Supplementary Information (SI) for Nanoscale.

<Electronic Supplementary Information>

Stretchable and transparent PVA/Borax organohydrogel-based triboelectric nanogenerator for self-powered wearables and human–machine interfaces

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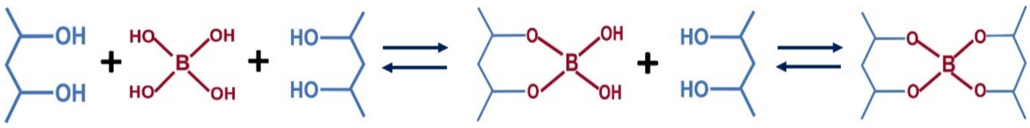

Figure S1. The cross-linking mechanism of PVA/Borax organohydrogel.

Figure S2. Photographs of PVA/Borax organohydrogels in tilted and inverted small bottles.

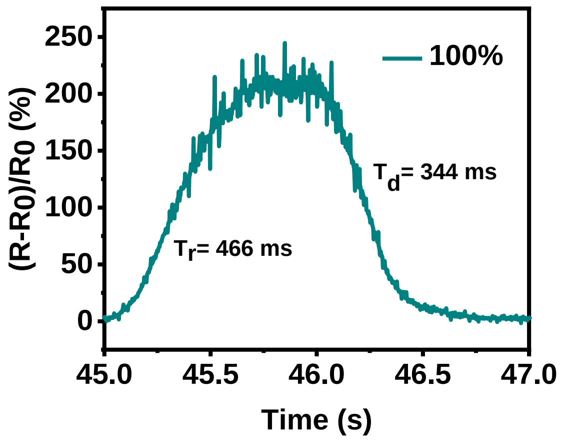

Figure S3. The response time and recovery times of the organohydrogel sensor at 100 % tensile strain.

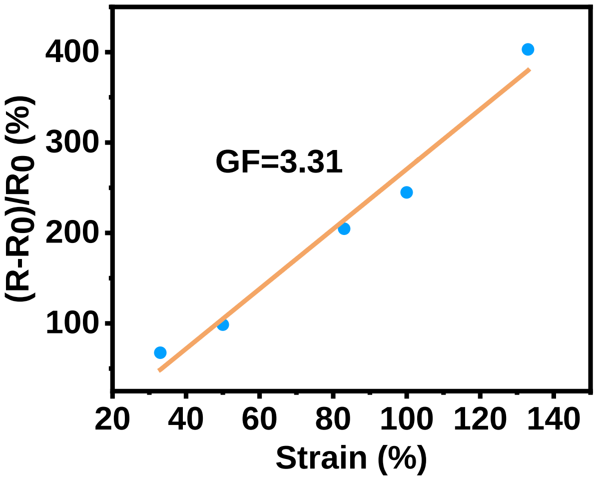

Figure S4. Relative resistance variation as a function of tensile strain for the PVA/Borax organohydrogel sensor.

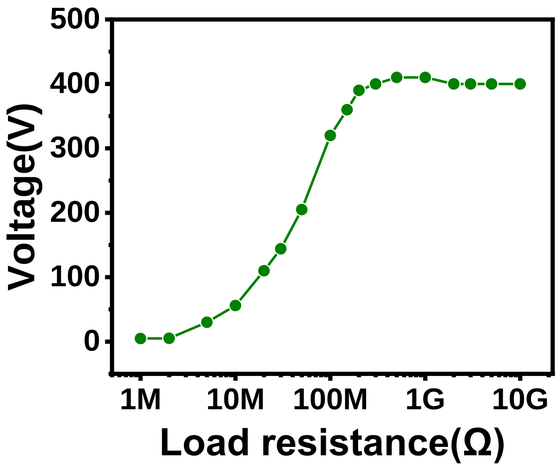

Figure S5. The load resistance dependence of the voltage of the OH-TENG.

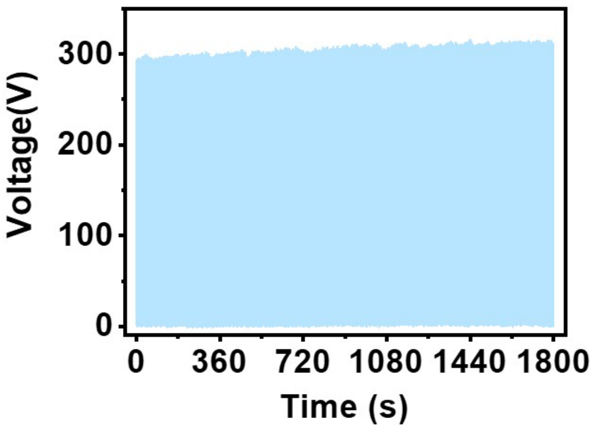

Figure S6. The output stability of the OH-TENG for 30 min (1.0 Hz, spacer distance = 40 mm).

Supporting Videos

Supporting Video S1. Demonstration of 300 LEDs in series lighted up by the OH-TENG (3.0 Hz).

Supporting Video S2. Sustainably driving a calculator with a capacitor (10 μF) charged by the OH-TENG.

Supporting Video S3. Sustainably driving an electronic watch with a capacitor (10 μF) charged by the OH-TENG.

Supporting Video S5. The electronic switch is connected to a small motor.

Supporting Video S5. The electronic switch is connected to the temperature and humidity sensor.

Supporting Video S6. The electronic switch is connected to an LED light.

Supporting Video S7. Visualization of motion signals of the TENG-Bluetooth sensor.

Table S1 Comparison of output performance of the PVA hydrogel-based triboelectric nanogenerators reported in literature.

Hydrogel electrodes	Negative triboelectric materials	Positive triboelectric materials	Sample size (cm^2)	V_{oc} (V)	I_{sc} (μA)	Q_{sc} (nC)	Power density (mW/m^2)	References
PVA	PDMS	Al	Hemisphere structure	200	22.5	250	/	[1]
PVA/Borax slime	silicone rubber	human skin	1×1	50	6.5	17	400	[2]
PVA/Borax/SA/$CaCl_2$	PDMS	Al	2×5	202	7.3	/	980	[3]
PVA/Borax/MXene	silicone rubber	Kapton	2×5	230	0.27	38	/	[4]
PVA/NaCl	silicone rubber	PET	1.5×2	40	0.1	/	/	[5]
PVA/Cellulose/$FeCl_3$	PTFE	TPU	/	/	~ 0.7	/	/	[6]
PVA/$NaNO_3$/Ag-NPs	PDMS	Al	4×5	120	1.5	/	240	[7]
PVA/SA/GO/NaCl	silicone rubber	/	2×2	495	22	50	4200	[8]
PVA/Borax/Glycerol	silicone rubber	degreased cowhide	3.8×5.8	500	3	145	494	This work

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