

Supporting Information

Triboelectric nanogenerator based on electrospun molecular ferroelectric composite nanofibers for energy harvesting

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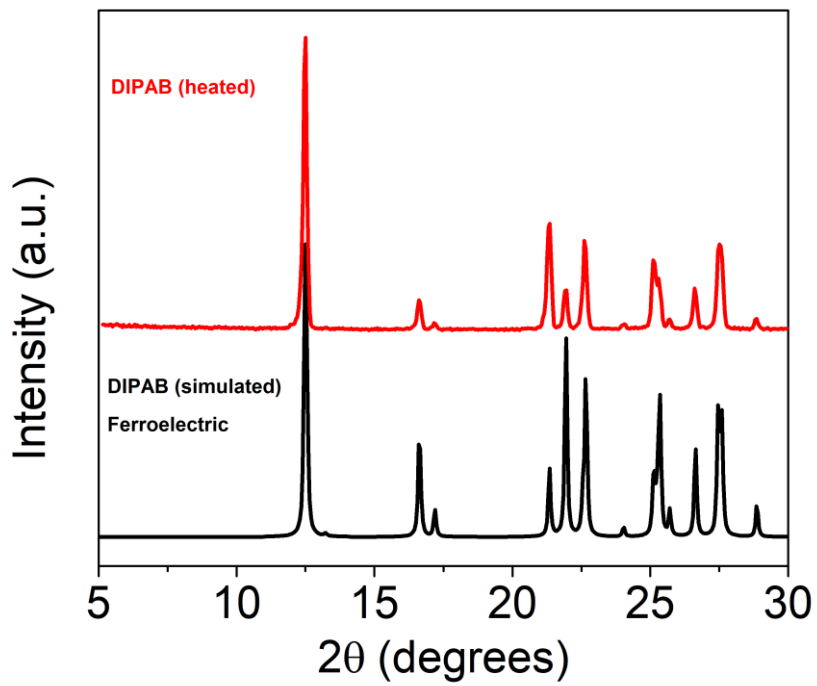


Fig. S1. The PXRD pattern of DIPAB after heat treatment.

