

Supporting Information

Electroless Deposition on Aligned Wave-Like Fibers with Robust Conductive Layer for Stretchable Electrode Application

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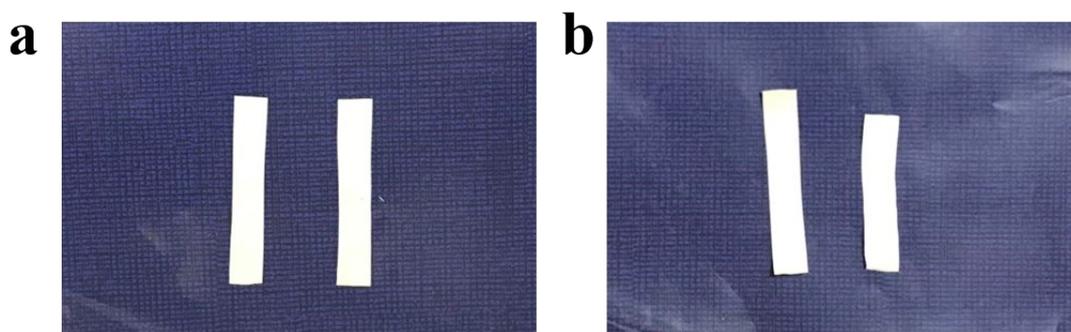


Fig. S1 Photographs of (a) as-prepared TPU fibrous mats and (b) the mats after immersed into deionized water (left) and ethanol (right) for 30 min.

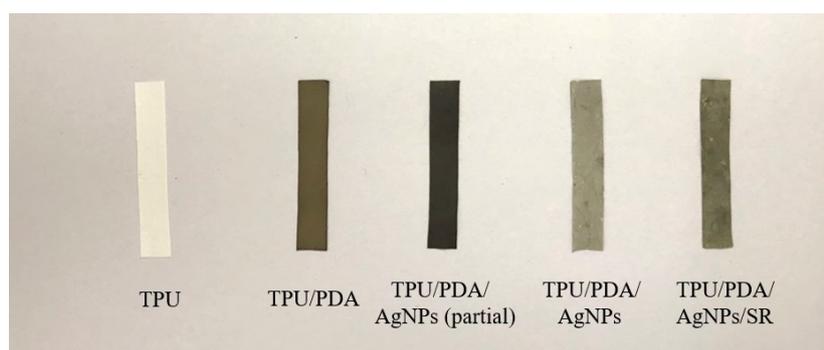


Fig. S2 Photographs of pure TPU, TPU/PDA, TPU/PDA/AgNPs reduced by PDA, TPU/PDA/AgNPs further reduced by glucose and TPU/PDA/AgNPs/SR films.

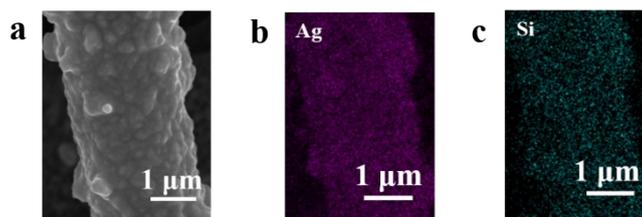


Fig. S3 (a) SEM images of TPU/PDA/AgNPs/SR and corresponding element mapping of (b) Ag and (c) Si.

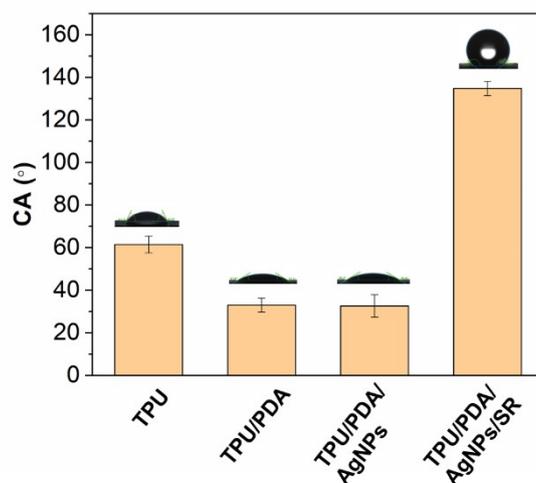


Fig. S4 Water CA on the surface of TPU fibrous mats and the composites.

