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Supplementary Information

$BaTiO_3$/MXene/PVDF-TrFE composite film via electrospinning method for flexible piezoelectric pressure sensor

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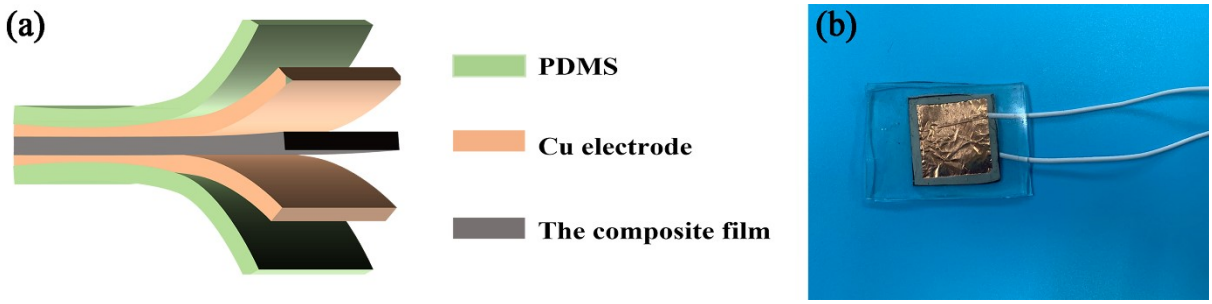

Fig. S1 (a) The schematic structural diagram and (b) the optical diagram of the pressure sensor.

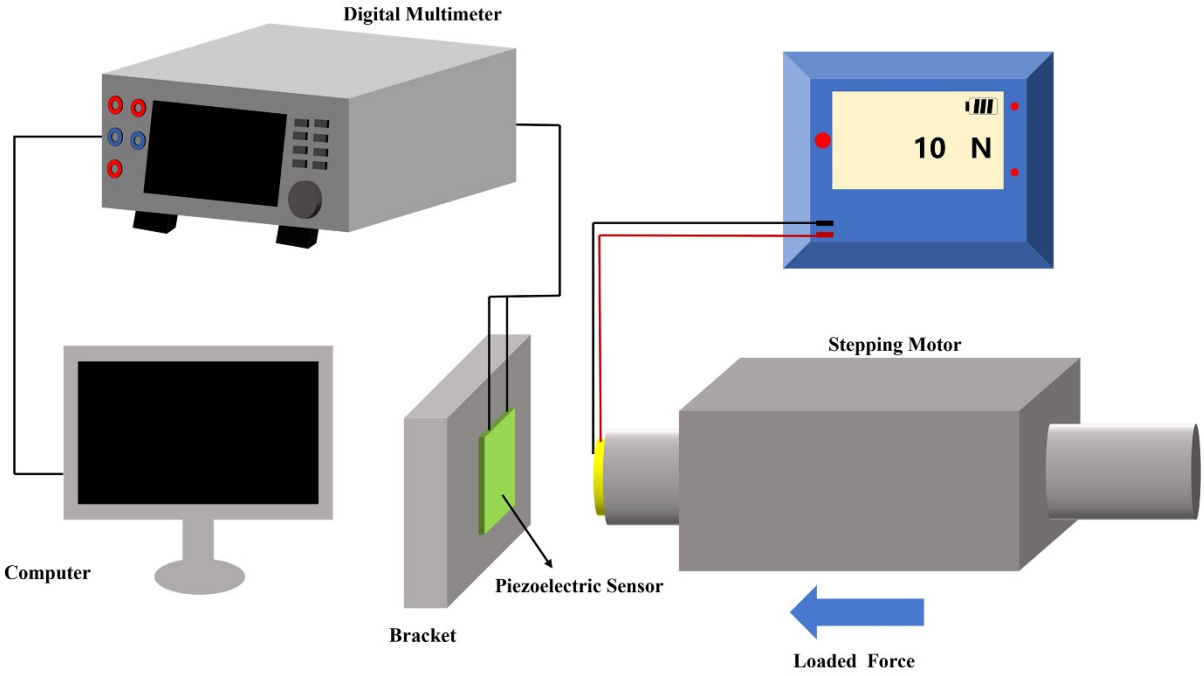

Fig. S2 The piezoelectric testing system was self-made in the laboratory.