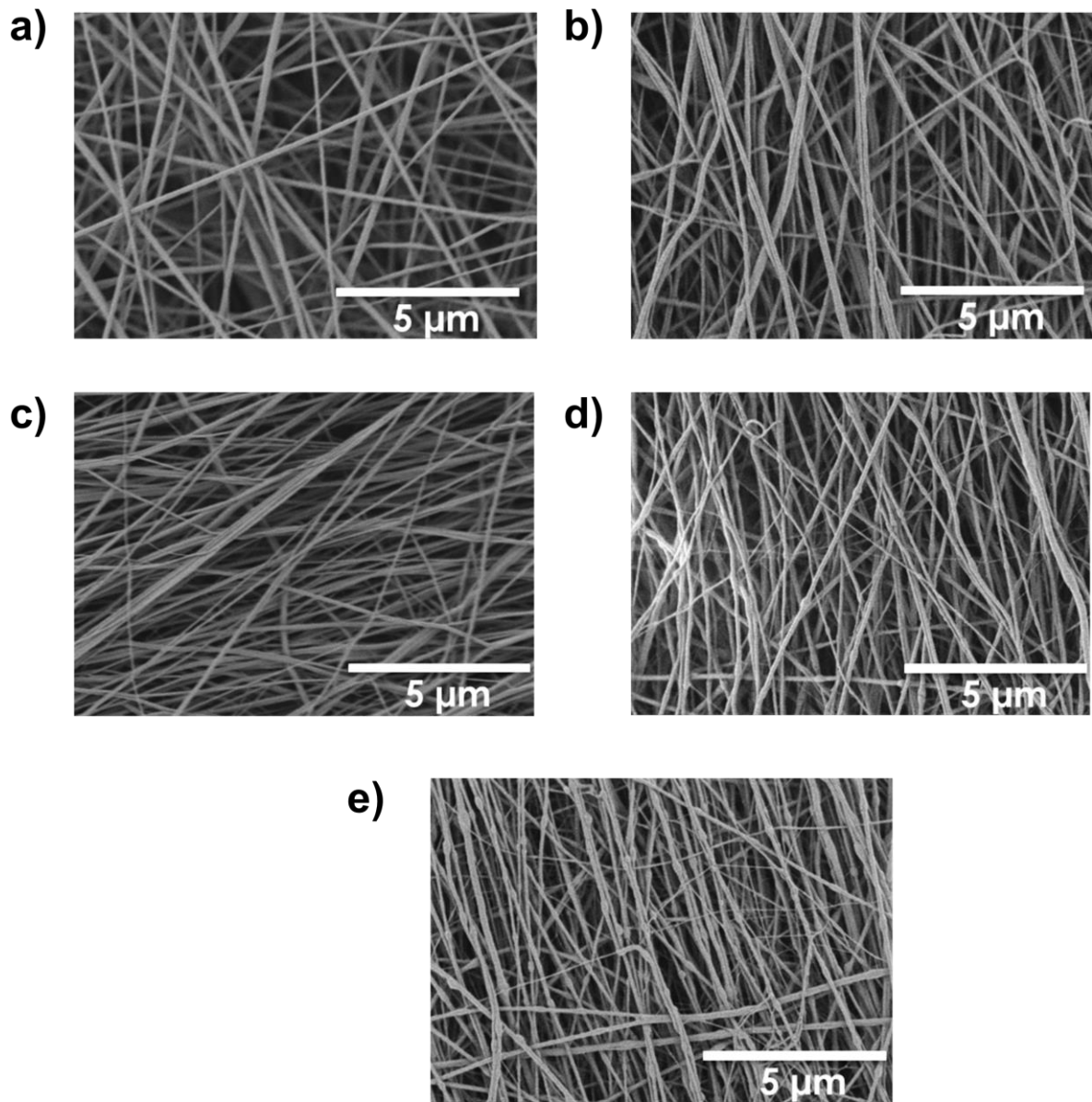


Fig. S2. SEM images of (a) P(VDF-TrFE), (b) 3 wt% (c) 5 wt% (d) 10 wt% and (e) 15 wt% DIPAB/P(VDF-TrFE) fibers.

