Supporting information

1T-Molybdenum disulfide/reduced graphene oxide hybrid fibers as high strength fibrous electrodes for wearable energy storage

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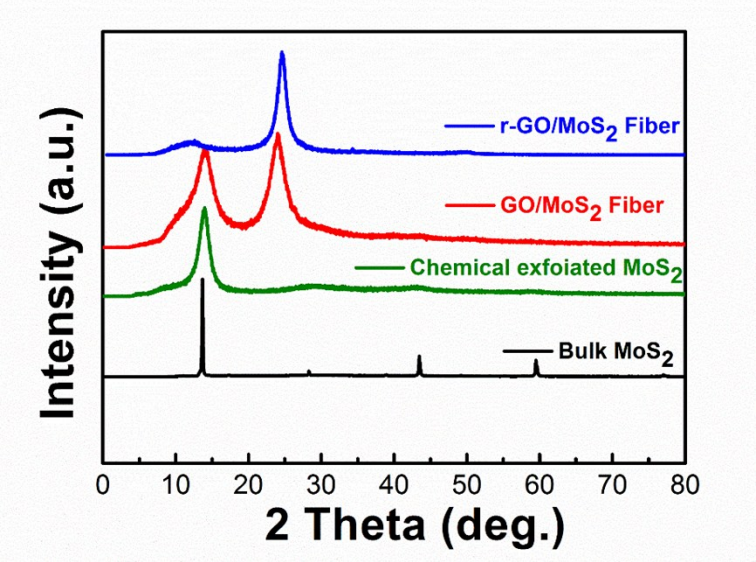

Figure S1. XRD patterns of bulk MoS_2 NSs (black), chemical exfoliated MoS_2 NSs (green), GMF (red) and rGM fiber (blue).

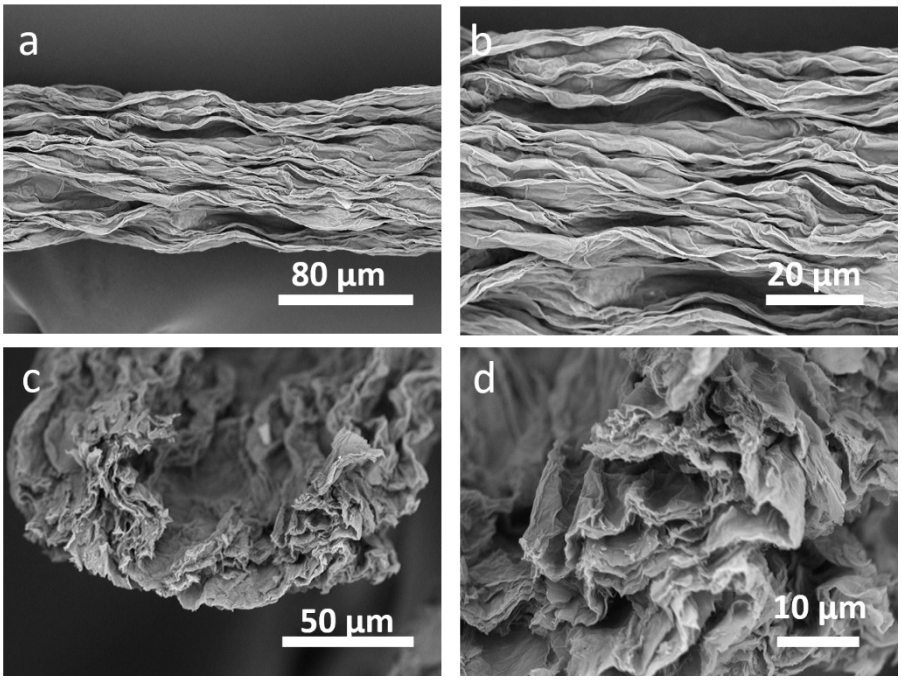

Figure S2. a-b) surface SEM and c-d) cross-section SEM images of the pure rGO fiber with different magnifications.

