
Supplementary Information

Ultra-Stretchable Piezoelectric Nanogenerators via Large-Scale Aligned Fractal Inspired Micro/Nanofibers

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Figure S1. The photographs of the device before and after stretching, which demonstrate that the ultimate tensile capacity of the device can reach 300%.

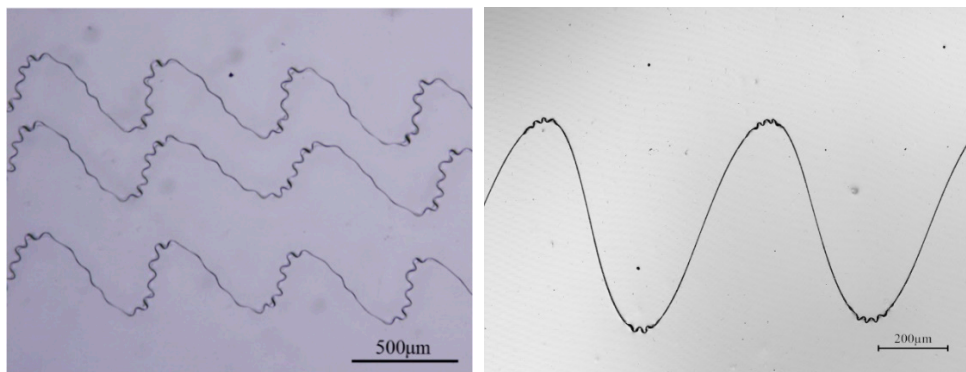


Figure S2. Self-organized buckling of serpentine fibers on a pre-stained elastomer with different tensile strains in two directions.

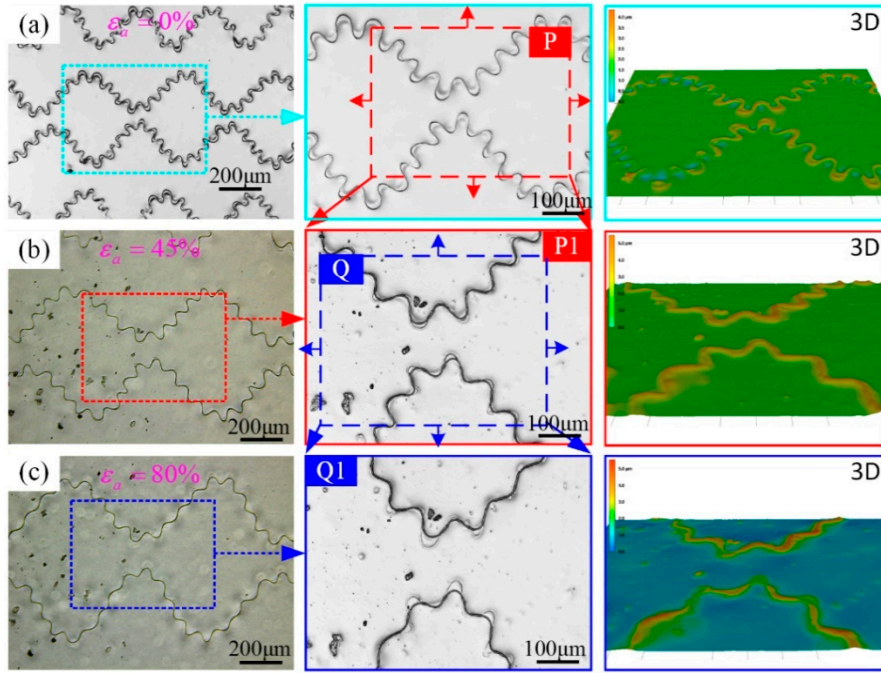


Figure S3. The 2D and 3D LSCM images of the shape geometry of self-similar fiber with applied strain of (a) 0%, (b) 45%, and (c) 80%. The left column is optical image of practical deformation, the middle one is magnification of the left one, and the right one is corresponding 3D image. The second-level waves become large and sparse, and gradually evolved into the initial serpentine structure with the increase of the applied strain. The 3D views show the fibers always deform in-plane, without out-of-plane wrinkling.

