Supplementary information

Multifunctional hollow TPU fiber filled with liquid metal exhibiting fast electrothermal deformation and recovery

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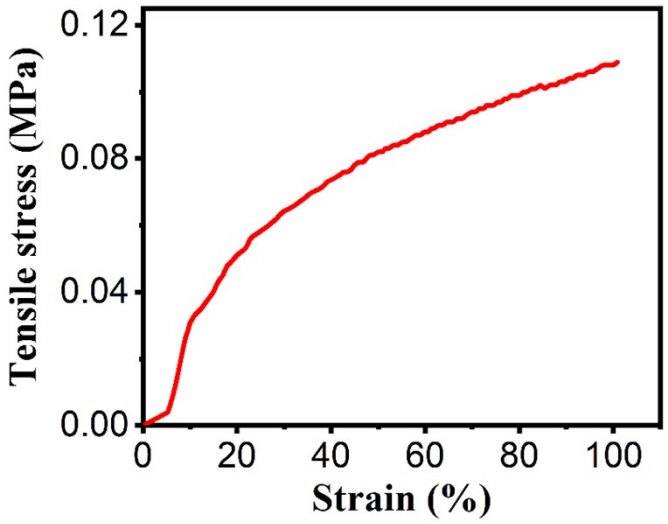

Fig. S1 The tensile stress–strain plots of DCF at 100% strain. DCF cannot recover after stretching more than 100%.

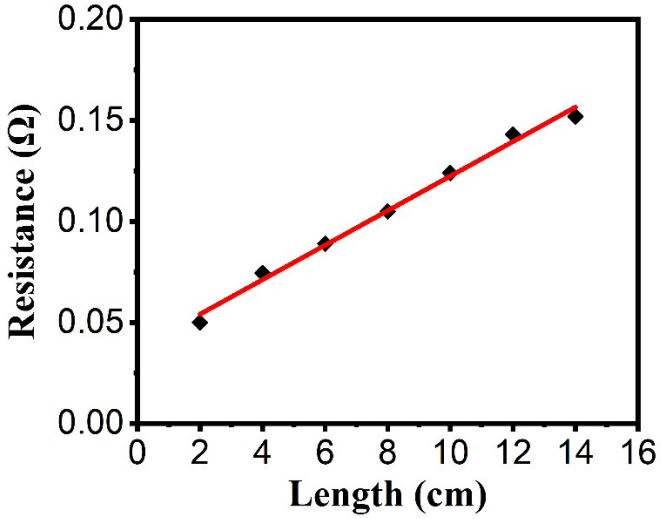

Fig. S2 The resistance of DCF increases linearly with its length.

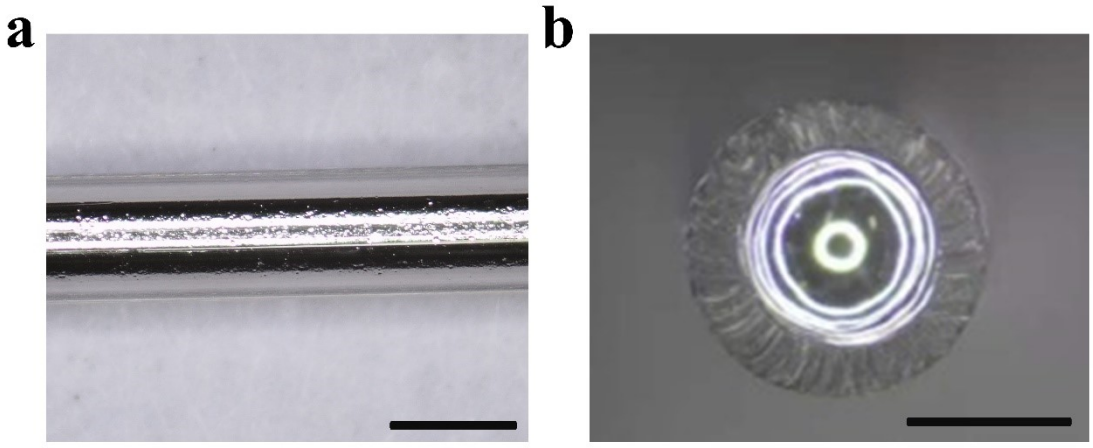

Fig. S3 Optical micrograph of DCF. (a) Optical image of the axial of DCF. Scale bar represents 1 mm. (b) Optical image of the cross-section of DCF. Scale bar represents 0.5 mm.

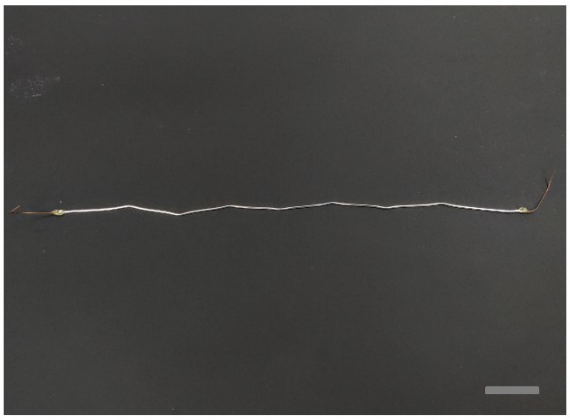

Fig. S4 Photographs of wave shape DCF being shaped back to initial shape. Scale bar represents 3 cm.