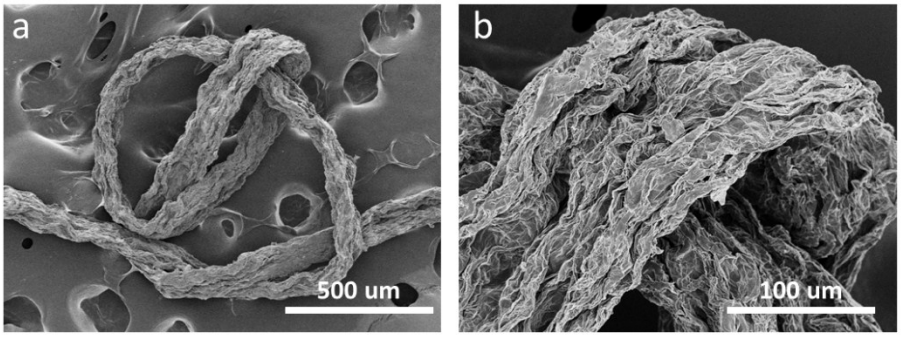

Figure S3. SEM images of rGM (40 wt% MoS_2) in woven.

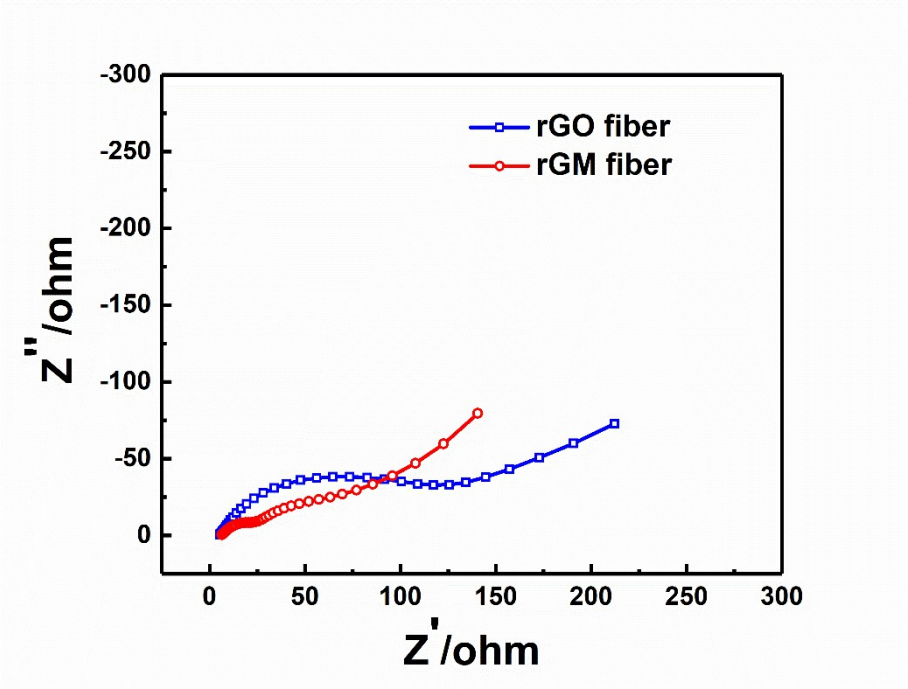

Figure S4. Nyquist plots of rGO and rGM fiber with a frequency loop from 100 kHz to 100 mHz and a perturbation amplitude of 5 mV at open circuit potential.

