

Supporting Information

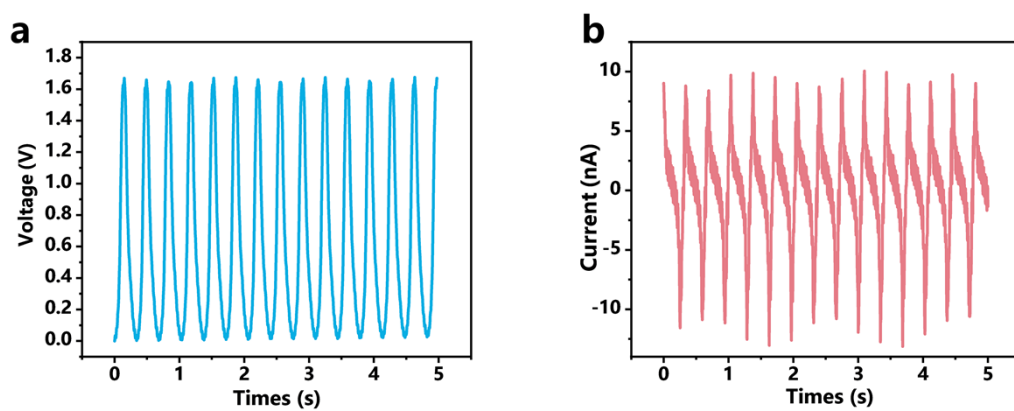


Fig S1. (a) Piezoelectric voltage output and (b) piezoelectric current output of PVDF hydro-charging electrospun fibers measuring 2×2 cm under a pressure of 2 N.

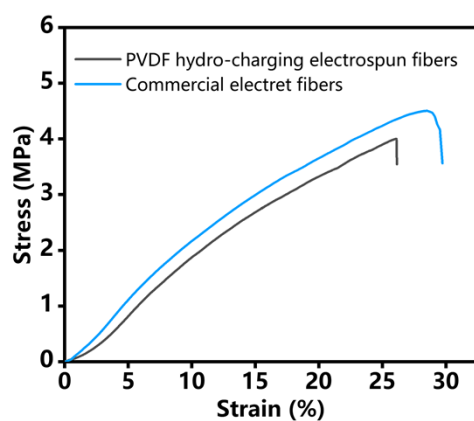


Fig S2. Stress-strain curve of PVDF hydro-charging electrospun fibers and commercial electret fibers.

Table S1. Comparison of the HCEF with other electret filters.

Sample	Filtration Efficiency @0.3 μ m (%)	Pressure Drop (Pa)	Face Velocity (m/s)	Electret Effect (V)	Charge Decay Rate (%)	Mechanical Property (MPa)
This work	99.43	41.7	0.053	6037	26.5	4.0
Commercial electret fibers	76.09	35.1	0.053	1183	44.54	4.49
Electrospun electret fibers	99.712	38.1	0.053	2580	65.5	6.72

The performance of the commercial electret filter was obtained by testing under the same conditions as the HCEF in this experiment. The performance of the electrospun electret fibers was obtained from the published paper¹.

1. S. Z. Lin, S. X. Wang, W. Yang, S. W. Chen, Z. S. Xu, X. W. Mo, H. Zhou, J. J. Duan, B. Hu and L. Huang, *Acs Nano*, 2021, **15**, 5486-5494.