# High stretchability fiber based on synergistic three-dimensional conductive network for wide-range strain sensing

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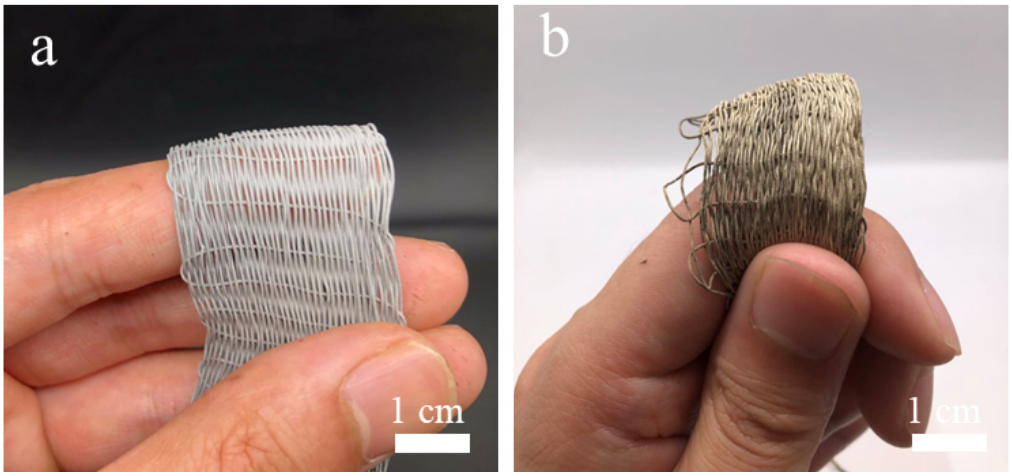


Figure S1. Digital photos of (a) MGT (b) AMGT fibers woven into fabric.

