All-fiber structured triboelectric nanogenerator via one-pot electrospinning for self-powered wearable sensors

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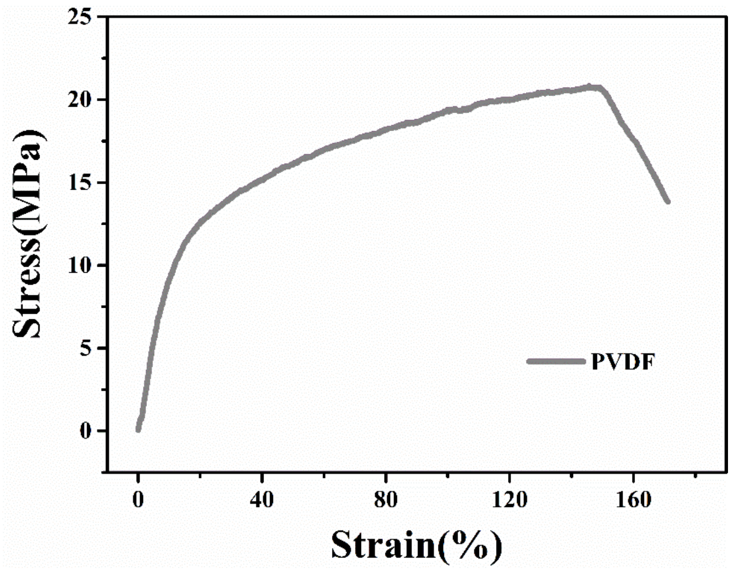

Figure S1. Tensile stress-strain curve of PVDF nanofiber mats.

