

A Polymeric Bilayer Multi-Legged Soft Millirobot with Dual Actuation and Humidity Sensing

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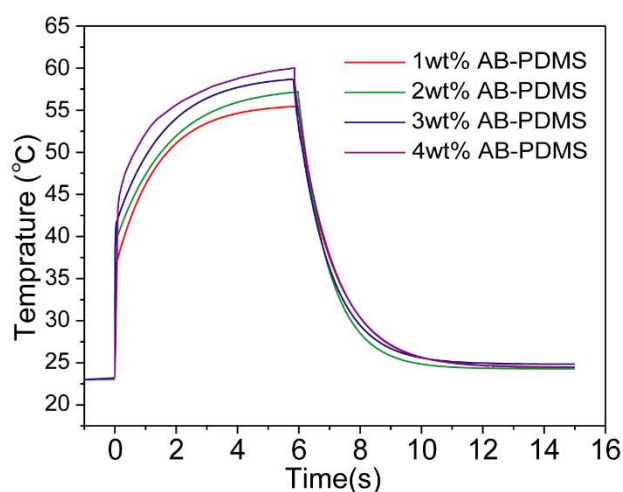


Figure S1. Temperature change of the actuator working in water.

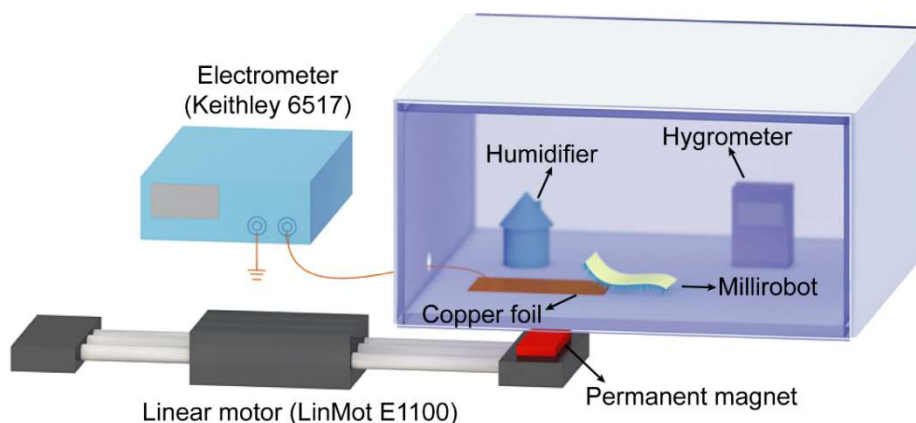


Figure S2. Schematic of the millirobot-TENG measurement set-ups.

Supplementary Movies

Movie S1. Real-time temperature changes of the polymeric bilayer platform with 4wt% AB concentration under infrared light irradiation (90mW cm⁻²).

Movie S2. Locomotion of the multi-legged millirobot in the light-driven mode, including a plane motion, forward, up-hill, swimming on the water and turning around.

Movie S3. Motion of the multi-legged millirobot in the magnetic-induced mode, including a plane motion, climbing a slope, walking in the water.

Movie S4. Load capacity test of the multi-legged millirobot, including loading a 30mg pill (10 times heavier of its own weight) in the light-driven mode and loading a 60mg tablet (20 times heavier of its own weight) in the magnetic-induced mode.

Movie S5. Humidity signals harvested from millirobot-TENG under stimulation of a magnetic field and execute the same compulsory exercise in the light-driven mode.