Supplementary Information

Super-elastic, Hydrophobic Composite Aerogels for Triboelectric Nanogenerators

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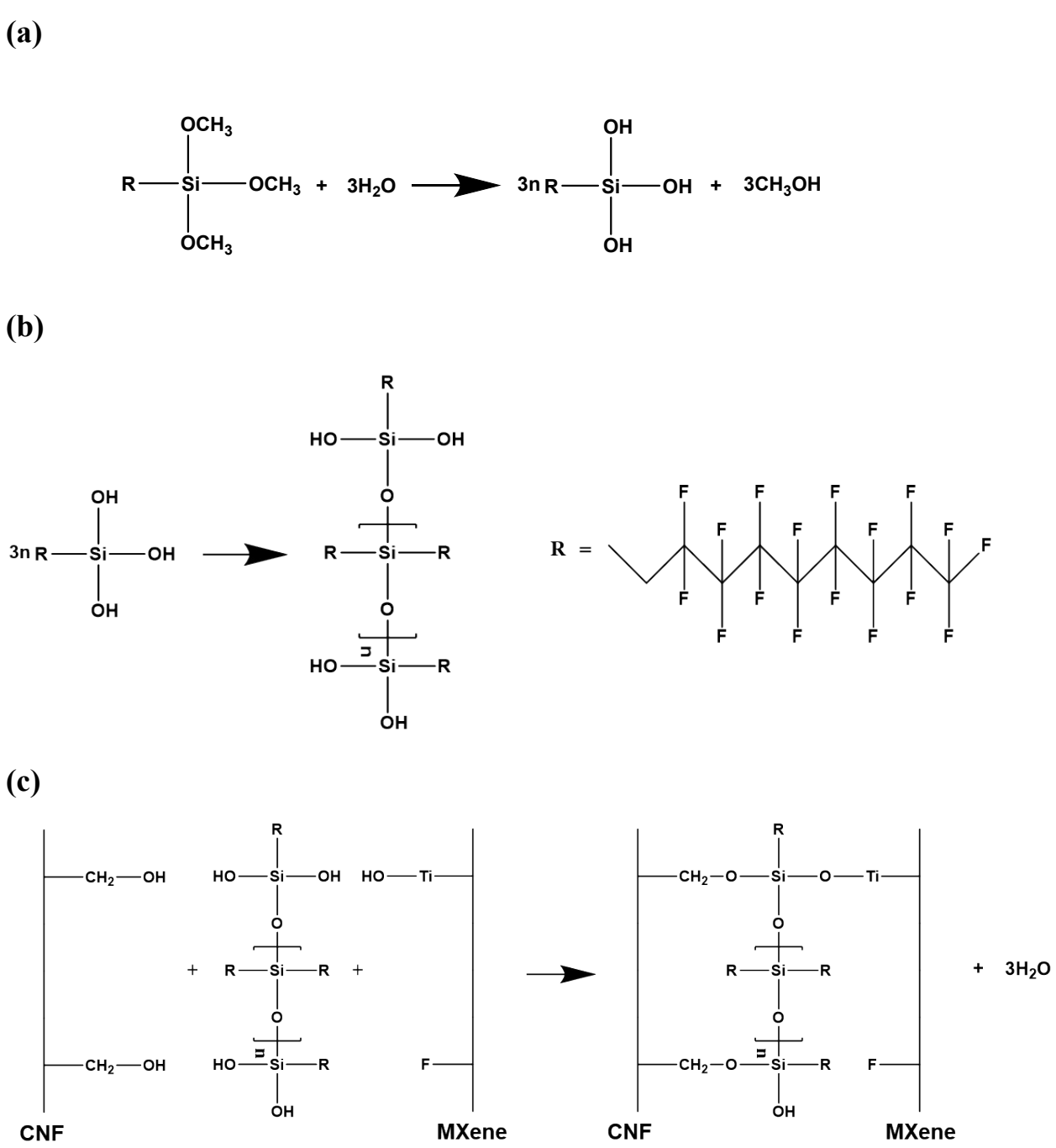


Fig. S1. The (a) hydrolysis, (b) condensation, and (c) surface modification mechanism of PF.