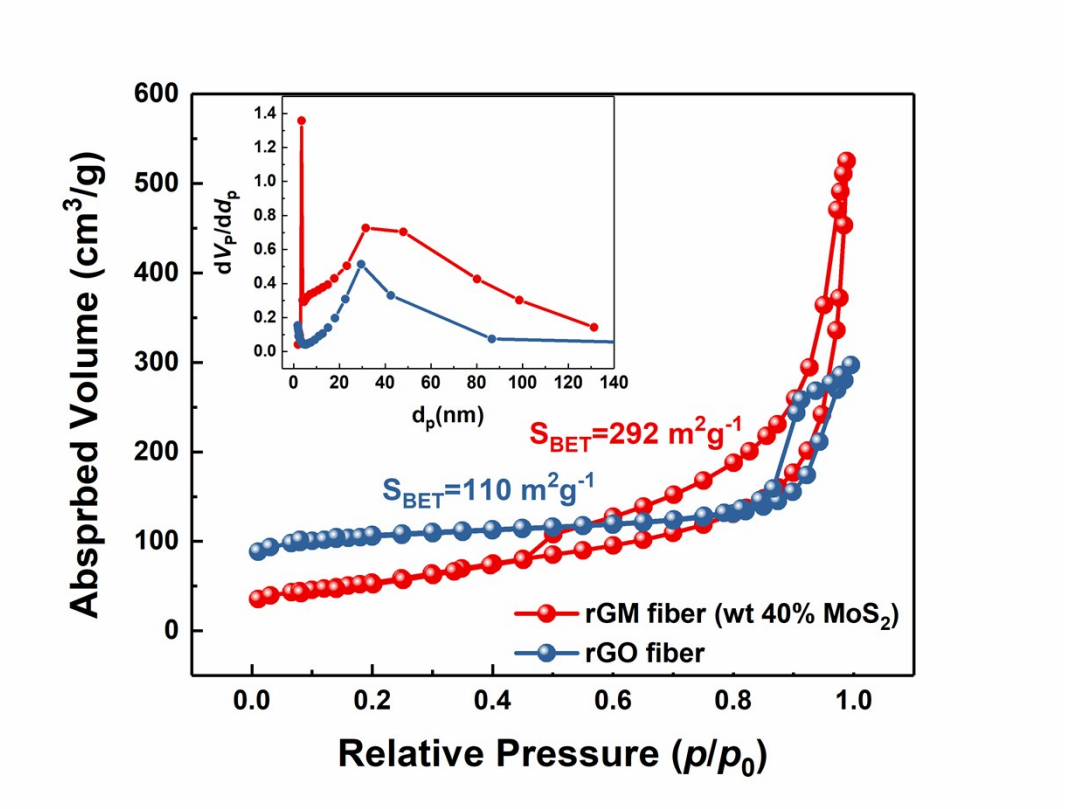

Figure S5. N_2 adsorption-desorption isotherms of the obtained rGO and rGM. The Brunauer-Emmett-Teller (BET) analysis shows that the specific surface area of rGO and rGM fiber up to 110 and 292 $m^2 \cdot g^{-1}$, respectively.