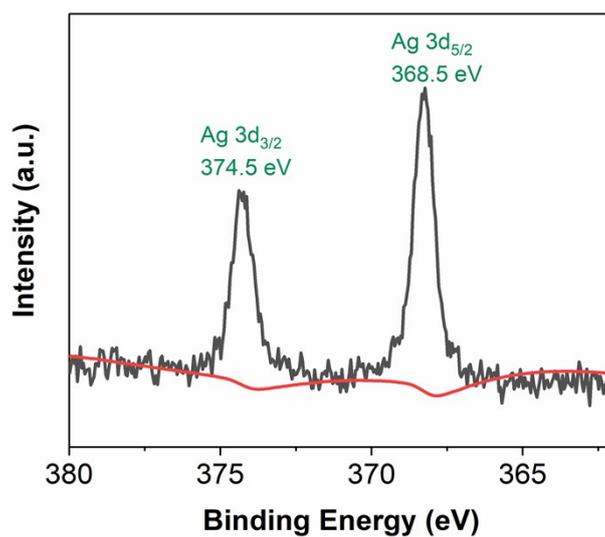


Fig. S5 High-resolution Ag peaks of XPS analysis for TPU/PDA/AgNPs/SR composites.

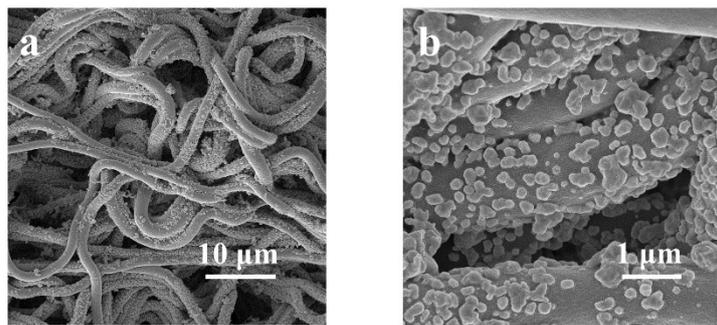


Fig. S6 SEM images of TPU/AgNPs composites without PDA layer at diverse magnifications.

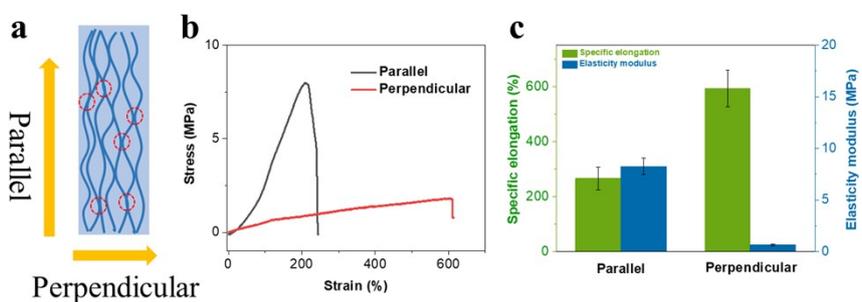


Fig. S7 (a) Diagram of stretching direction. (b) Stress-Strain curves of the composites stretched along two different directions. (c) Bar graph of specific elongation and elasticity modulus of the composites stretched along two different directions.

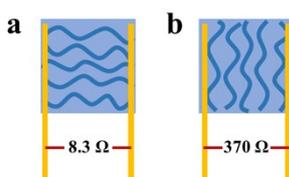


Fig. S8 Schematic diagram of resistance test method along two perpendicular directions.

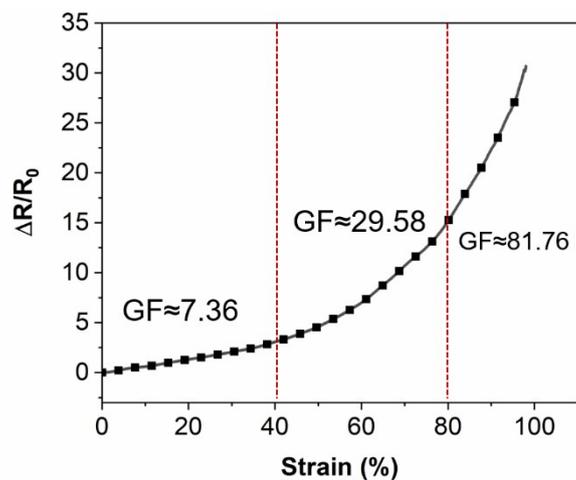


Fig. S9 $\Delta R/R_0$ against strain curve for the TPU/PDA/AgNPs/SR strain sensors with reducing time of 20 min.