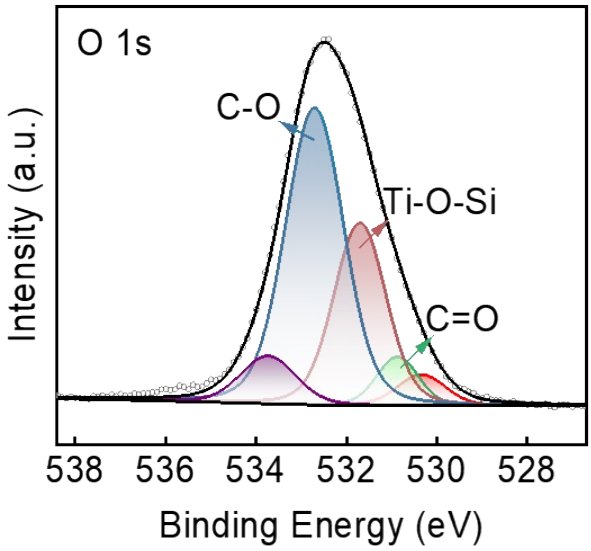


Fig. S2. XPS spectra of DF-CNF/MXene in the O 1s region.

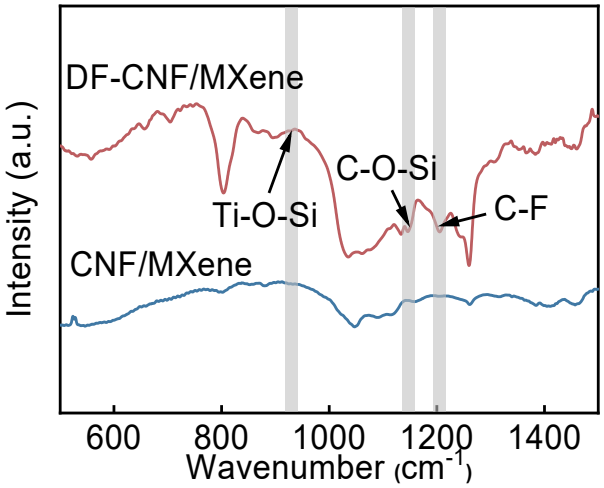


Fig. S3. FT-IR spectra of CNF/MXene and DF-CNF/MXene.

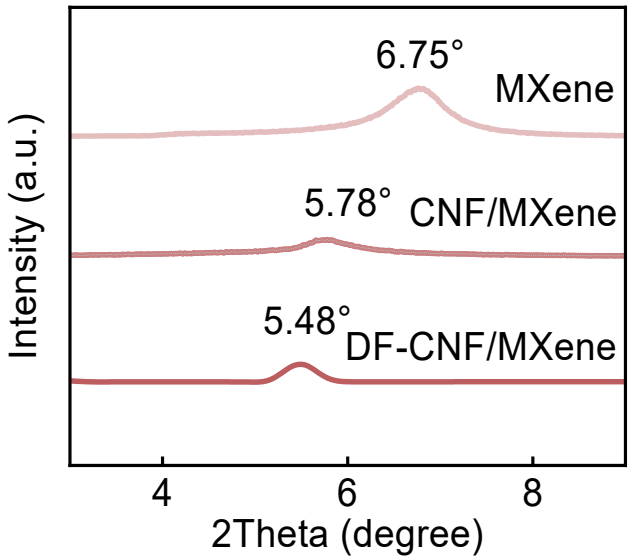


Fig. S4. XRD patterns of MXene, CNF/MXene, and DF-CNF/MXene.