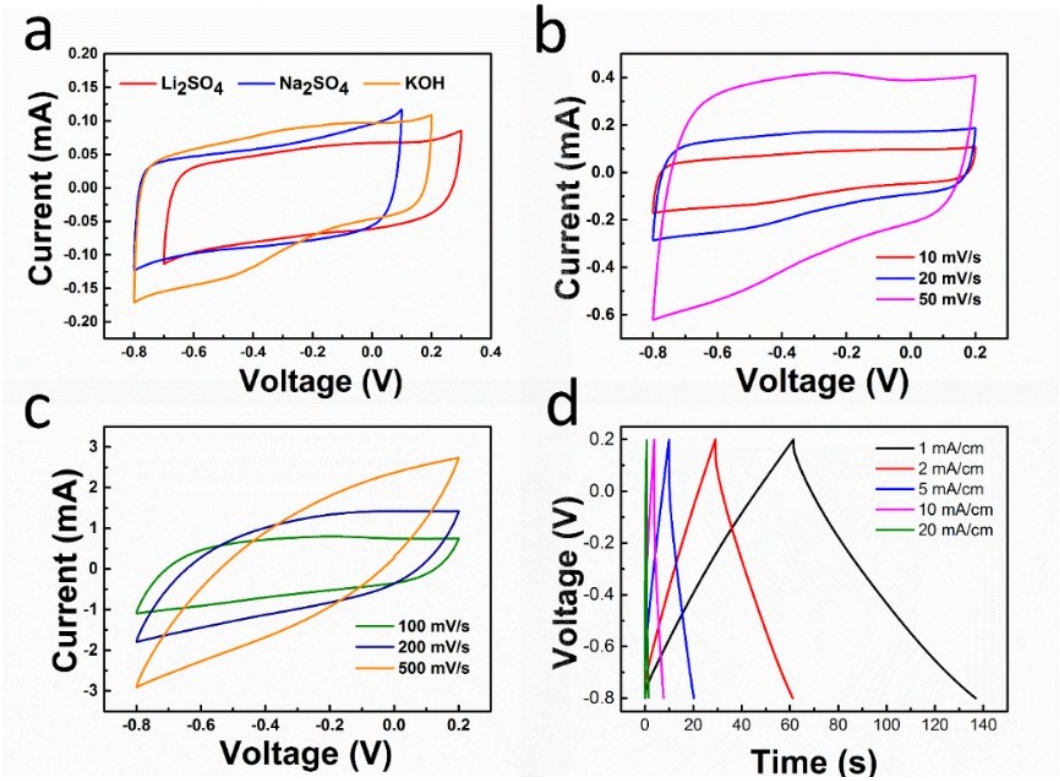

Figure S6. a) CVs of rGM fiber in various electrolytes (Li_2SO_4, Na_2SO_4 and KOH). b-c) CVs of rGMF (length = 1 cm) in 1M KOH at different scan rates from 10 to 500 mV s^{-1}. d) GCD curves measured at different current densities from 1 to 20 mA cm^{-1}.

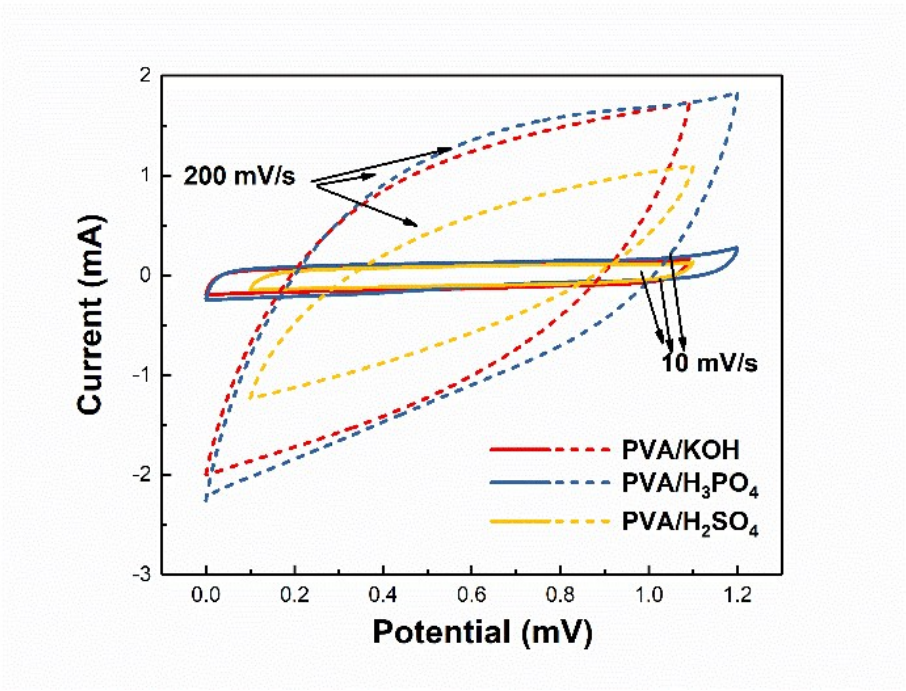

Figure S7. CVs of all-solid-state rGM fibrous supercapacitors assembly with 1 M PVA/KOH, PVA/H_3PO_4, and $PVA-H_2SO_4$ as electrolyte at with scan rate is 10 and 200 $mV \cdot s^{-1}$, respectively.

