Supporting Information

An integrally underwater self-healable droplet-based triboelectric nanogenerator.

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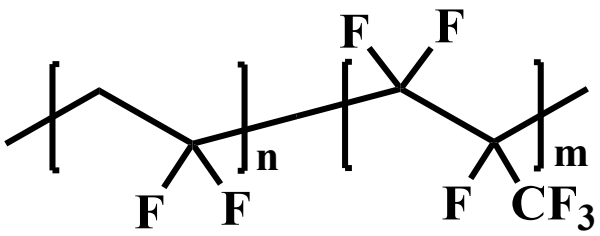

Figure S1. The chemical structures of PVDF-HFP.

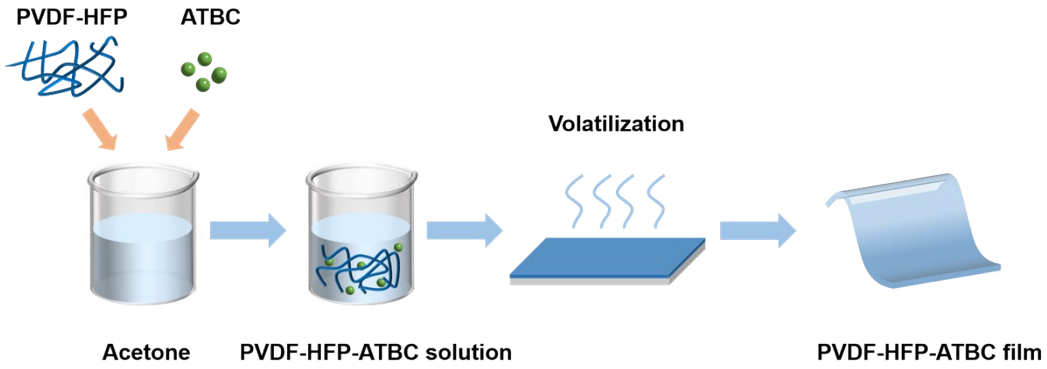

Figure S2. The preparation process of PVDF-HFP-15 wt% ATBC self-healing material.

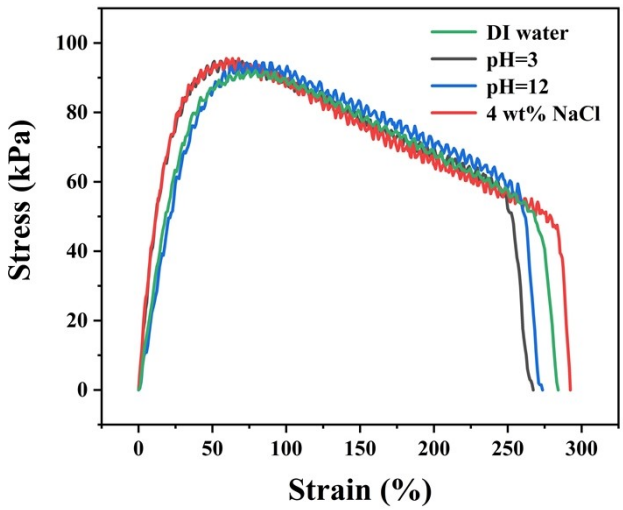

Figure S3. Typical stress-strain curves of healed PVDF-HFP-15 wt% ATBC complex after healing for 14 h in pH=3, pH=12, 4 wt% NaCl solution and DI water.

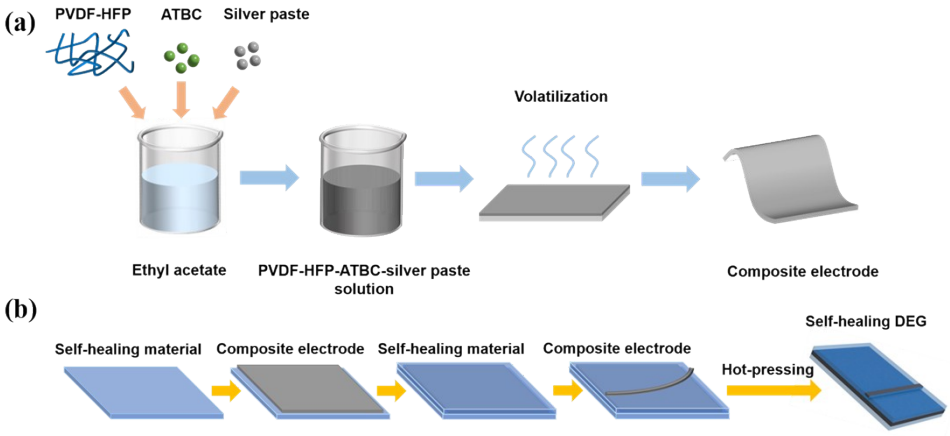

Figure S4. The preparation process of the (a) composite electrode and (b) SHD-TENG.