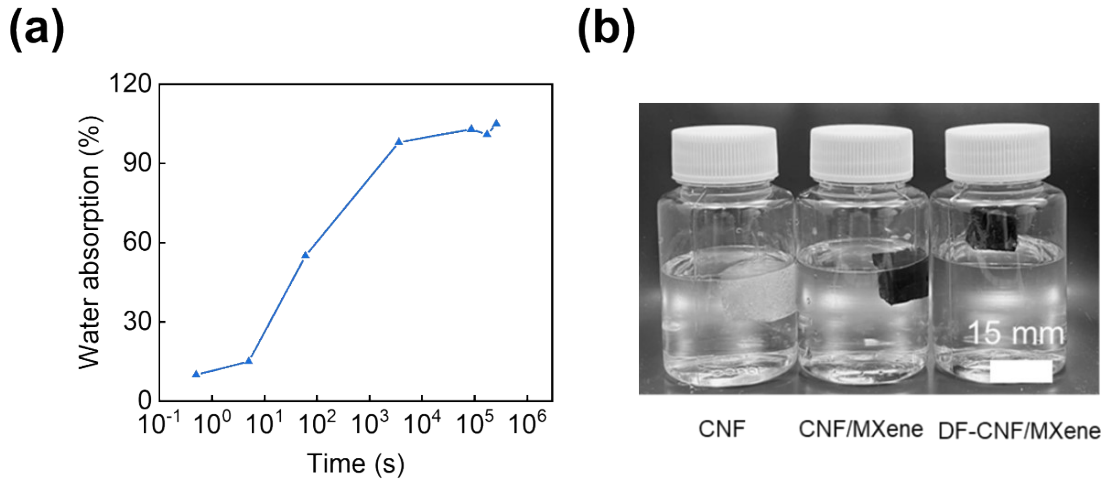


Fig. S5. (a) Partial enlargement of DF-CNF/MXene in Fig. 2f. (b) Photographs of water absorption of CNF, CNF/MXene, and DF-CNF/MXene aerogels.

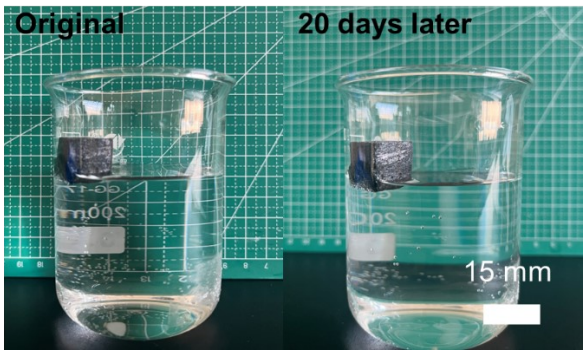


Fig. S6. Photographs of immersing in water for 20 days of DF-CNF/MXene aerogels.

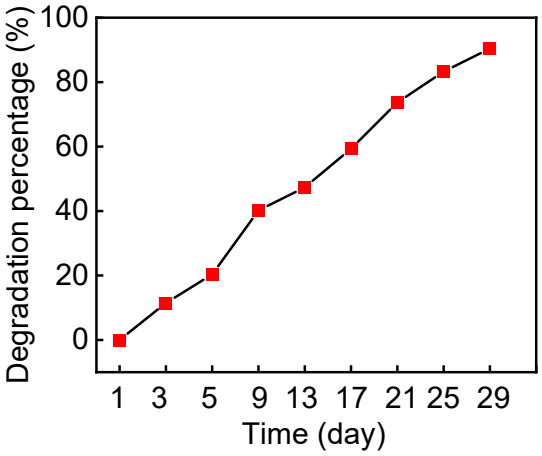


Fig. S7. Photographs of degradation percentage of DF-CNF/MXene aerogels.