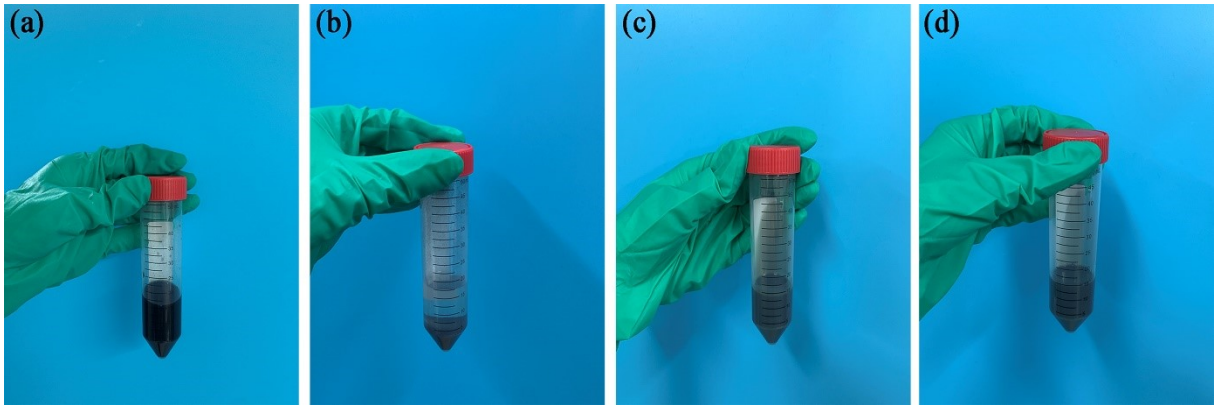

Fig. S3 Digital photos of (a) the MXene solution, (b) the $BaTiO_3$/MXene flocculent precipitate, (c) the $BaTiO_3$/MXene /PVDF-TrFE suspension and d the $BaTiO_3$/MXene /PVDF-TrFE suspension and after standing for 24h.

Table S1 The DSC data and crystallinity X_c and relative content of β phases F(β) of the composite films.

Sample	ΔH_f (J/g)	X_c (%)	F (β) (%)
MX-0	16.40	39.49	75.12
MX-0.05	17.65	42.10	75.19
MX-0.1	18.68	44.82	79.57
MX-0.15	21.03	50.31	81.04
MX-0.2	13.94	33.15	66.13
MX-0.25	13.22	31.34	61.44

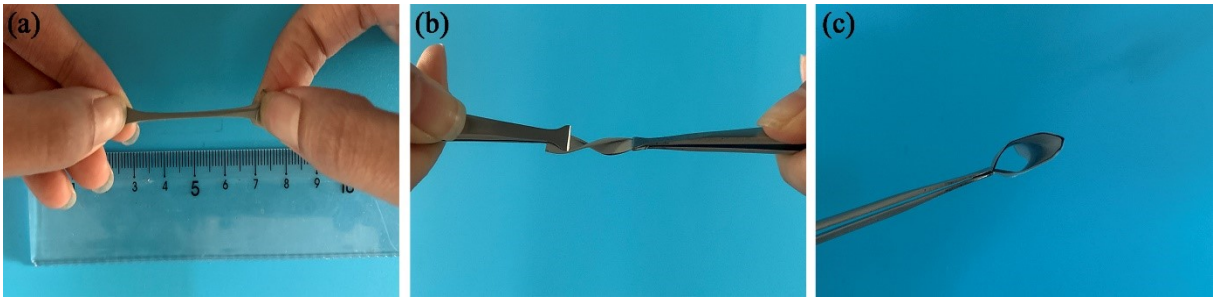

Fig. S4 Optical images of the composite film subjected to (a) stretching, (b) twisting and (c) bending.