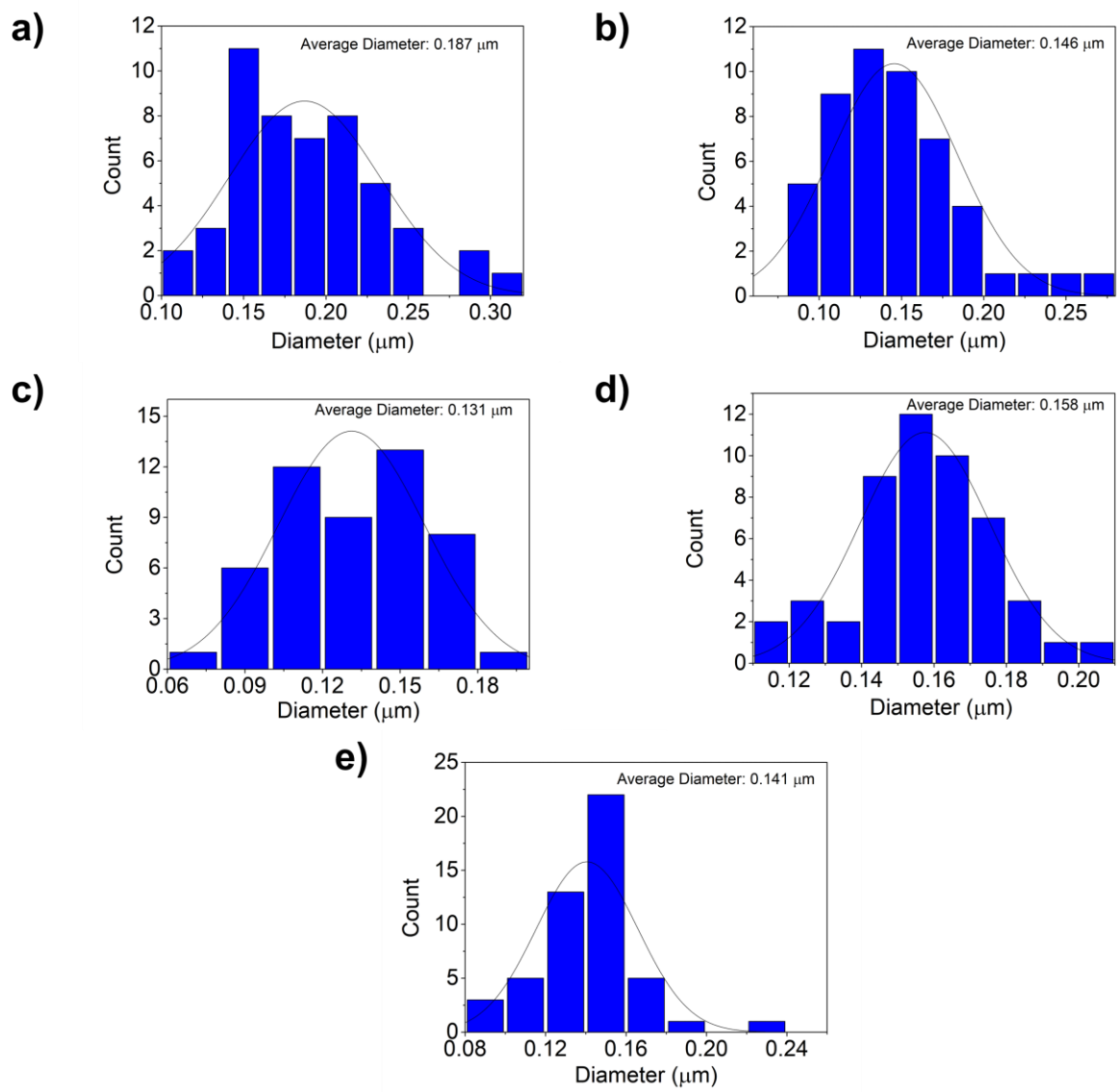


Fig. S3. Fiber diameter distributions of (a) P(VDF-TrFE), (b) 3 wt% (c) 5 wt% (d) 10 wt% and (e) 15 wt% DIPAB/P(VDF-TrFE) electrospun mats.

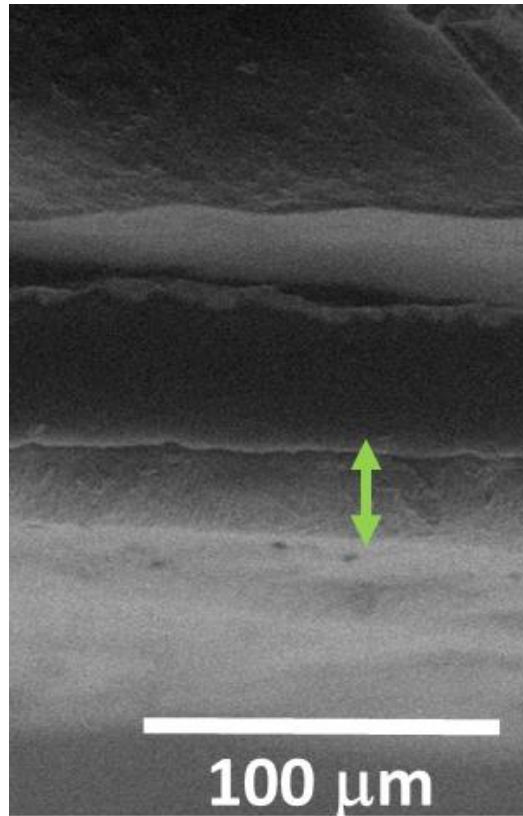


Fig. S4. Cross-section SEM image of 5 wt% DIPAB/P(VDF-TrFE) fiber mat showcasing formation of 23 μm thick film.

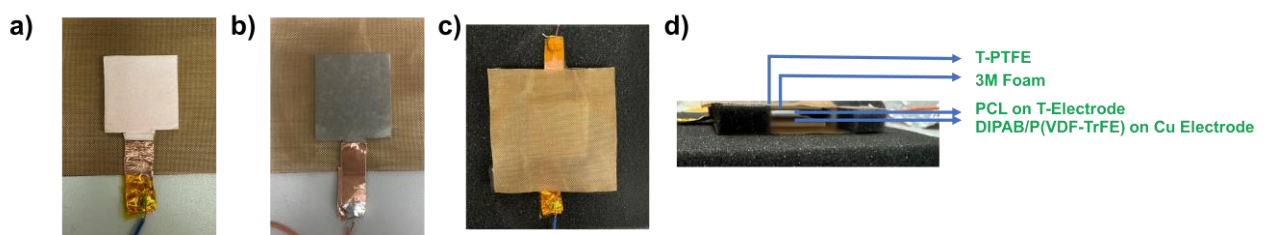


Fig. S5. Construction of DIPAB/P(VDF-TrFE) fiber mat device using (a) varied wt% DIPAB/P(VDF-TrFE) fiber mat as negative layers and (b) PCL film as a positive layer. (c),(d) Photograph of the fabricated device.