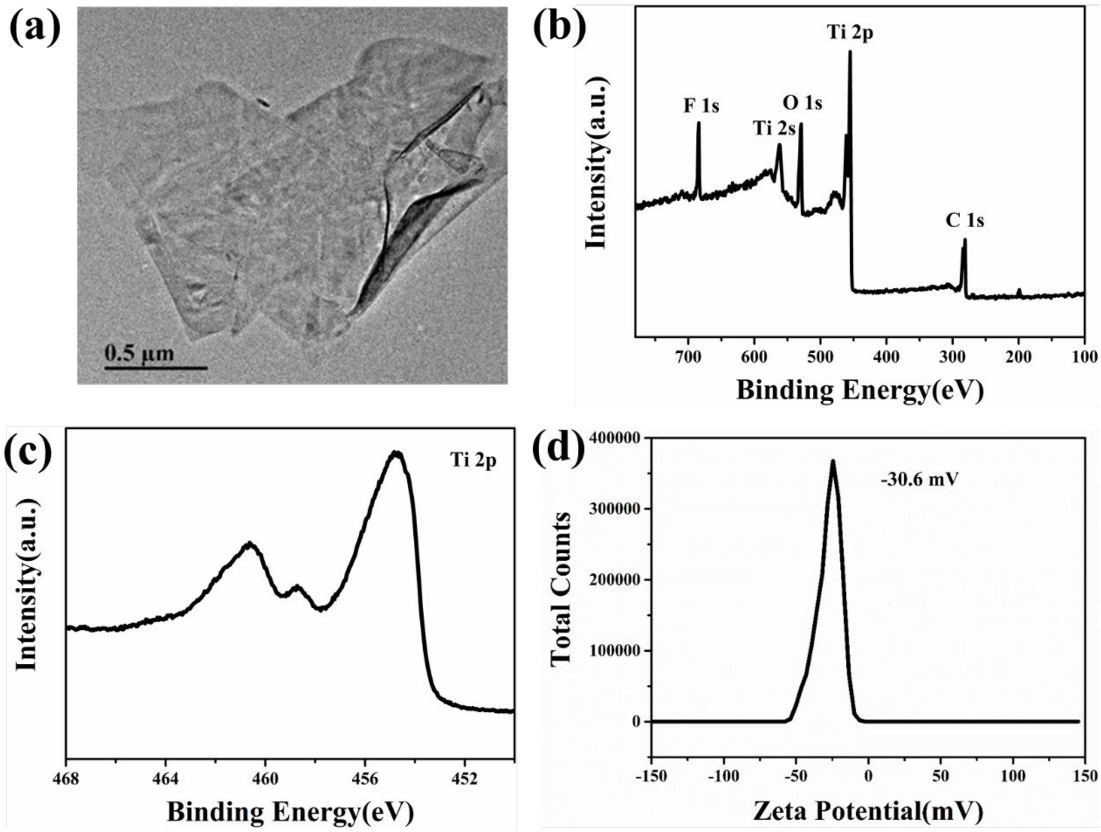

Figure S2. (a) TEM image of MXene sheets. (b) XPS spectrum of MXene ($Ti_3C_2T_X$). (c) Ti 2p spectrum of MXene ($Ti_3C_2T_X$). (d) Zeta potential of MXene dispersion.

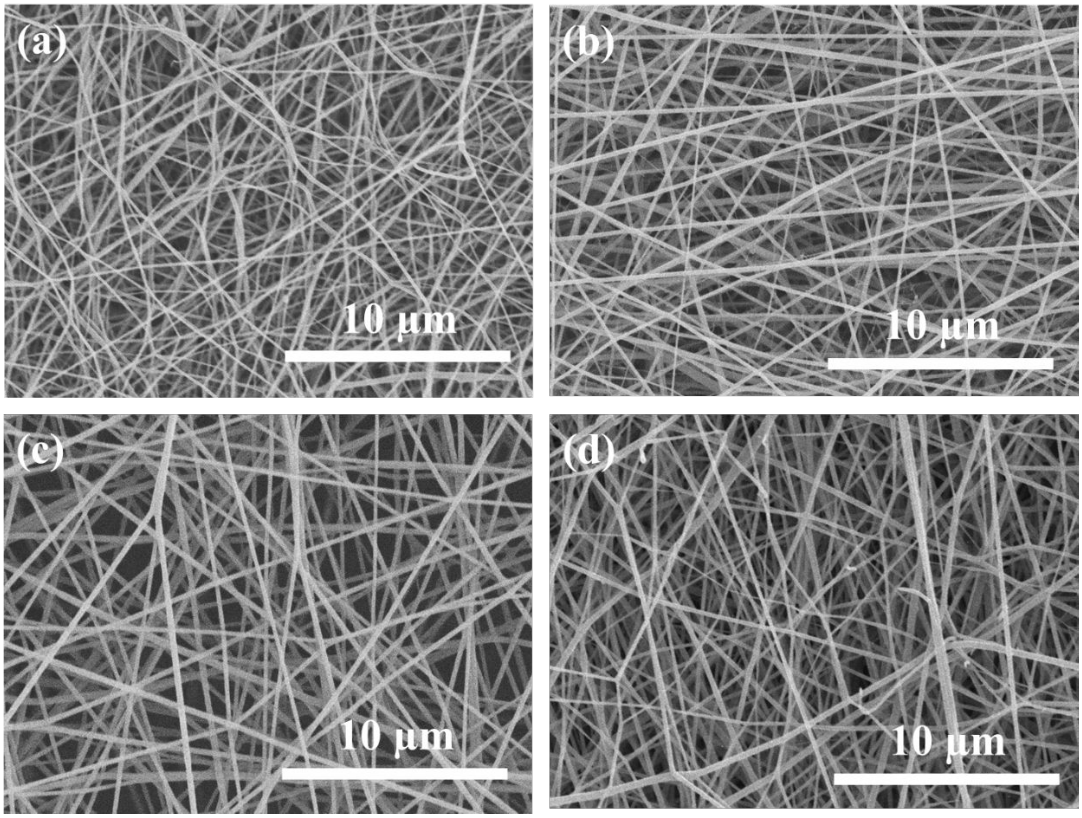

Figure S3. SEM images of different blending ratio of electrospun (a) pristine PA6, (b) EC/PA6 (1:2), (c) EC/PA6 (2:1), and (d) pristine EC nanofibers.