Table S2. Summary of the recently reported piezoelectric pressure sensors.

Materials	Processing technology	Output voltage(V)	Range (KPa)	Response time (ms)	Reference
$BaTiO_3$@PMMA/PVDF-TrFE	electrospinning	12.6	-	41	1
$BaTiO_3$@C/PVDF	SLS	5.7	-	-	2
$BaTiO_3$@rGO/PVDF	NFEDW	-	0.489-1.926	130	3
PVDF	spin coating	0.6	1-25 N	507	4
$BaTiO_3$/PDMS	spin coating	2.5	1-25 N	193	4
$BaTiO_3$@PDA/PVDF	spin coating	9.3	12-250 N	61	5
SWCNTS/PVDF	NFEDW	-	1.3-3.1	66	6
$BaTiO_3$/ZnO/PVDF	electrospinning	12	0.25-1.6	-	7
MXene/PVDF-TrFE	spin coating	-	0.072-3.083	16	8
$BaTiO_3$ /PVDF-TrFE	electrospinning	50	0.01-0.2 N	-	9
$BaTiO_3$ /PVDF-TrFE	Solvent casting	50.1	10-100 N	-	10
$BaTiO_3$/MXene/PVDF-TrFE	electrospinning	7.6	0.2-400	56	This work

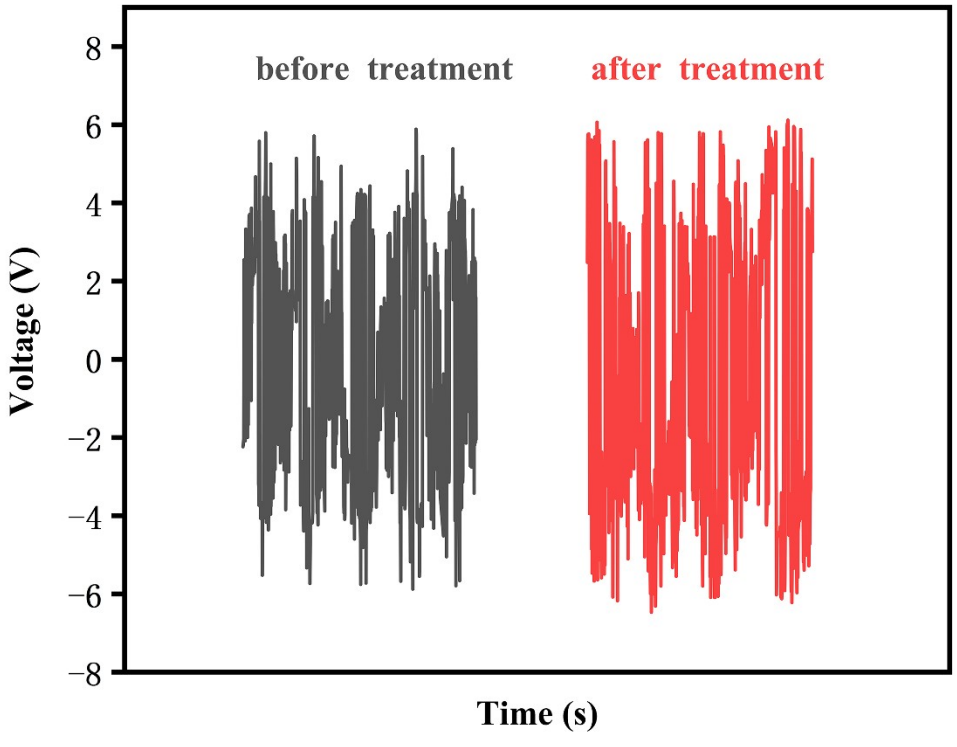

Fig. S5 Changes in voltage value of $BaTiO_3$/MXene-0.15/PVDF-TrFE pressure sensor before and after immersion in 0.25wt% NaCl solution.

References

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