Electronic Supplementary Information

All-Fiber Acousto- electric Energy Harvester from Magnesium Salt Modulated PVDF Nanofiber

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Table S1 Mechano-sensitivity of reported piezoelectric based pressure sensors.

Material	Sensitivity (V/kPa)	Reference
Piezoelectric fiber array vertically integrated P(VDF-TrFE)	0.027	1
P(VDF-TrFE)/CMOS transistor	0.011	2
P(VDF-TrFE) film	2.2×10^{-5}	3
Carbonized electrospun polyacrylonitrile/barium titanate (PAN-C/BTO) nanofiber film	0.324	4
Aligned P(VDF-TrFE)/MWCNT composites	0.121	5
Cellular fluorocarbon	1.54	6
P(VDF-TrFE) thin film	7.5×10^{-4}	7
Eletrospun PVDF fabric	8.2×10^{-4}	8
P(VDF-TrFE) nanotube	0.05	9
Electrospun PVDF/$BaTiO_3$ nanowire (NW) nanocomposite fibers	0.017	10
Laterally aligned PZT angle- crystal nanowires	0.14	11
PVDF-MWCNT-OMMT	0.0176	12
PVDF-ZnO nanofibers	0.00312	13
PVDF-Mg nanofibers	0.44	This work

Table S2 A summary or comparison of device materials, electrode materials, and capacitor charging performances of the AAPNG with the reported nanogenerators.

Active material	**Electrode**	**Charging time(s), Capacitor value (μF)**	**Saturation voltage (V), Power stored (μW)**	**References**
P(VDF-TrFE)/$BaTiO_3$	conductive fabric	250, 0.068	35, 0.17	14
aligned PVDF NFs	(PANI-PVDF) NFs mats	60, 1.0	4, 1.3	15
P(VDF-TrFE)	Al foils	1800, 47	16, 3.34	16
Pt-PVDF	Cu–Ni polyester fabric	80, 1	3, 0.06	17
PZT-NH_2 NPs	Al-coated (PI)/PET	100, 2.2	4, 0.18	18
Hybridization sugar-encapsulated PVDF	Conducting textile	100, 1	8, 0.32	19
PVDF/ $BaTiO_3$	Al foils	76, 1	1.40, 0.01	20
(P(VDF-TrFE))/ $BaTiO_3$	ITO-coated PET	120, 4.7	1.5, 0.04	21
Poly(vinyl alcohol) (PVA)/ ZnS nanorods	Ni–Cu polyester fabric,	40, 1	0.72, 0.007	22
PVDF/ ZnS nanorods	Ni–Cu polyester fabric	130, 2.2	10, 0.85	23
PVDF-niobate-based	AgNW	300, 2.2	5, 0.09	24
[P(VDF-TrFE)]	3D PMMA/Au	5, 0.1	3.2, 0.01	25
Ce^{3+}/ PVDF/Graphene	Ni-Cu plated polyester fabric	60, 4.7	0.75, 0.02	26
PVDF-Mg	Ni–Cu polyester fabric	65, 2.2	2.6, 0.12	This work

Table S3 Comparison of the piezoelectric coefficient of PVDF-Mg with the reported PVDF based nanofibers materials.

Active material	Piezoelectric Coefficient (d_{33})	Reference
PVDF/$CH_3NH_3PbI_3$	19.7 pC/N	27
Pt/PVDF	44 pC/N	28
PVDF	−57:6 pm/V	29
PVDF	37 pm/V	30
PVDF/GO	~ −30 pC/N	31
PVDF	17.1 pm /V	32
Sugar/PVDF	33 pC/N	33
PVDF	−33 pC/N	34
PVDF/ Ag–CNTs	54 ± 5 pm/ V	35
BTO/P(VDF-TrFE)	35.3 pC/N	36
PVDF/GO	−93.75 pm/V	37
GO doped Fluorine/PVDF	63 pm/V	38
PVDF-Mg	33.6 pC/N	This work

Table S4 A summary or comparison of device materials, electrode materials and percentage of piezoelectric energy conversion efficiency ($\%\eta_{acoust}$) of the AAPNG with the reported nanogenerators.

Active material	**Electrode**	**Efiiciency (%)**	**Acoustic sensitivity**	**References**
PVDF nanofiber	gold	NM	266 mV Pa^{-1}	39
PVDF-TiO_2 nanofiber	conducting fabrics	61	26 VPa^{-1}	40
PVDF-ZnS nanofiber	Cu-Ni coated polyester	58	3 VPa^{-1}	41
PZT based MEMS	NM	0.012	0.13 mV Pa^{-1}	42
Ce3+ PVDF/ Graphene nanofiber	Ni-Cu plated polyester fabric	NM	15 V Pa^{-1}	43
P(VDF-TrFE) nanofiber	gold	60.3	1.3 VPa^{-1}	44
PVDF/$CH_3NH_3PbI_3$	Ni-Cu plated polyester fabric	58.5	13.8 VPa^{-1}	45
PVDF-Mg	Ni–Cu polyester fabric	1.3	10 VPa^{-1}	This work