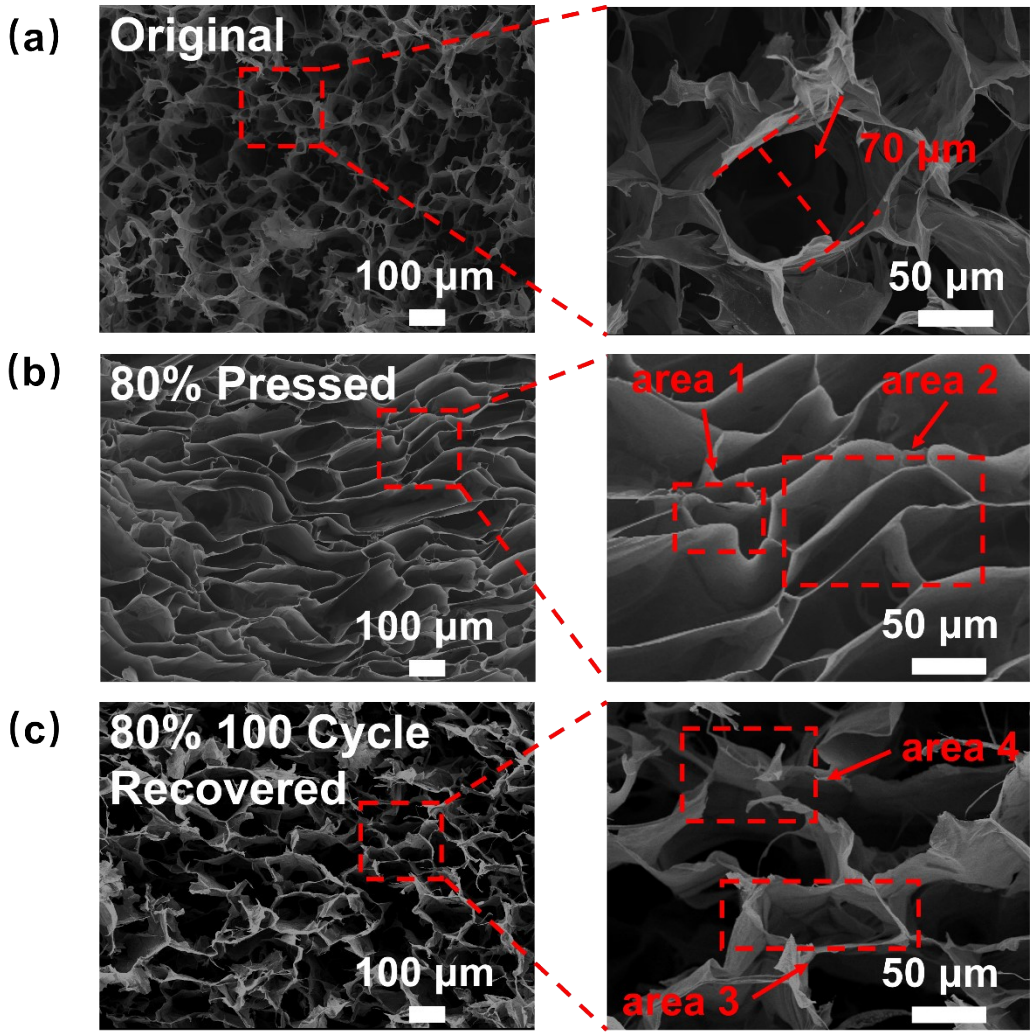


Fig. S8. (a) The morphology of DF-CNF/MXene aerogel. (b) The morphology of aerogel at 80% compression. (c) The morphology of aerogel after 100 cycles at 80% strain.

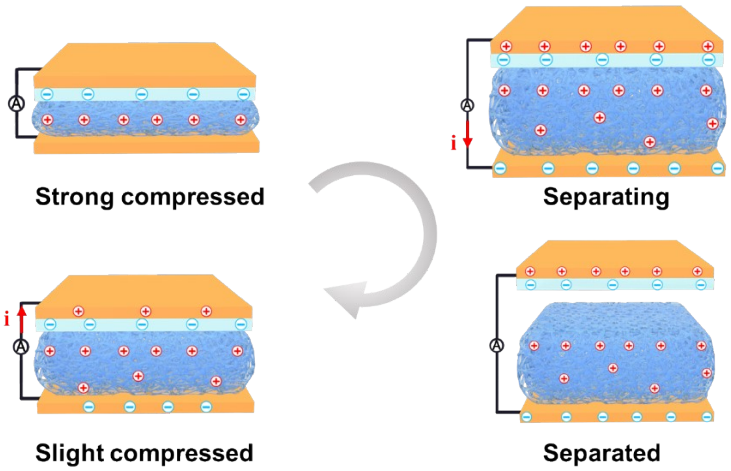


Fig. S9. The working mechanism of the DF-CNF/MXene TENG.

