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Supporting Information

Liquid Metal Fiber Composed of Tubular Channel for High-Performance Strain Sensor

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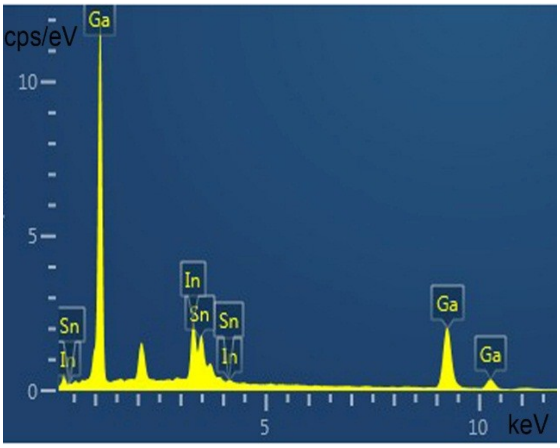

Figure S1. The chemical ingredient analysis of liquid metal with the ratio of Ga weight content to In and Sn is 78: 16: 6.

Table S1. Resistance comparison of the reported liquid-based conductor sensors.

conductive material	Stretchable substrate	original resistance	reference
Ionic liquid	POE	150000 Ω	[9] W. l. Cheng et al
EGaIn	Ecoflex/PET	2 Ω	[18] C. T. Lim et al
NaCl	Ecoflex 0030	129 Ω	[25] A. Menciassi et al
EGaIn	silicone	10 Ω	[38] C. Majidi et al
EGaIn	Ecoflex/PET	4.7 Ω	[39] C. T. Lim et al
ILBW	Ecoflex	197 00 Ω	[40] H. M. Lee et al
EGaInSn	silicone	**0.344 Ω**	**This work**

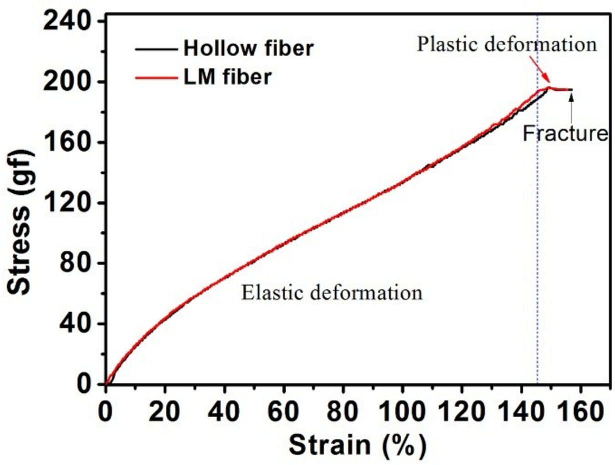

Figure S2. The stress-strain plots of elastomeric fibers. The fibers have the same mechanical properties with and without the liquid metal.

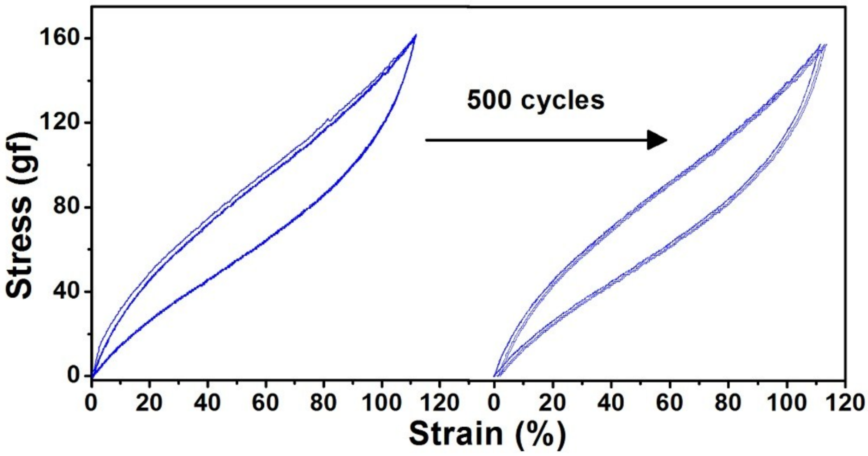

Figure S3. The mechanical properties of the LM fibers at 110% strain for 500 cycles. Clearly, the cyclic tests indicate the stress nearly none loss after 500 cycles, indicating excellent stability and high elasticity of LM fiber.

Figure S4. Schematic showing the LM pressure distribute on fiber channel sidewall. For meeting the volume constraint on the stretched process, the liquid metal with high fluidity will produce pressure on the sidewall of channel that uniformly vertical distribute on it.