Table S1. Table comparing our TENG device with reported ferroelectric devices.

Active Layers	Voltage (V)	Power density (mW/m ²)	References
BaTiO ₃ /PDMS and Nylon cloth	72.2	55	[1]
BaTiO ₃ /PVA and PDMS	72	70 μ W	[2]
Bi ₂ WO ₆ /PVDF-TrFE and Cu	205	-	[3]
ZnAl-LDH/ PVDF	230.6	4300	[4]
ZnO/PVDF and PTFE	80	245	[5]
BCZTBH/PDMS and Al	300	157	[6]
CA/PEI(b) and Gelatin/ImClO ₄ /Ti ₃ C ₂	300	5000	[7]
CS/- γ -gly and PTFE	79	790	[8]
SF/15% γ -gly and PTFE	80	228	[9]
DIPAB/P(VDF-TrFE) and PCL	203.8	416.2	This work

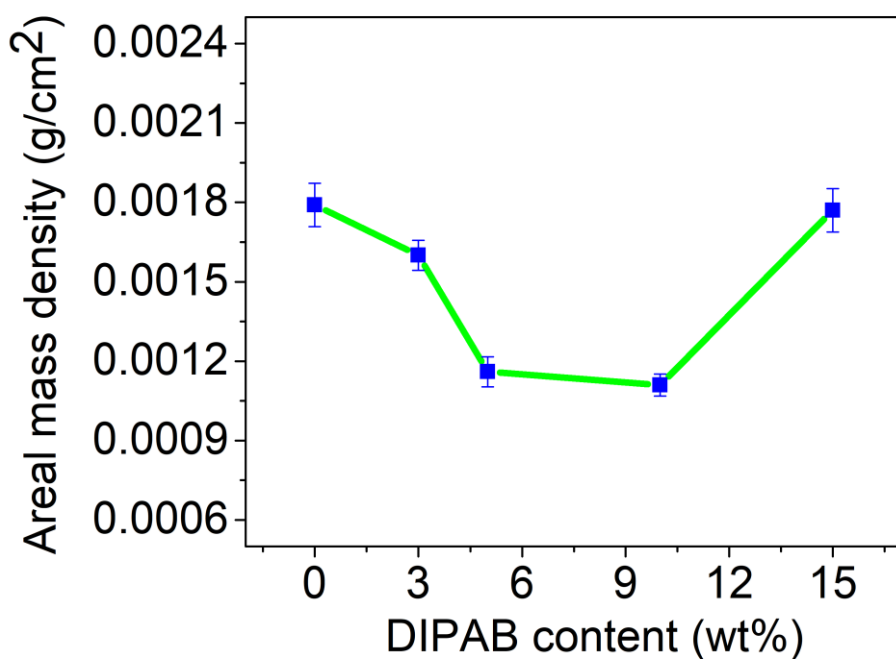


Fig. S6. Areal mass density of all wt% DIPAB/P(VDF-TrFE) fiber mats.