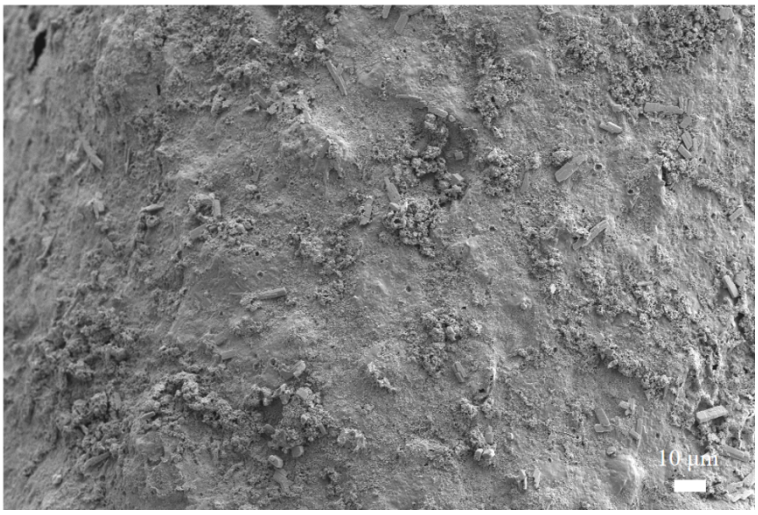


Figure S2. SEM image of AMGT fiber surface

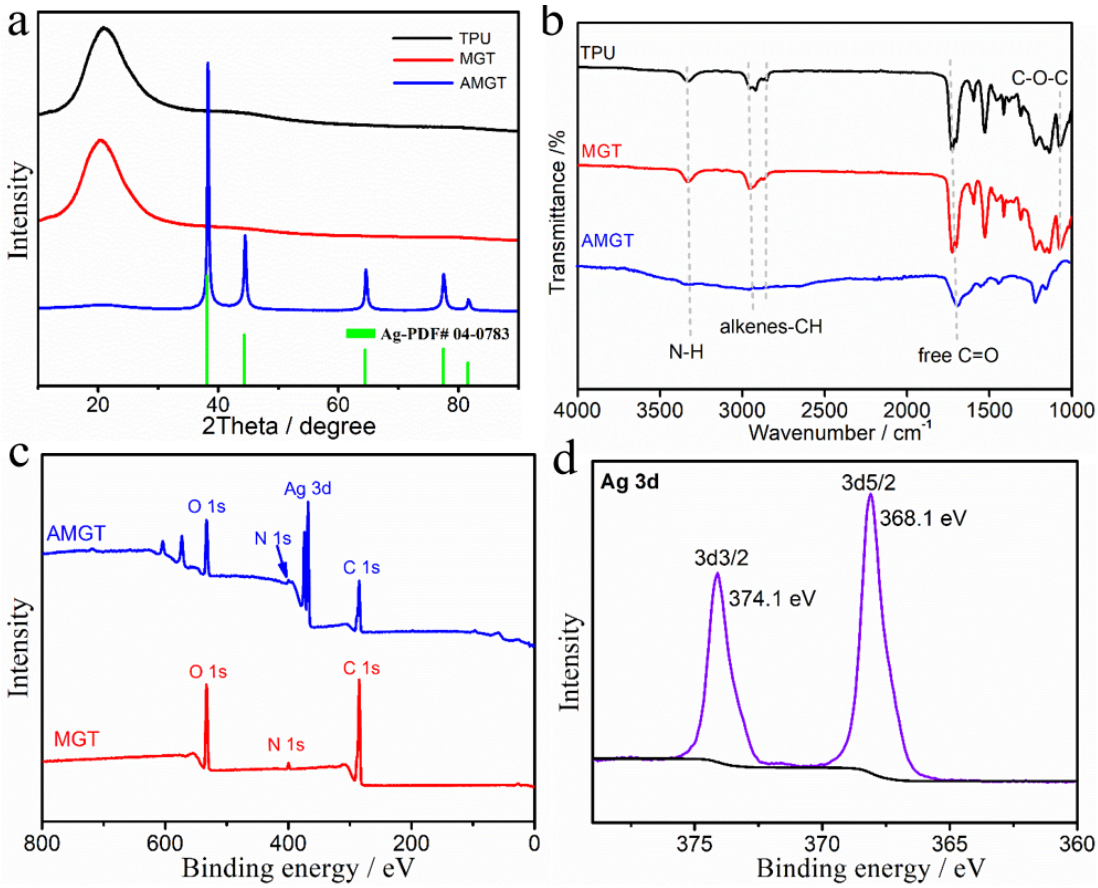


Figure S3. (a) XRD pattern. (b) FT-IR of TPU, MGT and AMGT fibers. (c) XPS spectra survey of MGT and AMGT fibers. (d) high resolution spectra for Ag 3d.

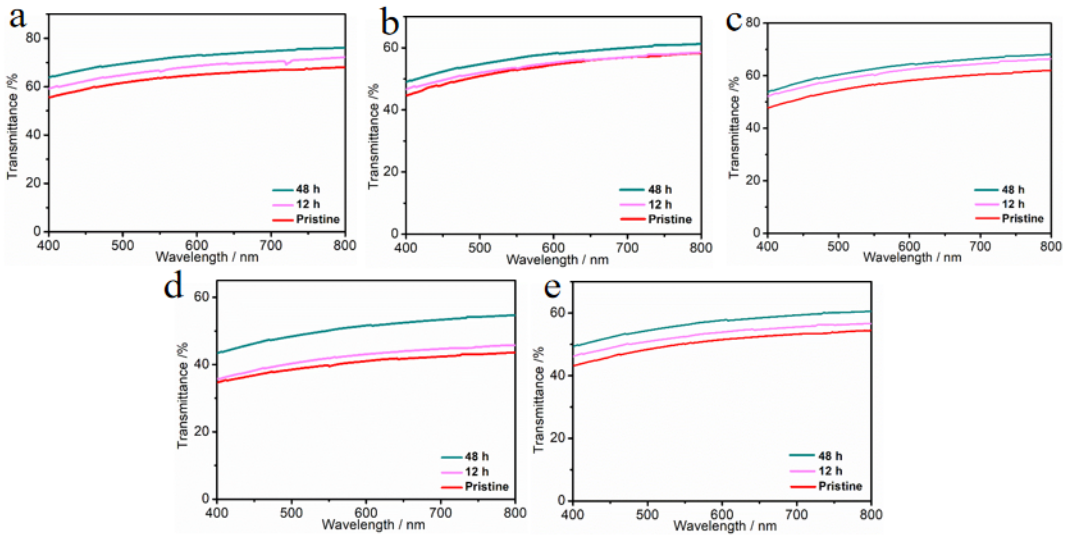


Figure S4. Ultraviolet-visible light test data of DMF suspension with MWCNT: GE= (a) 1:0. (b) 3:1. (c) 1:1. (d) 1:3. (e) 0:1 in pristine state, after standing for 12 h and 48 h.

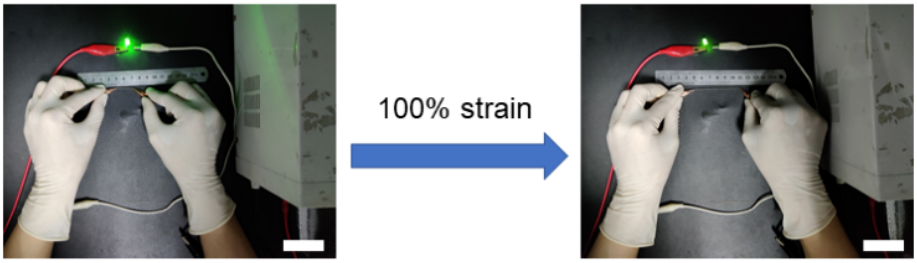


Figure S5. The conductive AMGT fiber lights up the small LED when stretched at 100% strain, the scale bar is 5 cm.