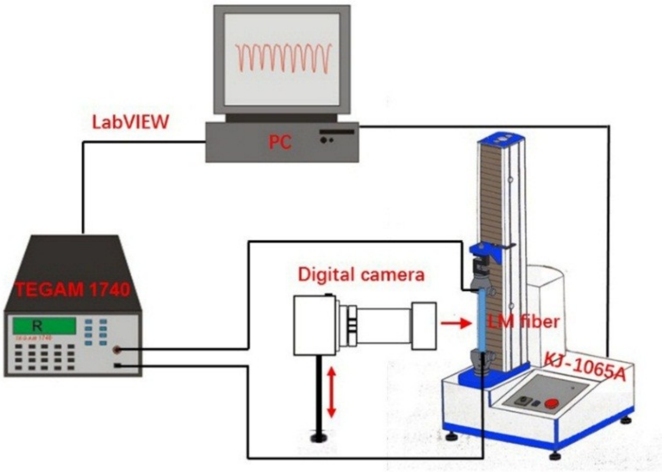

Figure S5. Schematic of the resistance measurement with high precise strain machine.

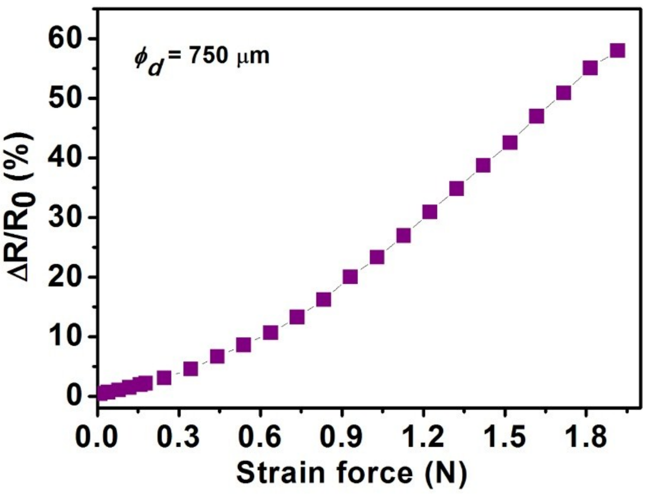

Figure S6. The $\Delta R/R_0$ of LM fiber sensor with increasing strain force while the fiber stretched from 0 to 140%.

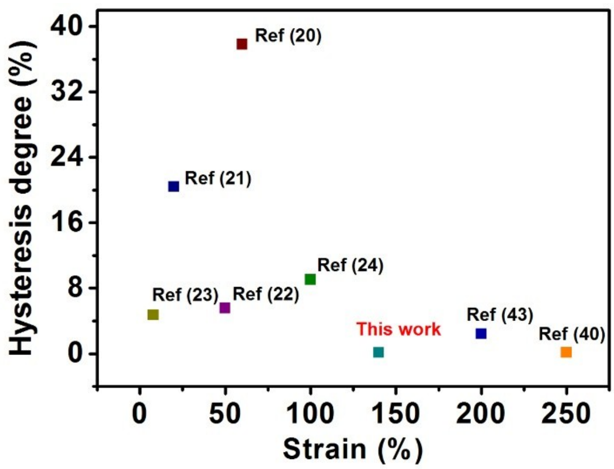

Figure S7. Comparison of degree of hysteresis for previously reported strain sensors.

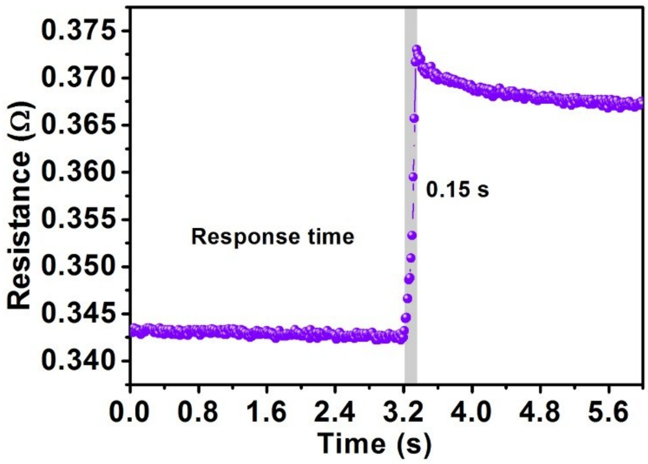

Figure S8. Instant response of LM fiber sensor, showing an ultralow response time of 0.15 s when applied 5 N on sensor in a speed of 300 mm/s.