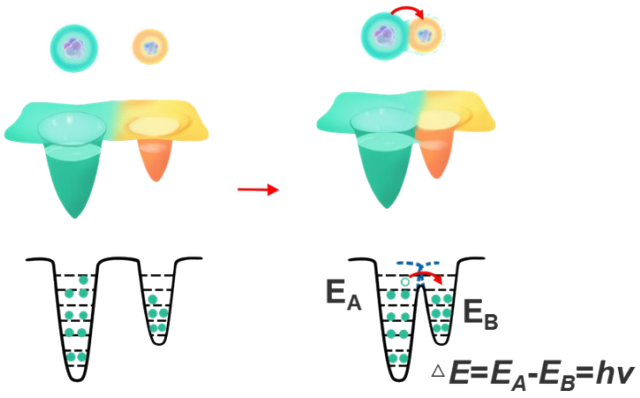


Fig. S10. Wang transition model in contact electrification.

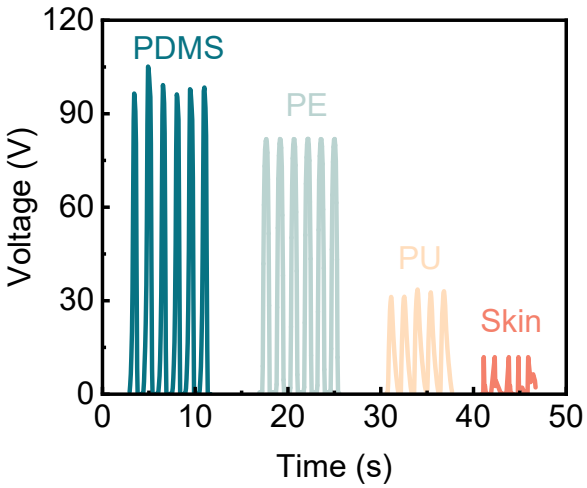


Fig. S11. The output voltage of the DF-CNF/MXene TENG with different friction layers.

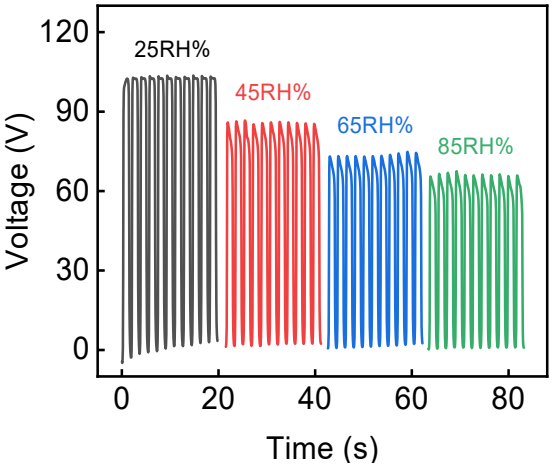


Fig. S12. The output voltage of the DF-CNF/MXene TENG with different relative humidity.

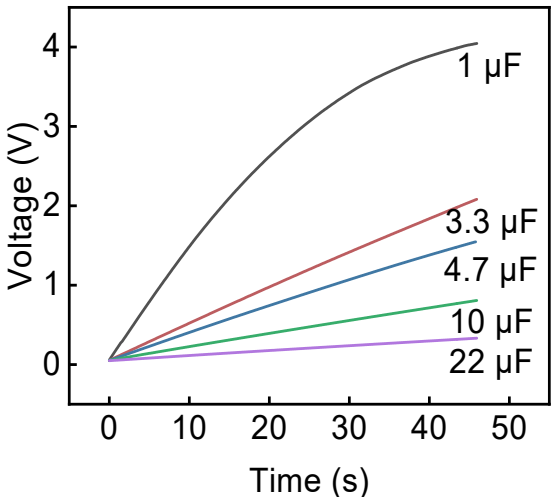


Fig. S13. Charging curves of DF-CNF/MXene TENG.