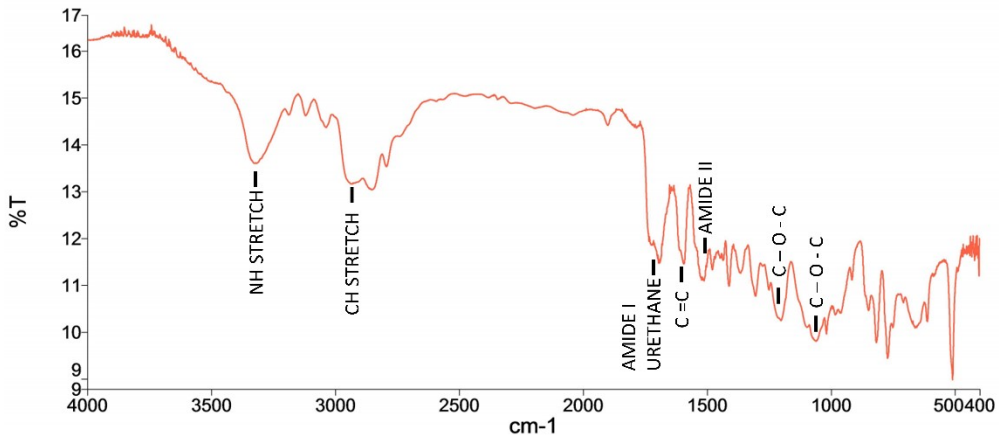

Fig. S5 Fourier infrared spectrum transmission curve of thermoplastic polyurethane.

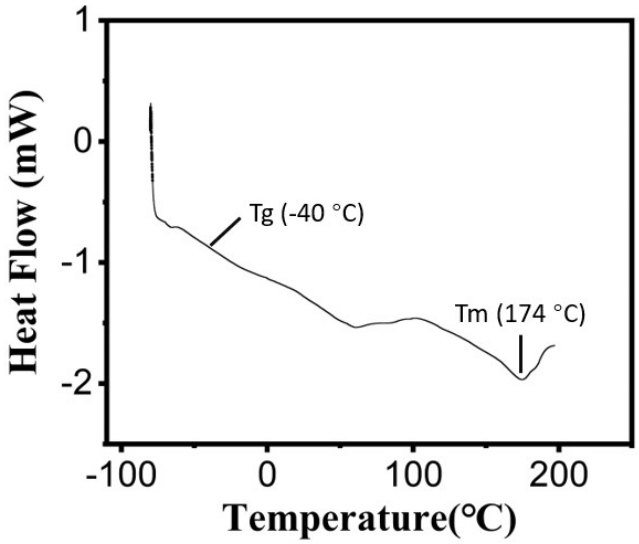

Fig. S6 The DSC graph of thermoplastic polyurethane.

Fig. S7 Photos of damaged DCF after being heated to 190 °C. Scale bar represents 5 mm.

Fig. S8 Photographs of double-torsional shape DCF. Scale bar represents 1 cm.

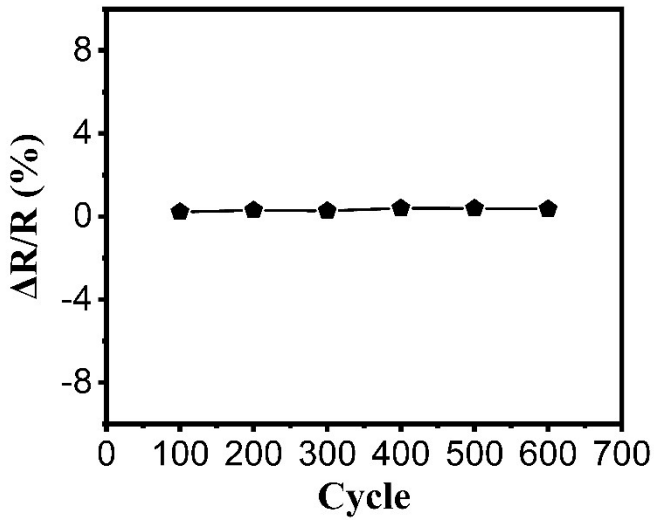

Fig. S9 Repeatability characterization of the helical DCF at 500% strain (with a C of 6).

Table 1. Correspondence between k value and D/L_0

D/L_0	0.1	0.2	0.4	0.6	0.75	1.0	1.5	2.0	3.0
k	0.96	0.92	0.85	0.79	0.7	0.69	0.60	0.52	0.43