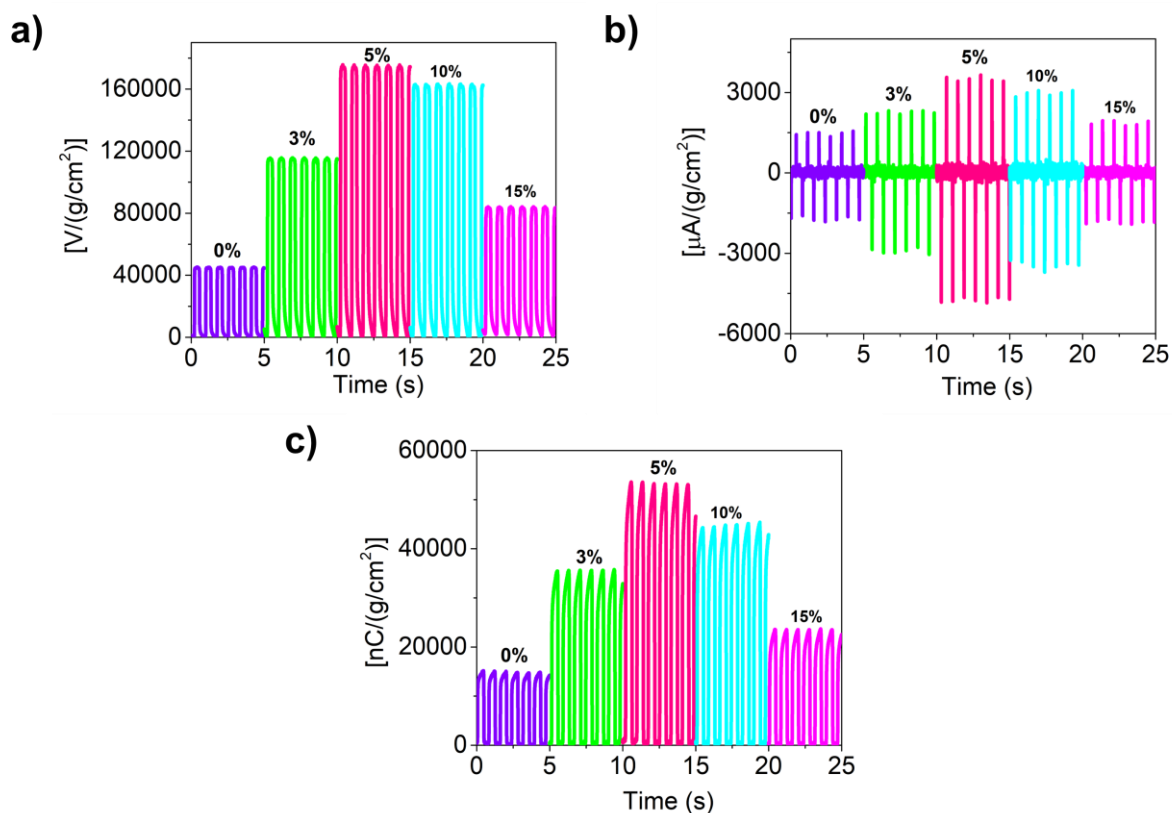


Fig. S7. Comparative (a) output voltage, (b) current performance and (c) charge profile of all wt% DIPAB/P(VDF-TrFE) fiber-based devices normalized by areal mass density.

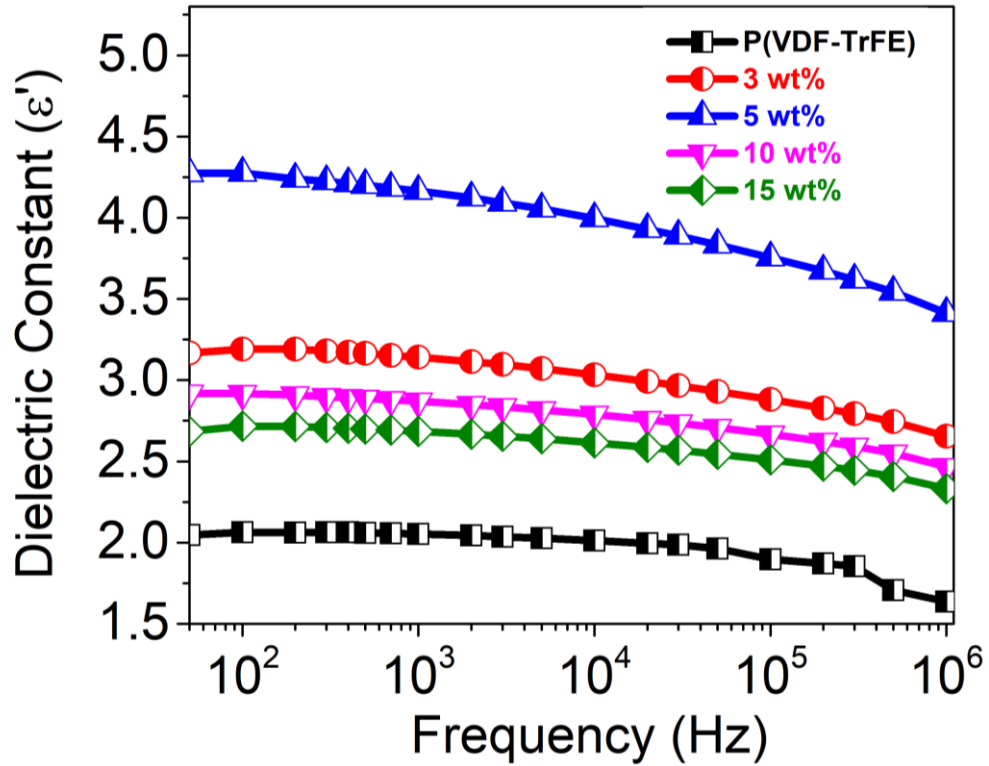


Fig. S8. Frequency-dependent dielectric constant (ϵ') of DIPAB/P(VDF-TrFE) fiber mats at room temperature.