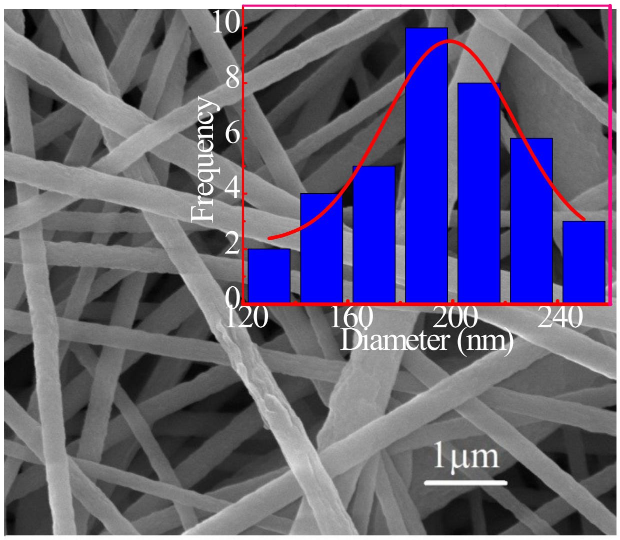

Figure S1 FE-SEM images of elctrospun nanofibers mat of neat PVDF.

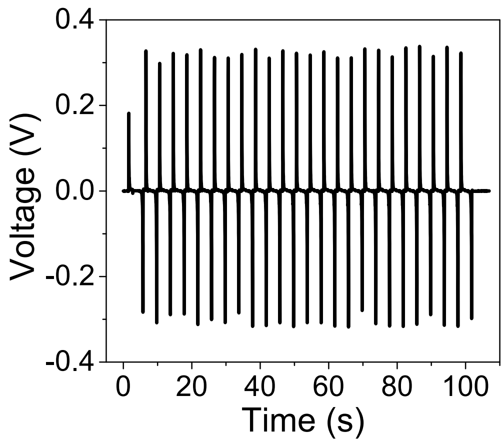

Figure S2. The energy harvesting performance of the nanogenerator upon repeated bending and releasing motion of 5 mm/s.

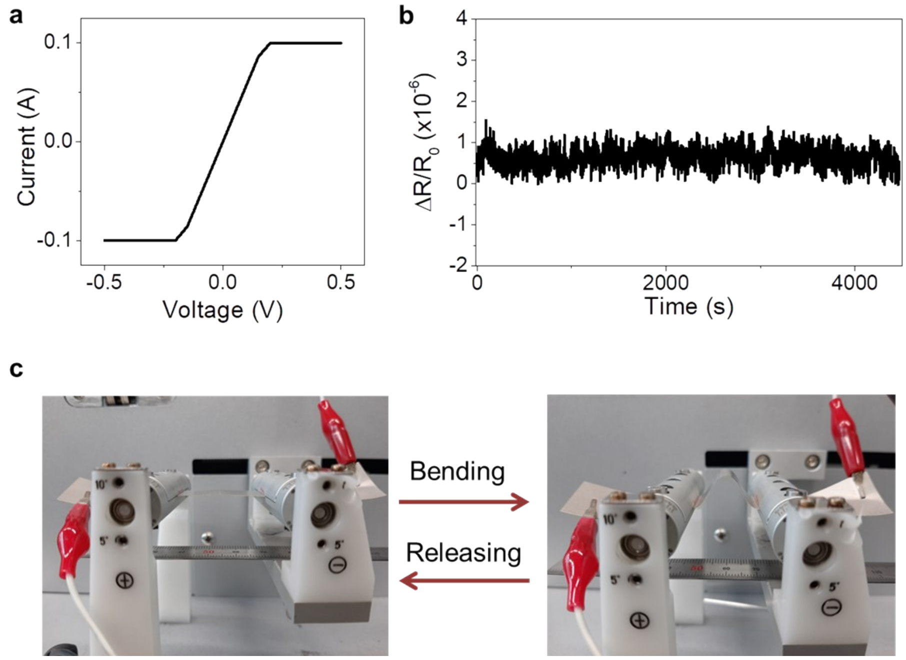

Figure S3. (a) The current (I)-voltage (V) graph of the fiber based conducting fabric used in the energy harvesting process. A sheet of conducting fabric (4 cm length, 2 cm width and 0.06 mm thickness) was used for I-V curve measurement. From the slope (~0.534) of the I-V curve (linear portion), the estimated conductivity was 17800 S/m. (b) The change of resistance ($\Delta R/R_0$, where R_0 was the initial resistance) measurement of the fabric upon repetitive (c) bending and unbending cycles for longer duration with the speed of 1 mm/s.

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