Supporting Information

Flexible Metal Nano-mesh Strain Sensor with Characteristics of

Spontaneous Functional Recovery after Fracture Damage

Dongyang Zhao,‡[a] Bangbang Nie,‡[a] Guochen Qi,[a] Shijiao Li,[a] Qichen Zhu,[a] Jingjiang Qiu,[a][b] Yenya Hsu,[a]

Yudong Zhang,[a] Wen Wang,[a] Qidong Zhang[c] and Zonhan Wei*[a][b][d]

[a] *School of Mechanics and Safety Engineering, Zhengzhou University, Zhengzhou 450001, China.*

[b] *Institute of Intelligent Sensing, Zhengzhou University, Zhengzhou 450001, China.*

[c] *Zhengzhou Tobacco Research Institute of CNTC, Zhengzhou 450001, China.*

[d] *School of Cyber Science and Engineering $\&$ Hanwei Institute of Internet of Things,*

Zhengzhou University, Zhengzhou 450001, China.

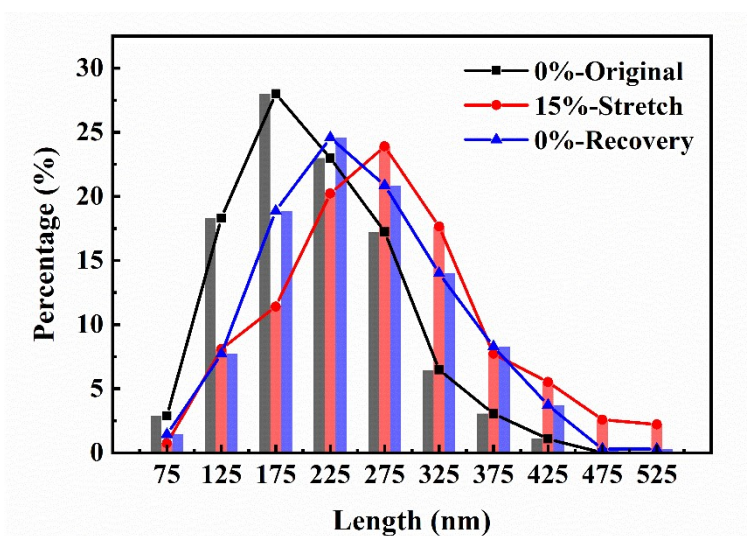*Correspondence to:* prof.wei@outlook.com

Fig. S1   Nanowire lengths in the original, stretched (15%), and recovered states.
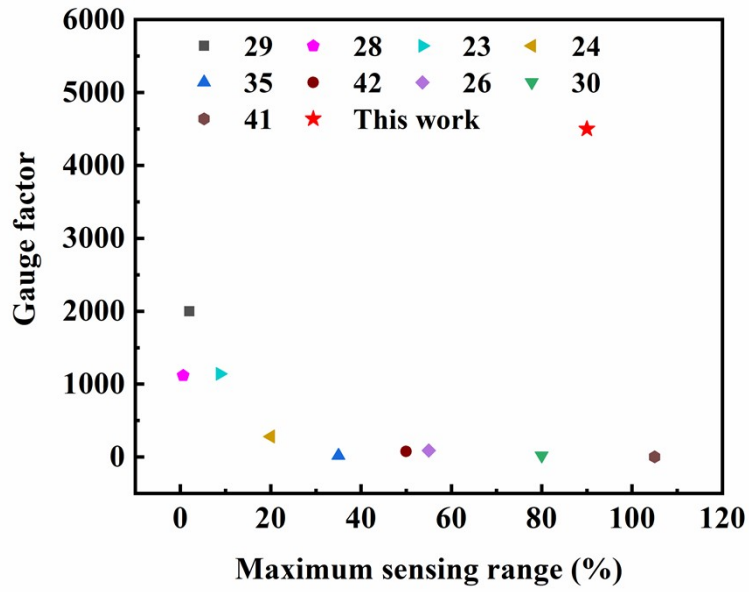
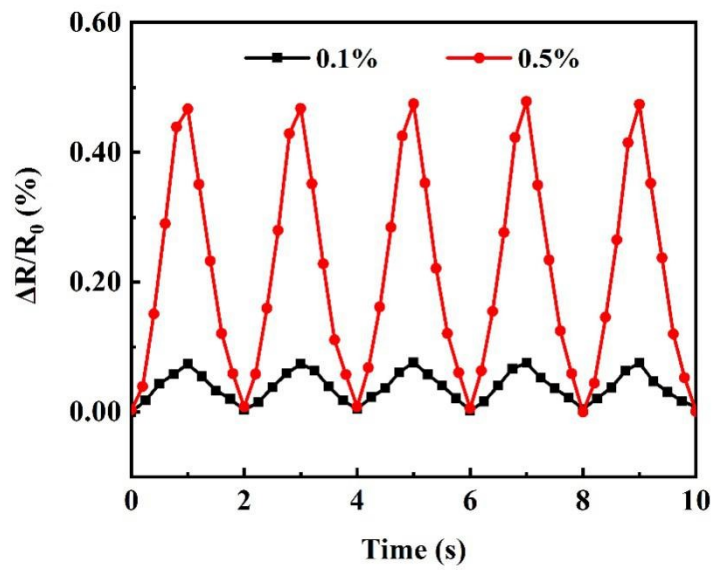**Fig. S2**   Comparison of the gauge factor and maximum sensing range of this work with other strain sensors.