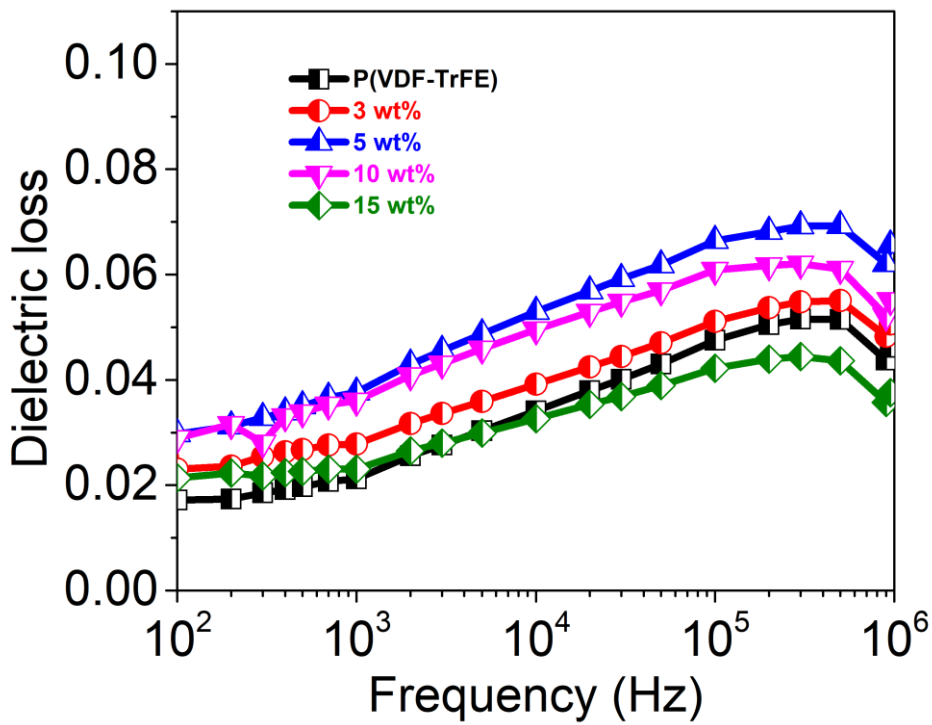


Fig. S9. Frequency-dependent dielectric loss plot of DIPAB/P(VDF-TrFE) fiber mats at room temperature.

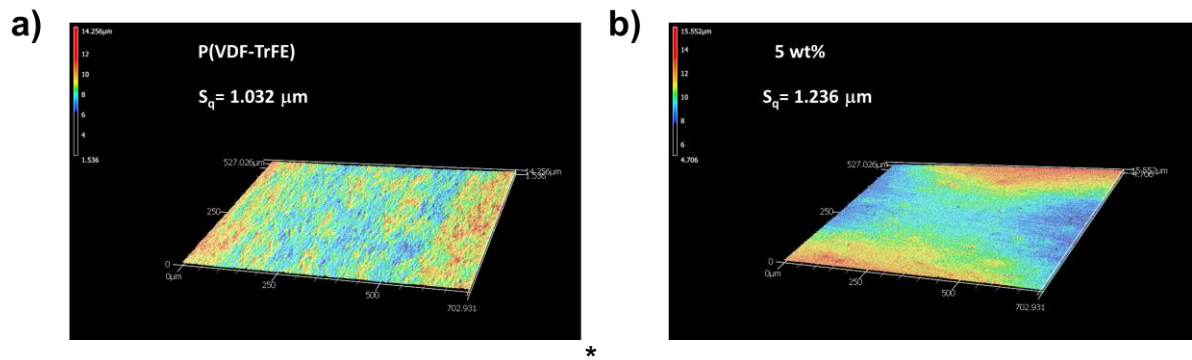


Fig. S10. 3D images of a) P(VDF-TrFE) and (b) 5 wt% DIPAB/P(VDF-TrFE) fiber mats.