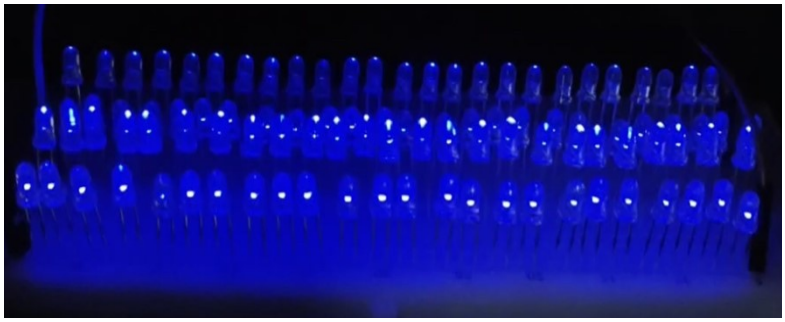


Fig. S14. Demonstration experiment of DF-CNF/MXene TENG powering LEDs.

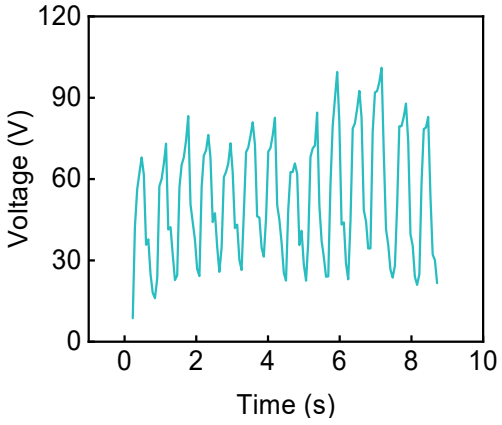
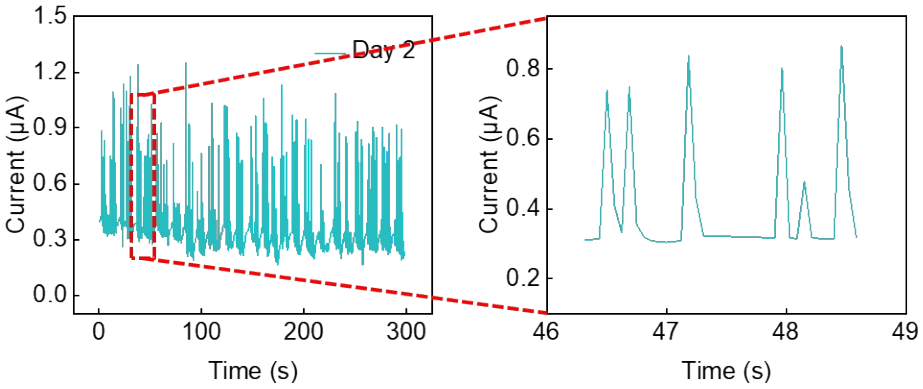