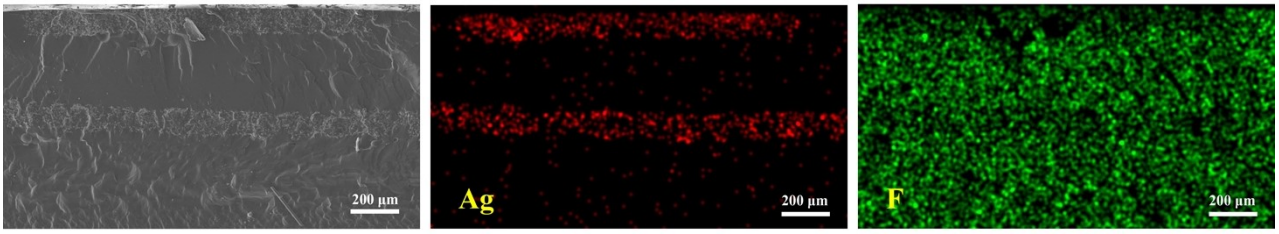

Figure S5. EDS analysis of SHD-TENG.

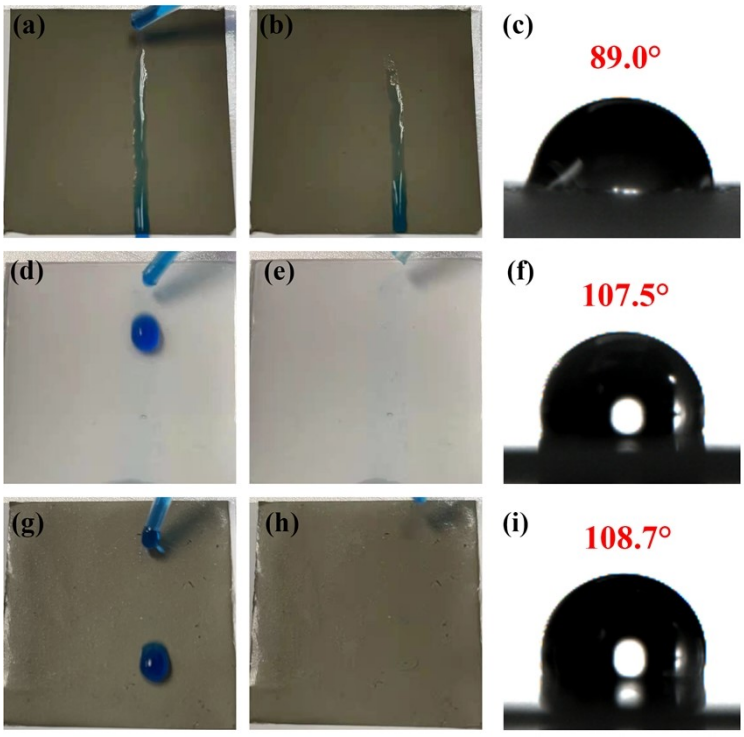

Figure S6. Optical images of sliding water droplets and contact angles on surfaces of (a-c) solidified silver paste, (d-f) PVDF-HFP-ATBC self-healing material and (g-i) silver paste/PVDF-HFP-ATBC composite electrode.