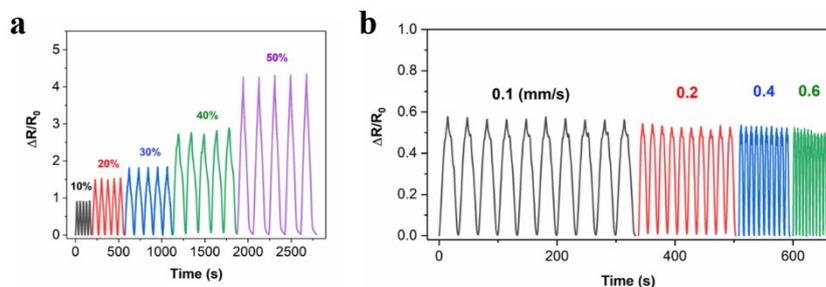


Fig. S10 (a) Relative resistance variation of the TPU/PDA/AgNPs/SR-20 strain sensor during stretching-releasing cycles at a maximum loading strain of 10%, 20%, 30%, 40% and 50%. (b) Dynamic response behaviors of the TPU/PDA/AgNPs/SR-20 strain sensor at various stretch and release rates.

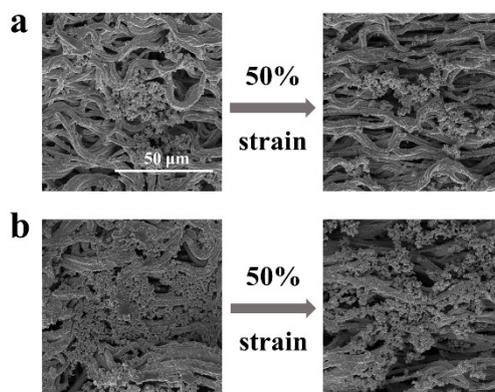


Fig. S11 SEM images of (a) TPU/PDA/AgNPs/SR-30 and (b) TPU/PDA/AgNPs/SR-60 composites under 0% (left) and 50% (right) strain.

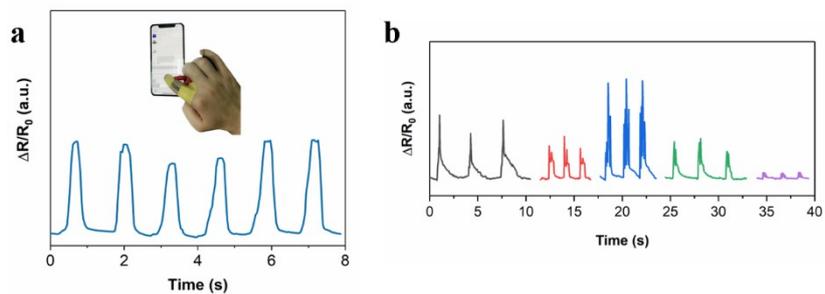


Fig. S12 (a) Responses of the TPU/PDA/AgNPs/SR-20 strain sensors to cyclic motions of typing. (b) Real-time relative resistance changes to different ringtones of the smartphone.

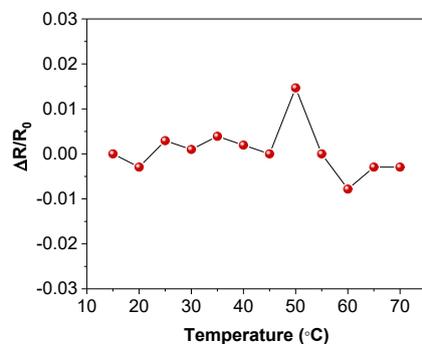


Fig. S13 $\Delta R/R_0$ against temperature curves for the TPU/PDA/AgNPs/SR-20 strain sensors.



Fig. S14 The LED displaying before and after stretching the TPU/PDA/AgNPs/SR-30 stretchable electrodes.