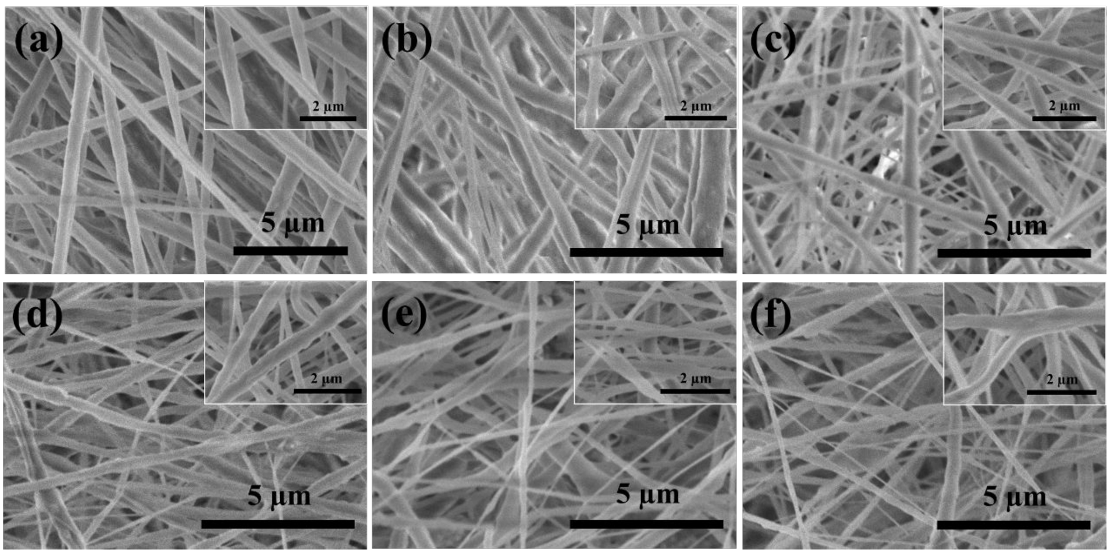

Figure S4. SEM images of PVDF/MXene nanofiber mats with (a) 0%, (b) 1%, (c) 3%, (d) 6%, (e) 9%, and (f) 12% of MXene content.