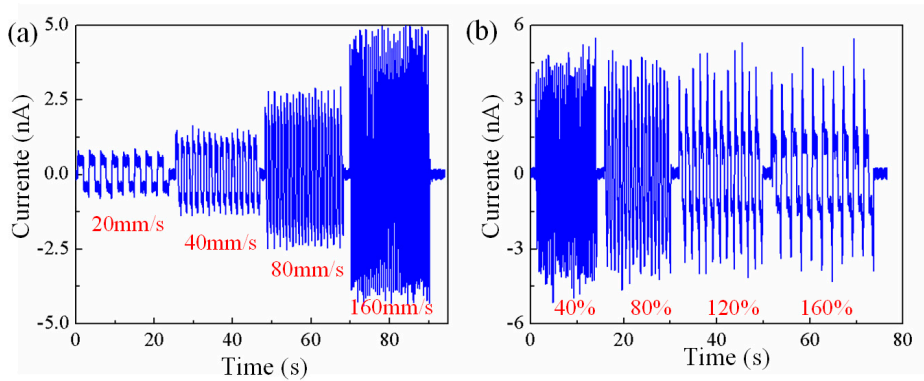


Figure S4. (a) The output current of 120% stretching in biaxial direction under 20 mm/s, 40 mm/s, 80 mm/s, and 160 mm/s. (b) The output current of 40%, 80%, 120%, and 160% stretching in the biaxial direction, under the same velocity of 40 mm/s.

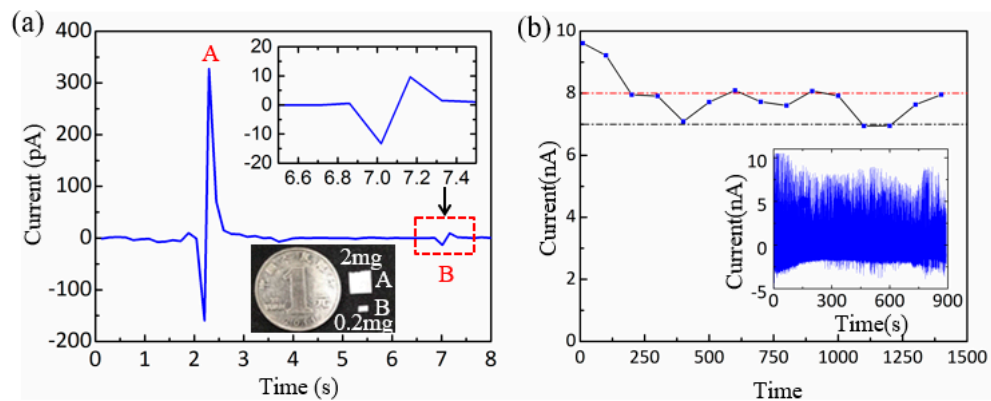


Figure S5. (a) The nanogenerator can detect the impact of a lightweight piece of paper. (b) Reliability test of the nanogenerator under an applied strain of 150%.

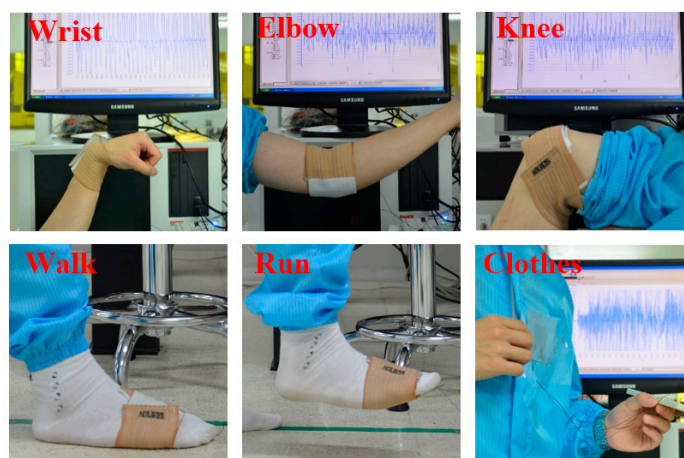


Figure S6. The nanogenerators attached to various body parts with different motions.