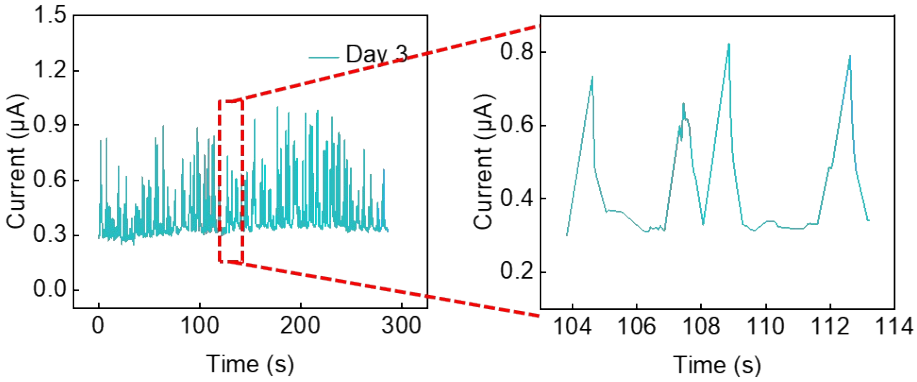
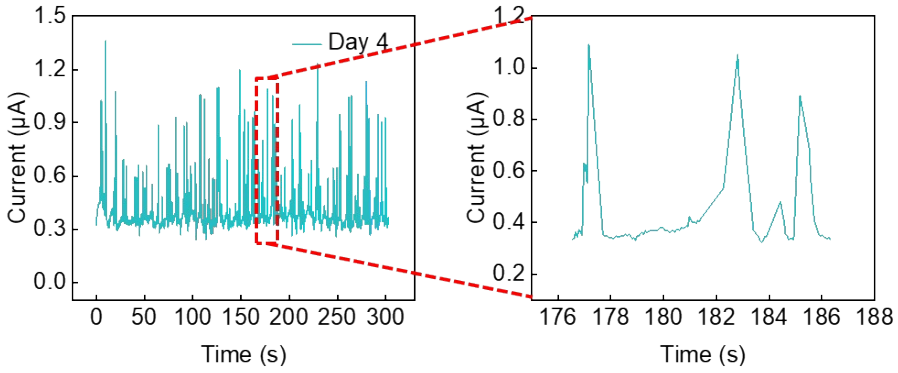
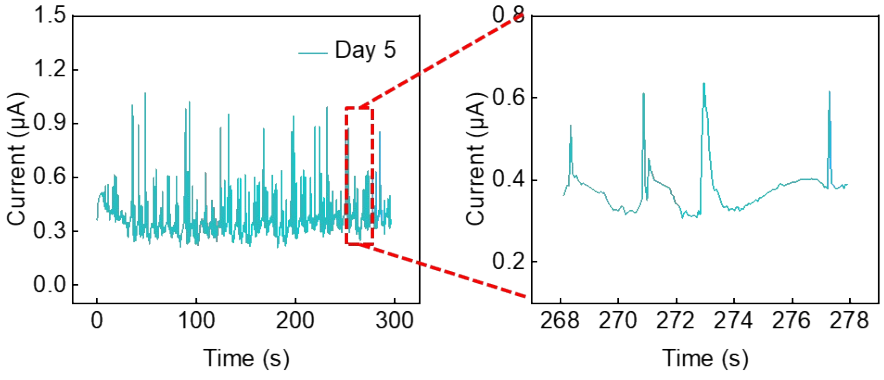


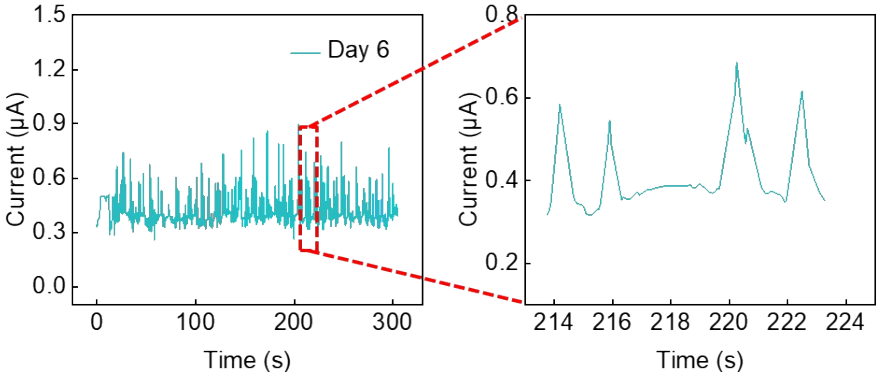
Fig. S15. The output voltage of the DF-CNF/MXene TENG during jumping.