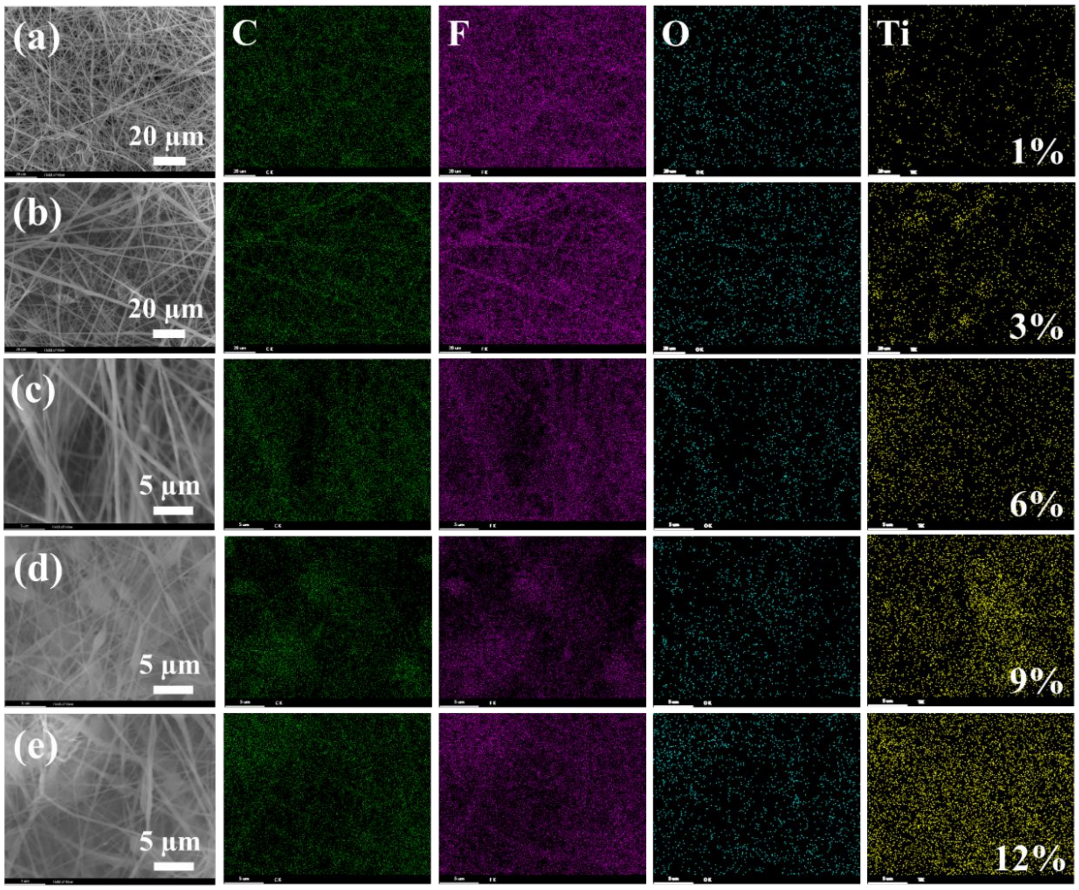

Figure S5. EDS mapping images of PVDF/MXene nanofiber mats with (a) 1%, (b) 3%, (c) 6%, (d) 9%, and (e) 12% of MXene content.

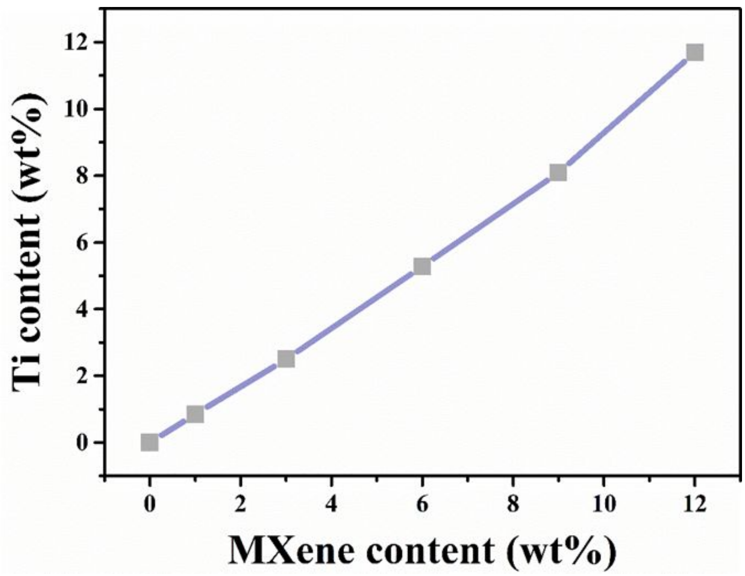

Figure S6. The relationship between the Ti element content and MXene content in

PVDF/MXene nanofiber mats.