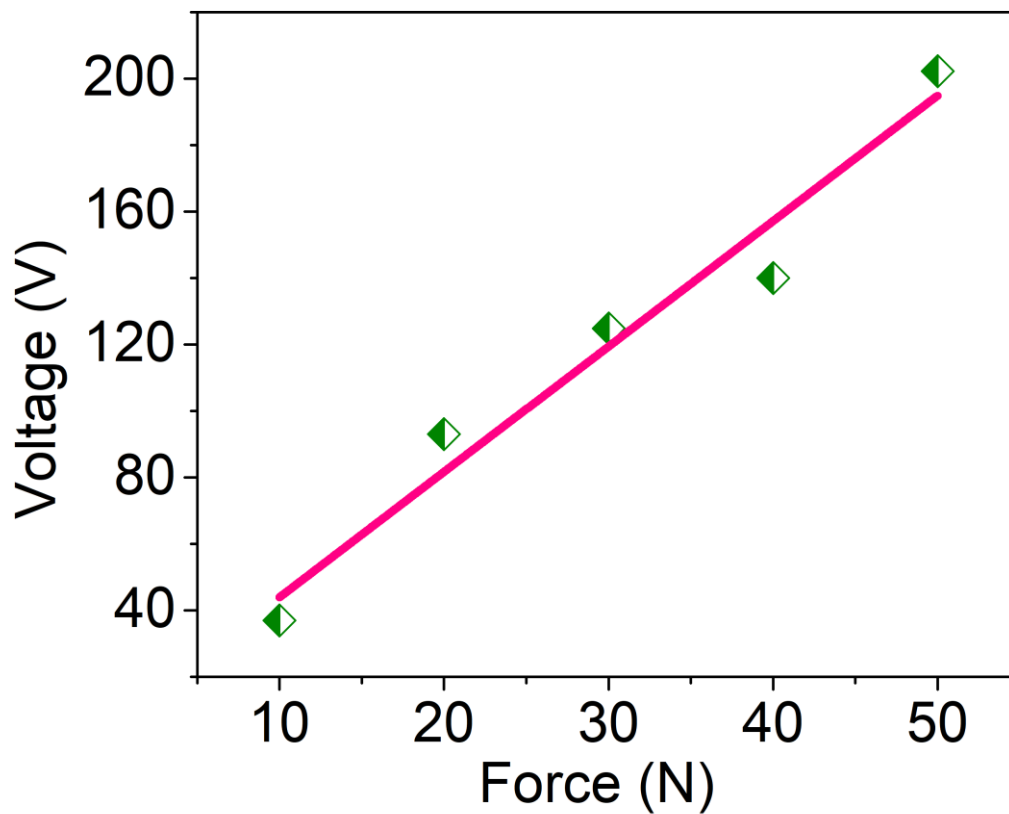


Fig. S11. Linear plot for the variation in voltage with the applied force on 5 wt% DIPAB/P(VDF-TrFE) fiber-based device.

