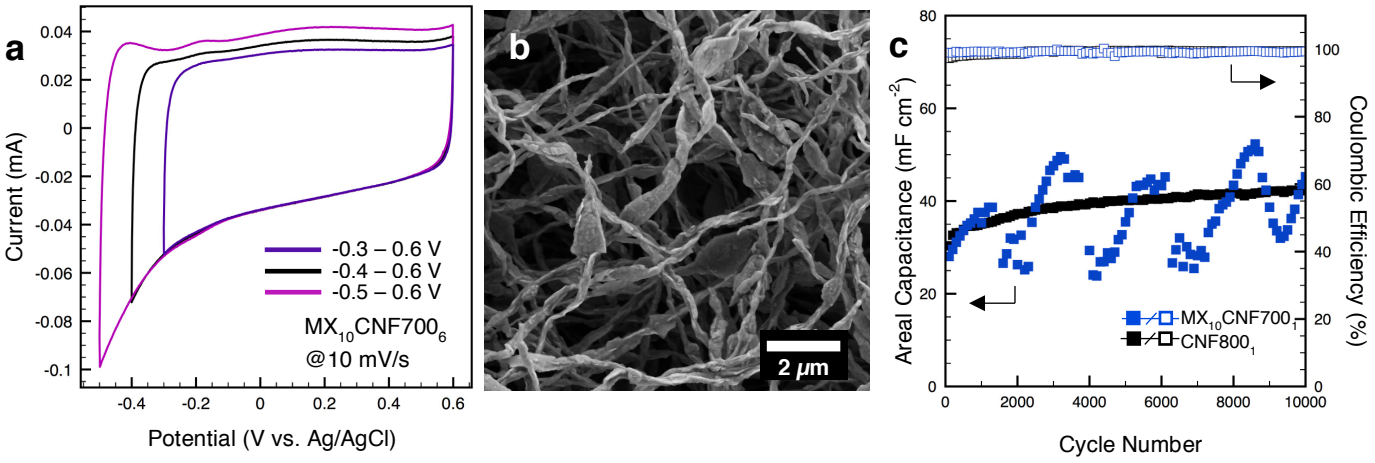

Figure S3. a) Cyclic voltammograms (CVs) of $MX_{10}CNF700_6$ fibers at 10 mV/s, testing the potential window; b) $MX_{10}CNF700_6$ fibers after cycling at 50 mV/s for 10,000 cycles; c) long cycling showing impact of environmental fluctuations on electrode performance.

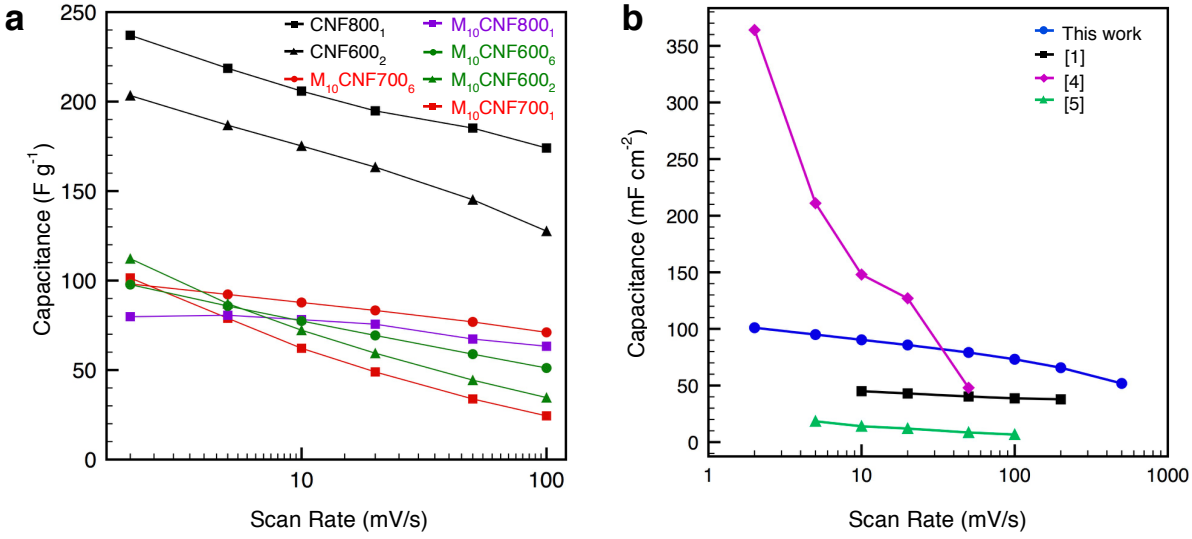

Figure S4. a) Rate handling plot in terms of gravimetric capacitance; b) rate handling plot comparing the performance of different electrode materials.

Table S1. Elemental analysis of $Ti_3C_2T_x$ MXene composite fibers before (as-spun) and after carbonization at 800 °C for 1 h. Standard deviation is shown.

Sample	Weight %						
	C	**N**	**Ti**	**O**	**Al**	**F**	**Cl**
10 wt.% MX (as-spun)	49.4±1.6	11.9±2.3	29.1±0.8	6.7±1.7	2.2±1.2	4.9±0.9	1.5±0.9
$MX_{10}CNF800_1$	31.7±1.2	--	39.6±3.4	30.9±1.3	--	--	--

Table S2. Electrochemical performance of fiber-based electrodes.

Electrode Material	Electrolyte	C_g ($F\ g^{-1}$)	C_A ($mF\ cm^{-2}$)	Ref.
Carbonized PAN/$Ti_3C_2T_x$ electrospun fibers ($M_{10}CNF700_{6)}$	1 M H_2SO_4	88 (10 mV/s)	91 (10 mV/s)	This Work
MWCNT/$Ti_3C_2T_x$ /PCL fiber mats	1 M H_2SO_4	104 (10 mV/s)	45 (10 mV/s)	[1]
Graphene/cellulose paper	1 M H_2SO_4	120 (1 mV/s)	81 (1 mV/s)	[2]
TiC-CDC nanofelt*	1 M H_2SO_4	110 (10 mV/s)	--	[3]
Carbonized Silk/$Ti_3C_2T_x$ fabric	1 M H_2SO_4	--	148 (10 mV/s)	[4]
Polyester yarn @ $Ti_3C_2T_x$ nanofibers	PVA/H_2SO_4	--	14 (10 mV/s)	[5]
$Ti_3C_2T_x$ film (400 nm flakes)	3 M H_2SO_4	178 (10 mV/s)	--	[6]

*TiC-CDC: Titanium carbide, derived carbon

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