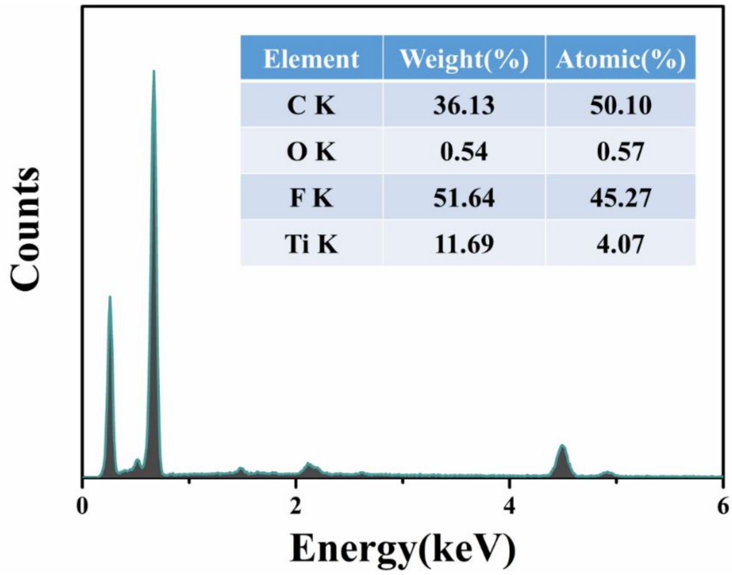

Figure S7. The EDS spectrum of PVDF/MXene nanofiber mats.

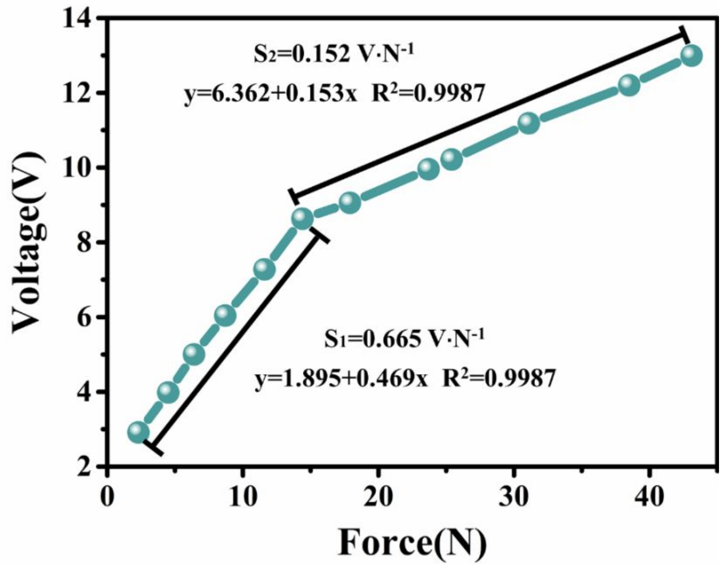

Figure S8. Output voltage as a function of the external force.

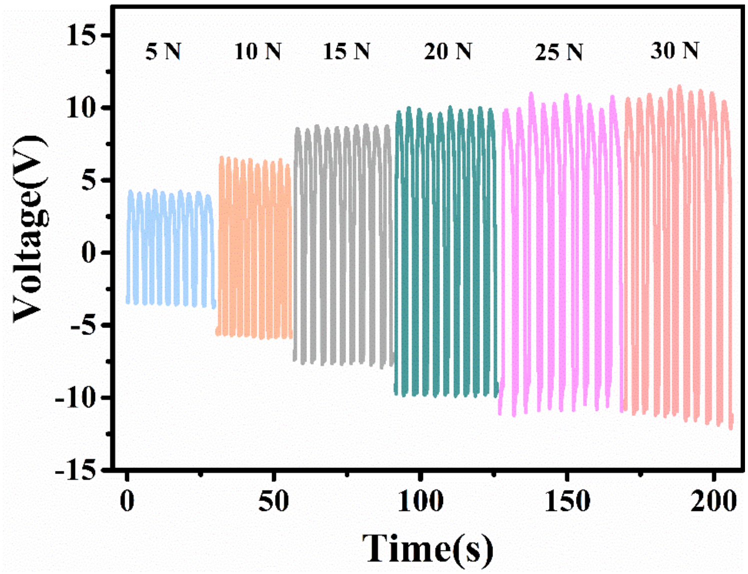

Figure S9. Multicycle tests of voltage as a function of time for applied force of 5, 10, 15, 20, 25 and 30 N.