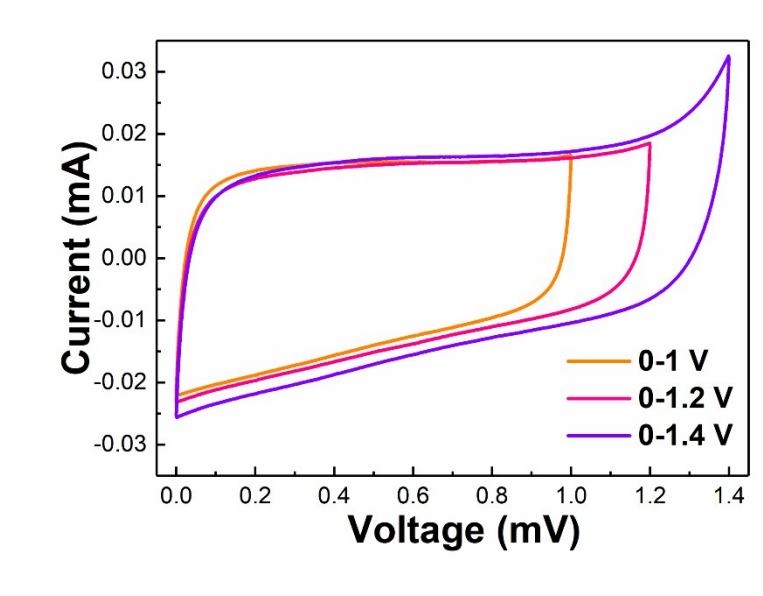

Figure S8. CVs of all-solid-state rGM fibrous supercapacitors assembly with 1 M PVA/KOH, PVA/H_3PO_4, and $PVA-H_2SO_4$ as electrolyte at with scan rate is 10 and 200 $mV \cdot s^{-1}$, respectively.

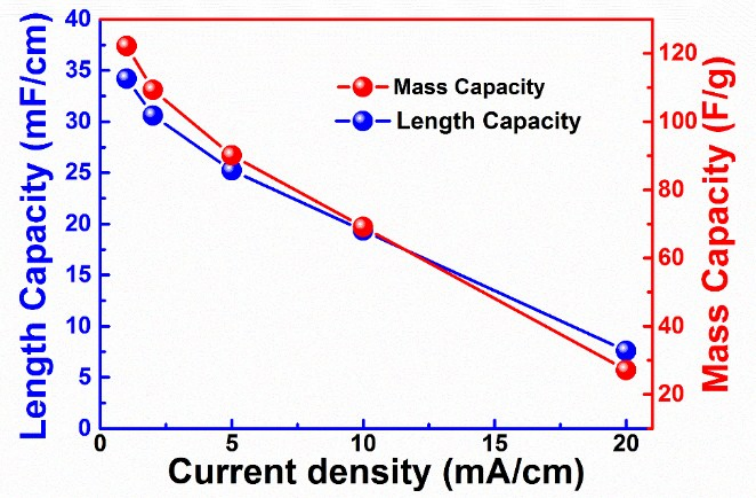

Figure S9. Length and mass capacity as the function of different current density from 1 to 20 mA·cm^{-1}.

