Supporting information

A flexible and self-formed sandwich structure strain sensor based on AgNW decorated electrospun fibrous mats with excellent sensing capability and good oxidation inhibition property

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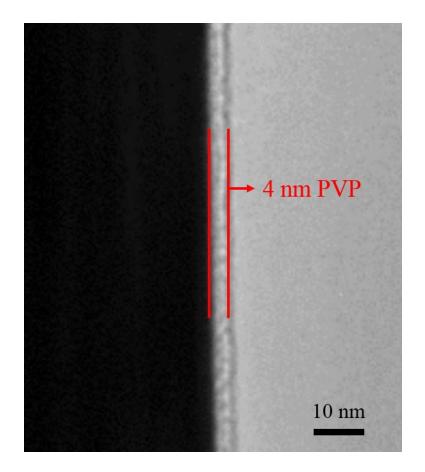


Fig. S1. TEM image of as-prepared AgNWs, showing 4 nm PVP absorbed on the surface.

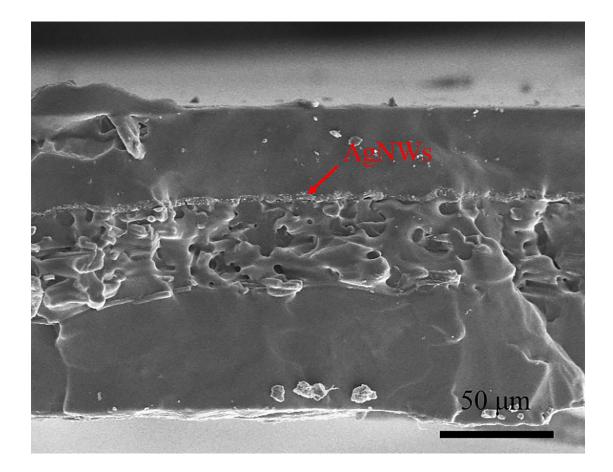


Fig. S2. Cross-sectional SEM image of an ATP strain sensor with self-formed sandwich structure with a higher magnification.

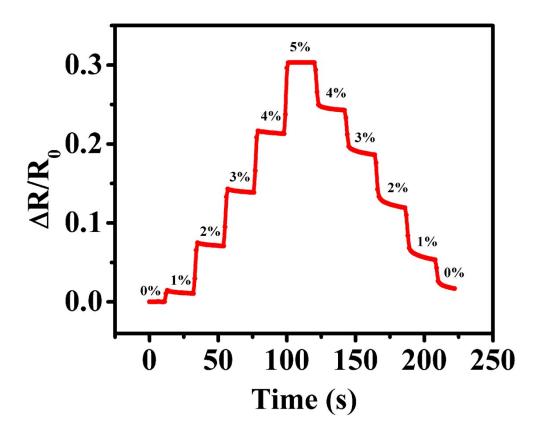


Fig. S3. A cycle of strain from 0% to 5% then back to 0%, being held at different strains.

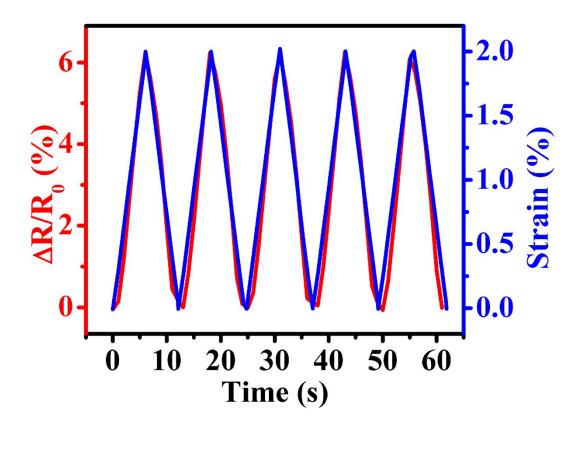


Fig. S4. Cycling test of ATP strain sensor; its relative resistance changes synchronously with the strain.

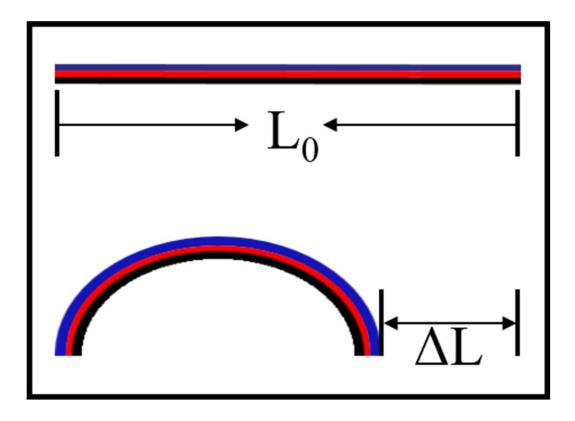


Fig. S5. Schematic illustration of bending an ATP strain sensor.

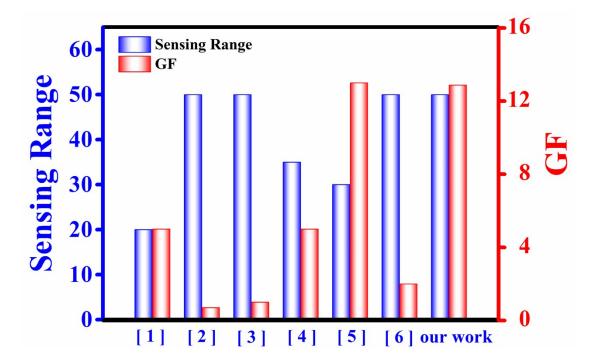


Fig. S6. Comparison on GF and sensing range of ATP strain sensors with previous works.

References

- 1. N. Chou, Y. Kim and S. Kim, ACS Appl. Mater. Interfaces, 2016, 8, 6269-6276.
- 2. S. Yao and Y. Zhu, Nanoscale, 2014, 6, 2345-2352.
- 3. C. H. Zhu, L. M. Li, J. H. Wang, Y. P. Wu and Y. Liu, RSC Adv., 2016, 7, 51-57.
- T. Cheng, Y. Z. Zhang, W. Y. Lai, Y. Chen, W. J. Zeng and W. Huang, *J. Mater. Chem. C*, 2014, 2, 10369-10376.
- 5. L. Li, T. Zhang, Y. Liu and C. Zhu, J. Mater. Sci-Mater. El., 2016, 27, 3193-3201.
- D. H. Kim, K. C. Yu, Y. Kim and J. W. Kim, ACS Appl. Mater. Interfaces, 2015, 7, 15214-15222.