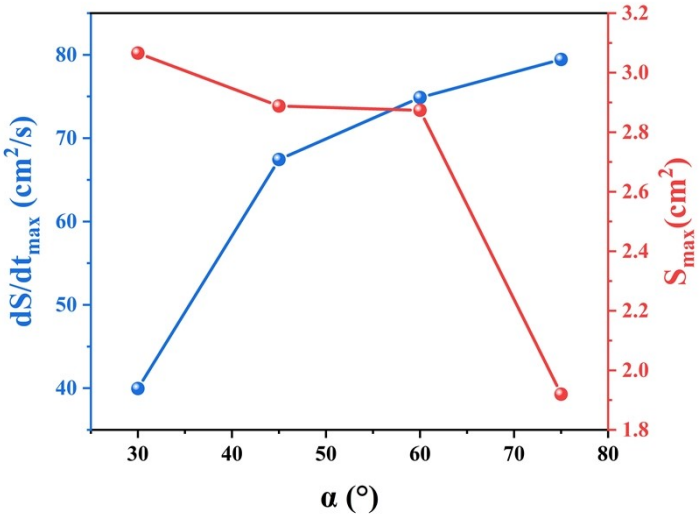

Figure S7. Change of S_{max} and dS/dt_{max} with varied inclination angle of the SHD-TENG.

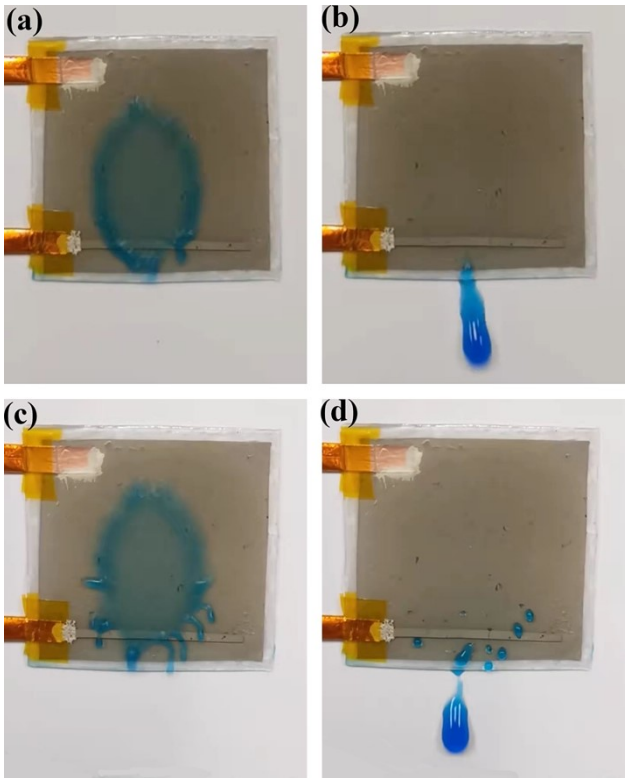

Figure S8. The shape of droplet when it is impinging and sliding across the surface of SHD-TENG with the droplet location of (a-b) 25 cm and (c-d) 35 cm.

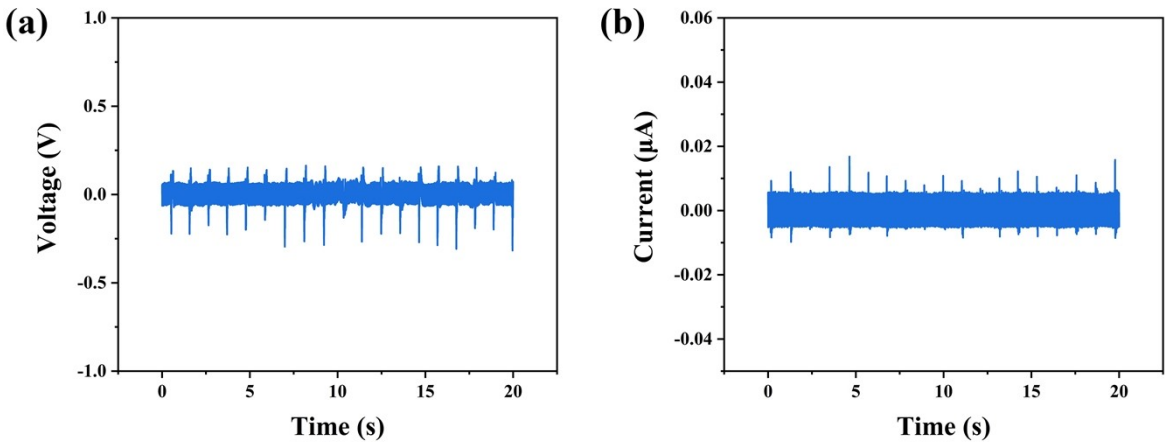

Figure S9. (a) Open-circuit voltage and (b) short-circuit current of droplet-based TENG with single electrode structure.