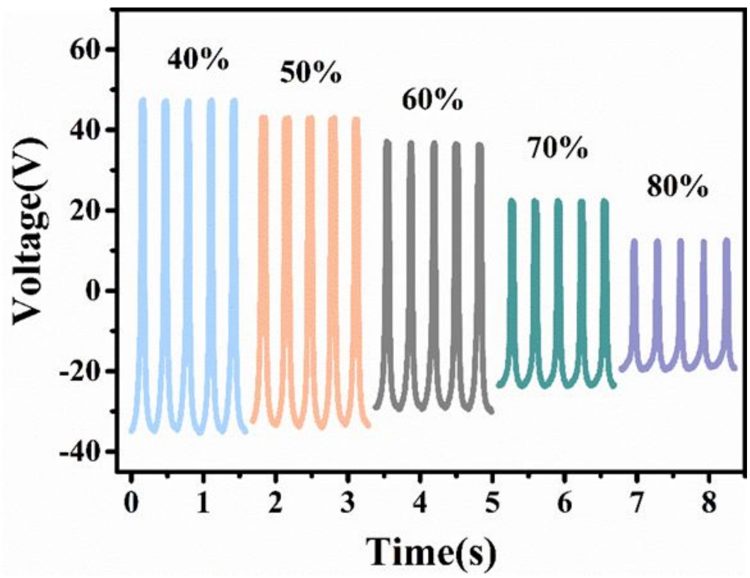

Figure S10. The output voltage of the TENG at different atmospheric humidity.

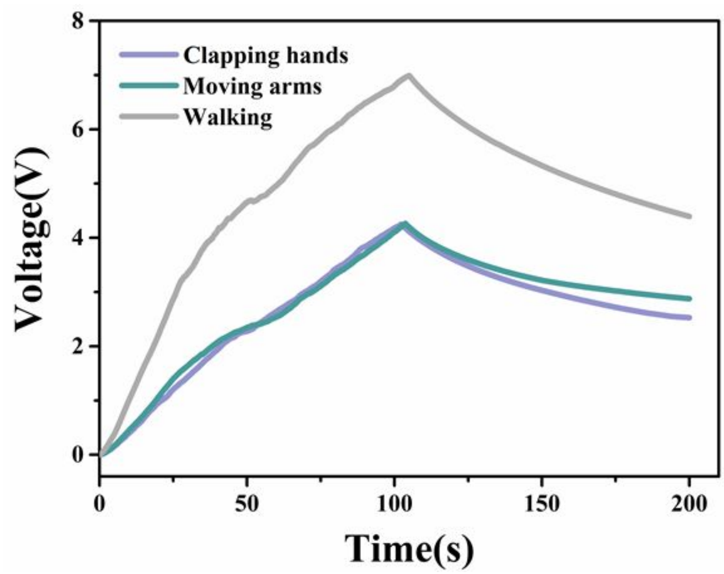

Figure S11. Charging and discharging voltage curves of a 2.2 μF capacitor

Table S1. The output performance of the TENG in this work compared with the previous work.

Materials	Open-circuit voltage	Short-circuit current	Power density	Reference
Silk/PI	17 V	2.5 μA	4.3 mW/m^2	[1]
Silk fibroin/Rice paper	34 V	0.32 μA	21.6 mW/m^2	[2]
Cu/Bacterial cellulose	13 V	3 μA	4.8 mW/m^2	[3]
Vanadium doped ZnO/BC	1.5 V	80 nA	0.6 mW/m^2	[4]
Nylon/PTFE	12 V	0.15 μA	9.9 μW/m^2	[5]
PDMS-Ag NWs-CNT	22 V	0.6 μA	21.5 μW/m	[6]
EC-PA6/PVDF-MXene	51 V	1.84 μA	290 mW/m^2	This work

Reference

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