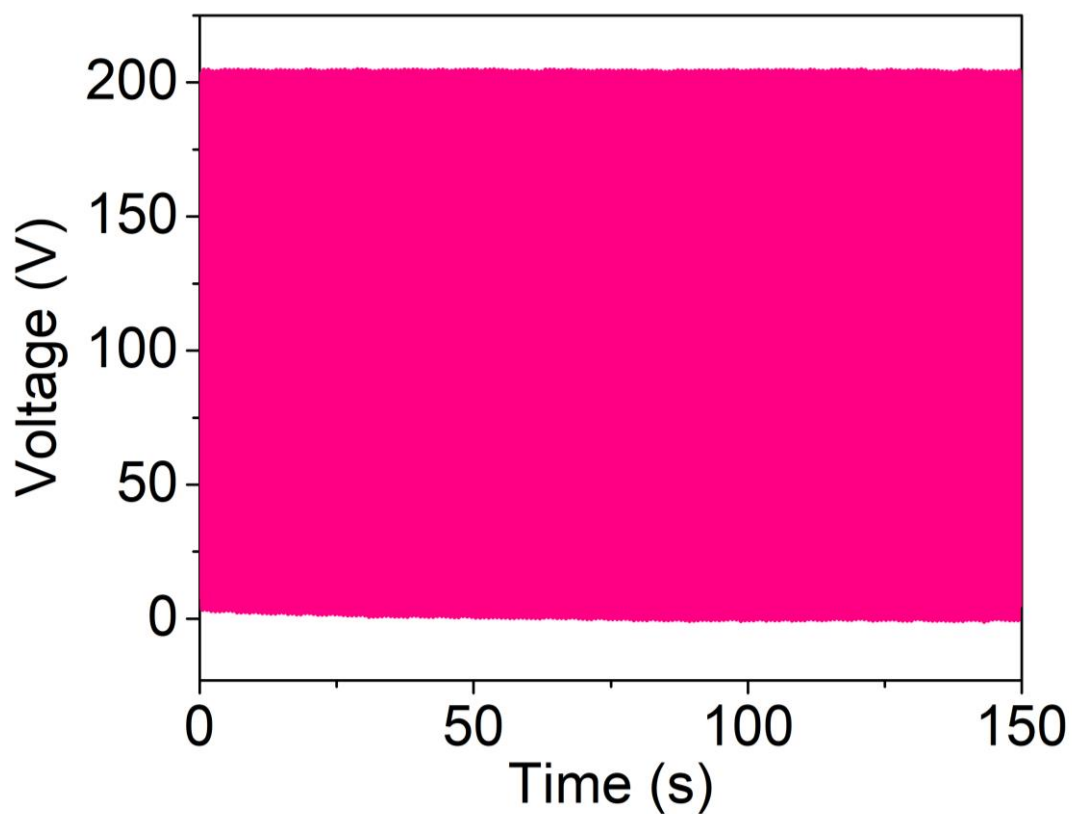


Fig. S12. Mechanical durability test performed on 5 wt% DIPAB/P(VDF-TrFE) fiber-based device.

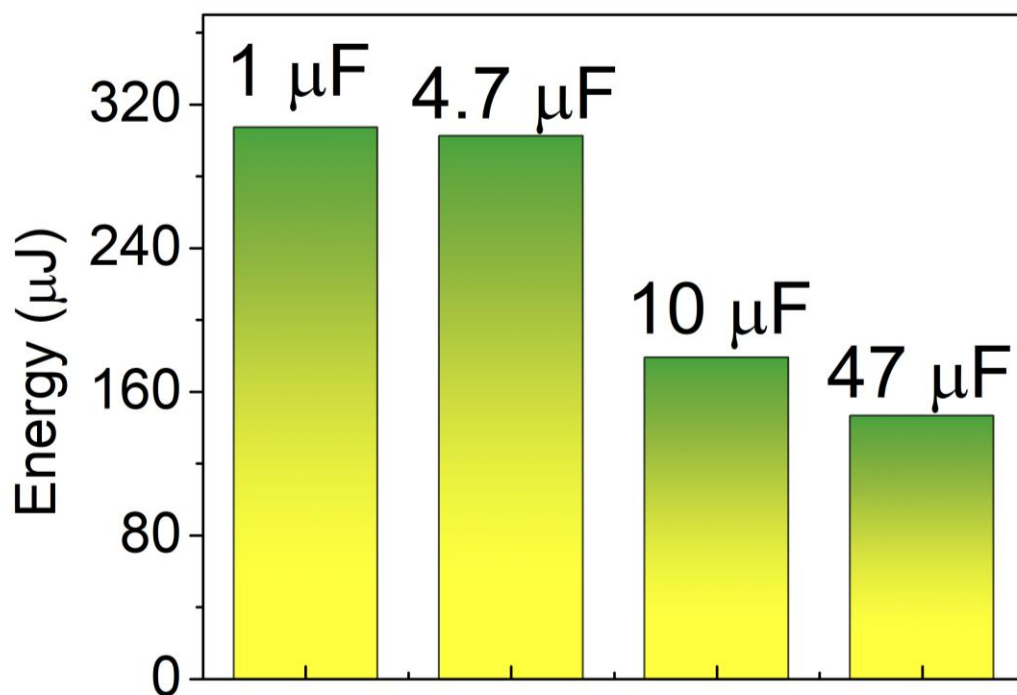


Fig. S13. Electrical energy stored across (a) 1, (b) 4.7, (c) 10 and (d) 47 μF capacitors employing the 5 wt% DIPAB/P(VDF-TrFE) fiber based device.

References:

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