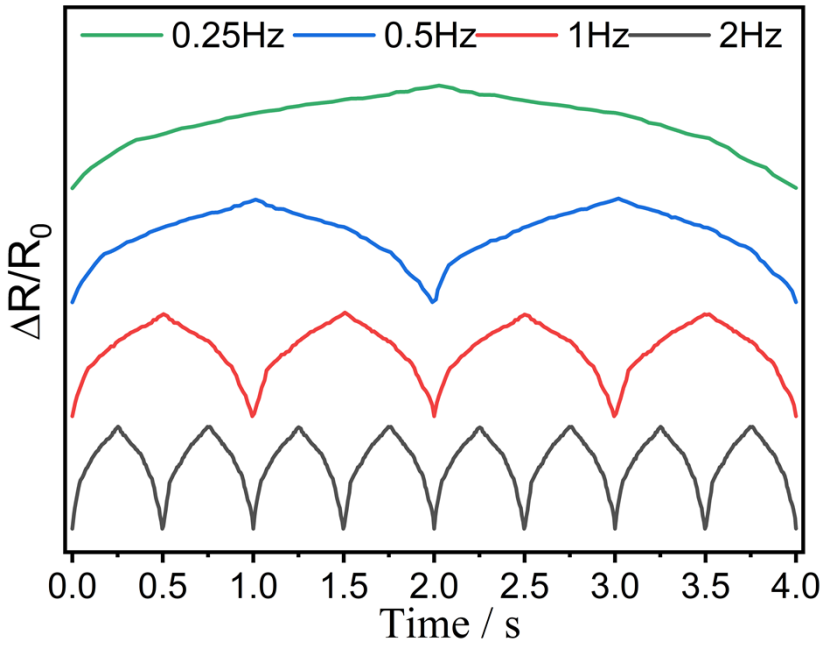


Figure S6. Relative resistance change under cyclic stretching/releasing with a strain of 50% at frequency of 0.25, 0.5, 1, and 2 Hz

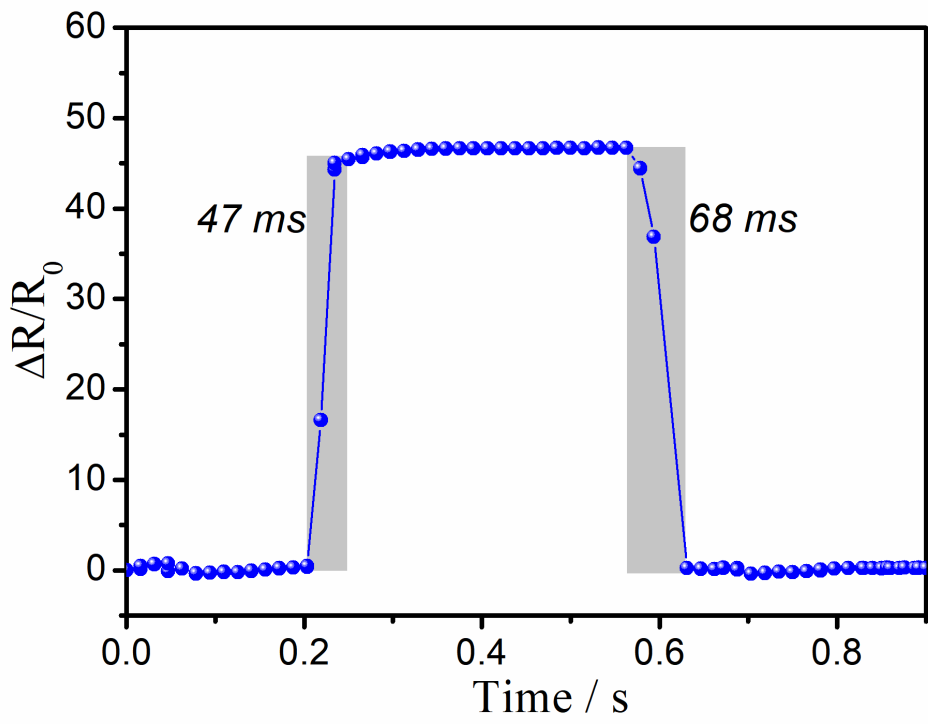


Figure S7. Response and recovery time of the strain sensor.

**Table S1**. Comparison of initial conductivity of conductive fiber samples

| Sample | Initial conductivity (S/cm) |
|---|---|
| **AgNPs/TPU** | 90 |
| **AMGT with 0.1wt.% MWCNT/GE fillers** | 92 |
| **AMGT with 0.3wt.% MWCNT/GE fillers** | 116 |
| **AMGT with 0.5wt.% MWCNT/GE fillers** | 158 |
| **AMGT with 1wt.% MWCNT/GE fillers** | 245 |