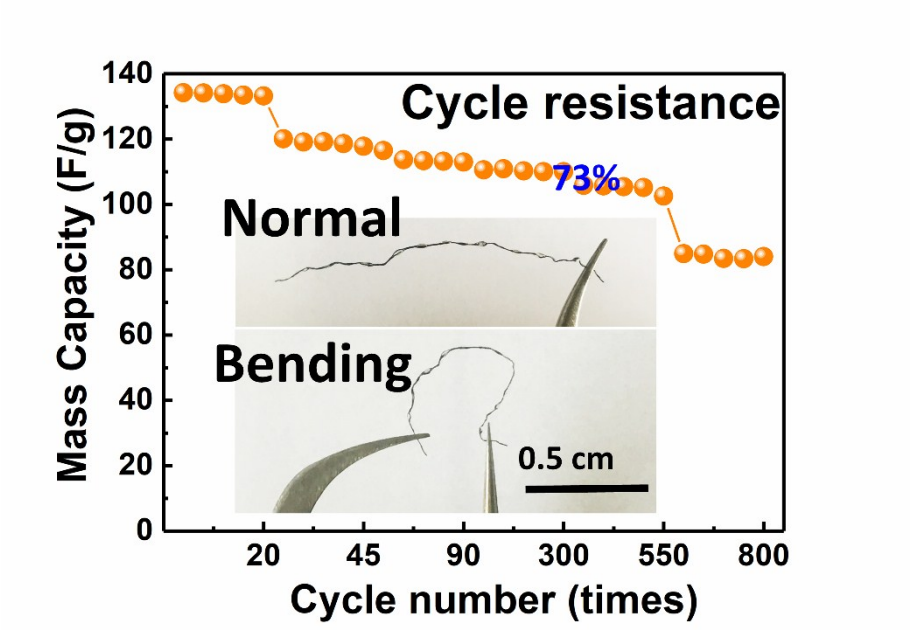

Figure S10. Cycle performance measured at 50 mA for 800 cycles for the two twined ASFS with continuous bending motion.

Table S1. Comparison of the electrochemical performances of rGM fiber supercapacitors with the other graphene-based fiber-shaped supercapacitors in reference mass capacitance (C_m, $F \cdot g^{-1}$), area specific capacitance (C_A, $mF \cdot cm^{-1}$), and volume capacitance Cv, $F \cdot cm^{-3}$).

Materials	Method	Strength (MPa)	Conductivity (S/cm)	Electrolyte	Device's capacitance	Resistance (Cycles)	Bending (Cycles)	Ref
rGO	Wet-spinning	90	120	PVA/H_3PO_4	208.7 F/g 78.3 mF/cm^2 3.12 mF/cm	99% (4800 C)	95% (100 C)	18
rGO coaxial	Wet-spinning	500	60	PVA/H_2SO_4	205 mF/cm 182 F/g	100% (10000 C)	92% (100 C)	43
rGO/GO/rGO	Spinning-laser	150	-	$NaClO_4$	2.4 mF/cm^2	80% (1000 C)	~76% (160 C)	21
rGO/SWNT	Plump-thermal	84	102	PVA/H_3PO_4	300 F/cm^3	~95% (10000 C)	- (1000 C)	33
rGO/MoS_2/MWCNT	CVD	-	150	PVA/H_2SO_4	5.2 F/cm^3	- (7000 C)	-	31
rGO/PEDOT: PSS	Wet-spinning	631	42	PVA/H_3PO_4	304.5 mF/cm^2 143.3 F/cm^3 63.1 F/g	96% (10000 C)	- (500 C)	35
rGO@CMC	Wet-spinning	116	70	PVA/H_3PO_4	177mF/cm^2 158 F/cm^3	~100% (2000 C)	~98% (200 C)	20
rGO/MoO_3//rGO/MnO_2	Wet-spinning	98	16.8	PVA/H_3PO_4	26.3 F/cm^3	96.8% (3000 C)	NO	34
rGO/MoS_2	Wet-spinning	175	-	$PVA–H_2SO_4$	30 F/cm^3	78% (1000 C)	NO	23
GF@3D-G	Wet-spinning	150	44.2	$PVA–H_2SO_4$	279 F/g 340 F/cm^3	92% (1000 C)	91% (1000)	42
MnO_2/G/GF	Deposition	-	-	$PVA–H_2SO_4$	9.1 mF/cm^2 34 F/g 0.14 mF/cm	- -	- (1000 C)	32
rGO/1T-MoS_2	Wet-spinning	204.27	144	PVA/H_3PO_4	134.38 F/g 332.9 mF/cm^2 221.9 F/cm^3	73% (800 C)	~70% (500 C)	Our