Fig. S3   Fast response of the sensor to cyclic loadings at small strains (0.1% and 0.5%).
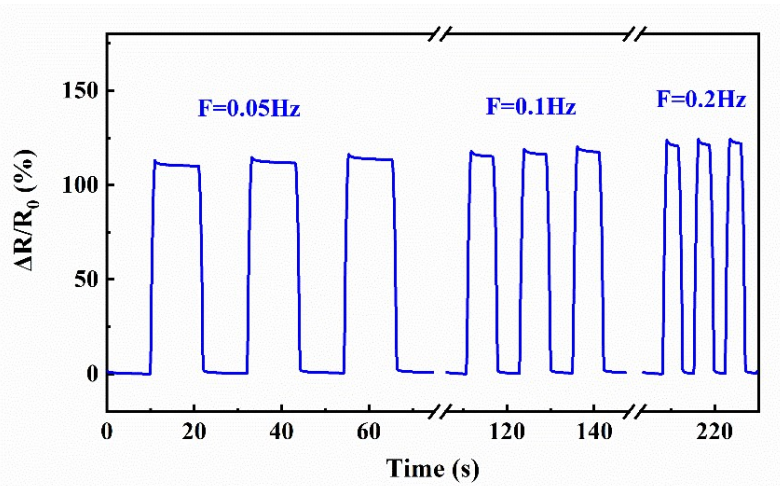
Fig. S4 Time-dependent response of $\Delta R/R_0$ at different frequencies.
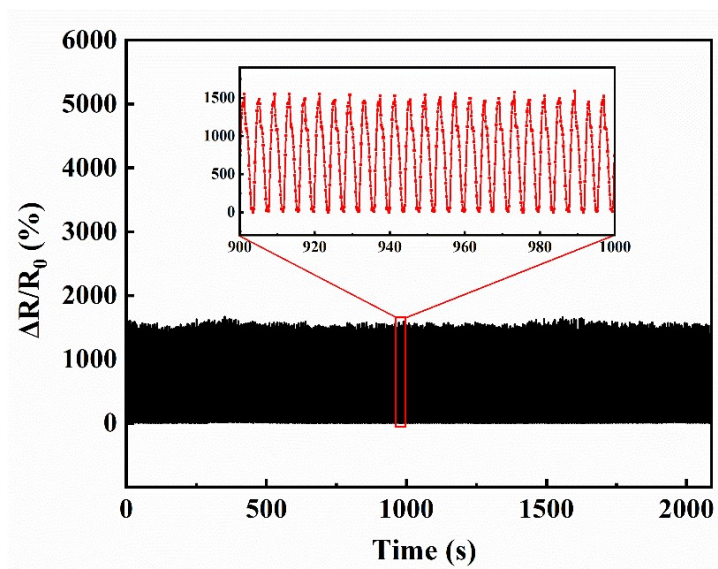

Fig. S5 $\Delta R/R_0$ on the loading–unloading cycles at a constant strain of 20%. Inset: representative magnified cycles of 900-1,000 s in the marker region.
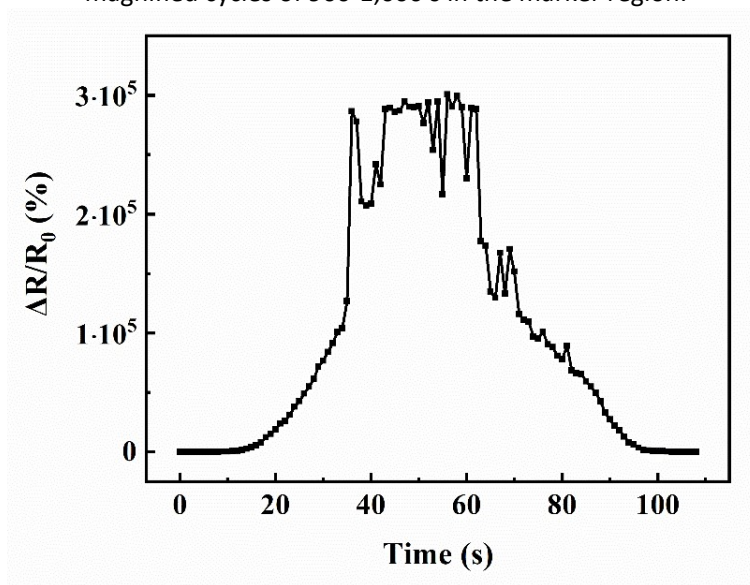

Fig. S6 The sensor resistance variation at overstretch (95%).