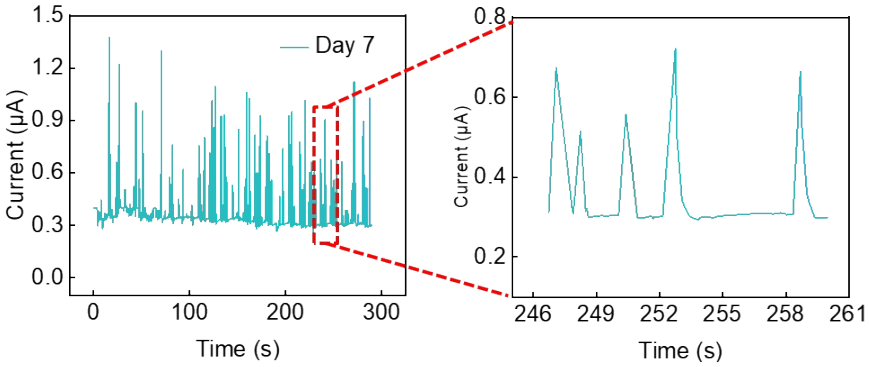

Day 2
Current (μA)
Time (s)
Current (μA)
Time (s)

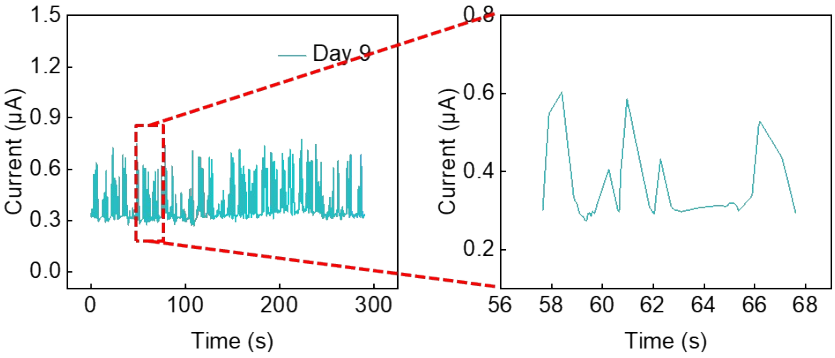

Day 3
Current (μA)
Time (s)
Current (μA)
Time (s)


Day 4
Current (μA)
Time (s)
Current (μA)
Time (s)


Day 5
Current (μA)
Time (s)
Current (μA)
Time (s)


Day 6
Current (μA)
Time (s)
Current (μA)
Time (s)


Day 7
Current (μA)
Time (s)
Current (μA)
Time (s)


Day 9
Current (μA)
Time (s)
Current (μA)
Time (s)

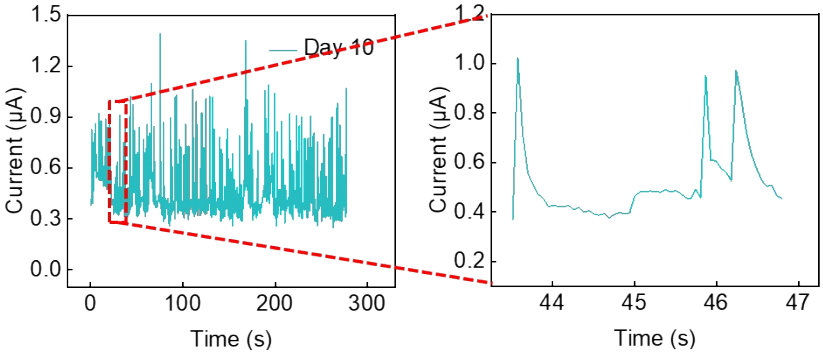

Day 10
Current (μA)
Time (s)
Current (μA)
Time (s)

Fig. S16. The output voltage of the DF-CNF/MXene TENG arrays on the 2nd, 3rd, 4th, 5th, 6th, 7th, 9th, and 10th day.