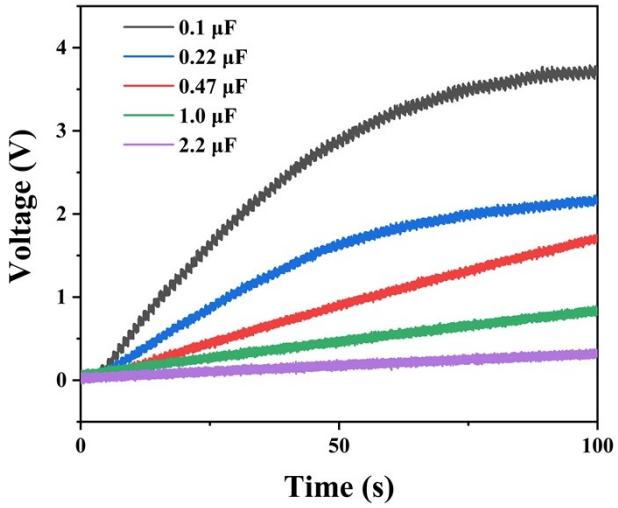

Figure S10. Charging curves of different capacitors charged by the SHD-TENG.

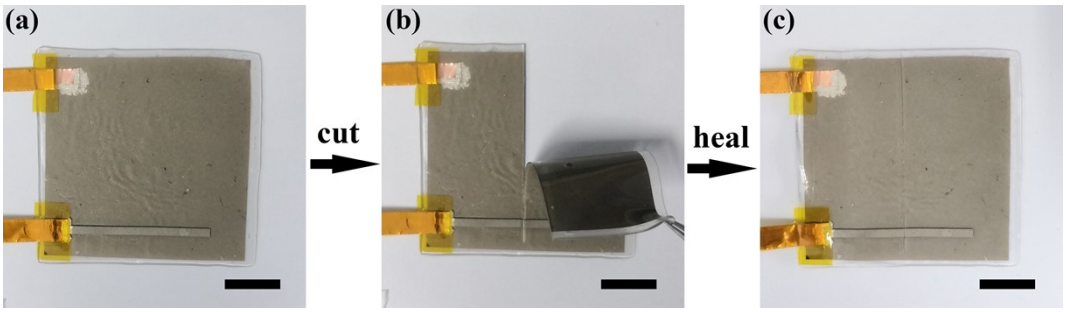

Figure S11. Digital photo of the (a) as-prepared, (b) damaged, and (c) self-healed SHD-TENG under the condition at 25 ℃ in water for 12 h. The scale bar is 1 cm.

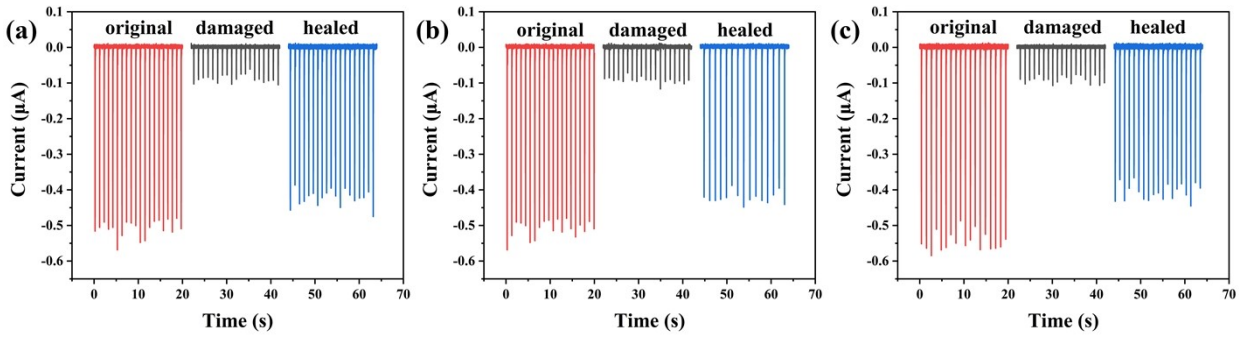

Figure S12. Short-circuit current of the SHD-TENG in the original, damaged, and healed states under the condition at (a) 25 ℃ in air for 12 h, (b) 60 ℃ in air for 3 h and (c) 25 ℃ in water for 12 h.