Electronic Supplementary Information for:

Metal nanowires grown in-situ on polymeric fibers for electronic textiles

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1. Optimization of seed particle adsorption to fiber surface

In order to tune the seed deposition step and obtain a suitable seed coverage of the fibers,[1] the seed particles were initially directly coated with silver (using the same plating bath used for Ag coating of the nanowires) to increase their size and make them visible for SEM imaging. In general, relatively uniform spatial distribution of seed particles on the fiber surfaces was observed.

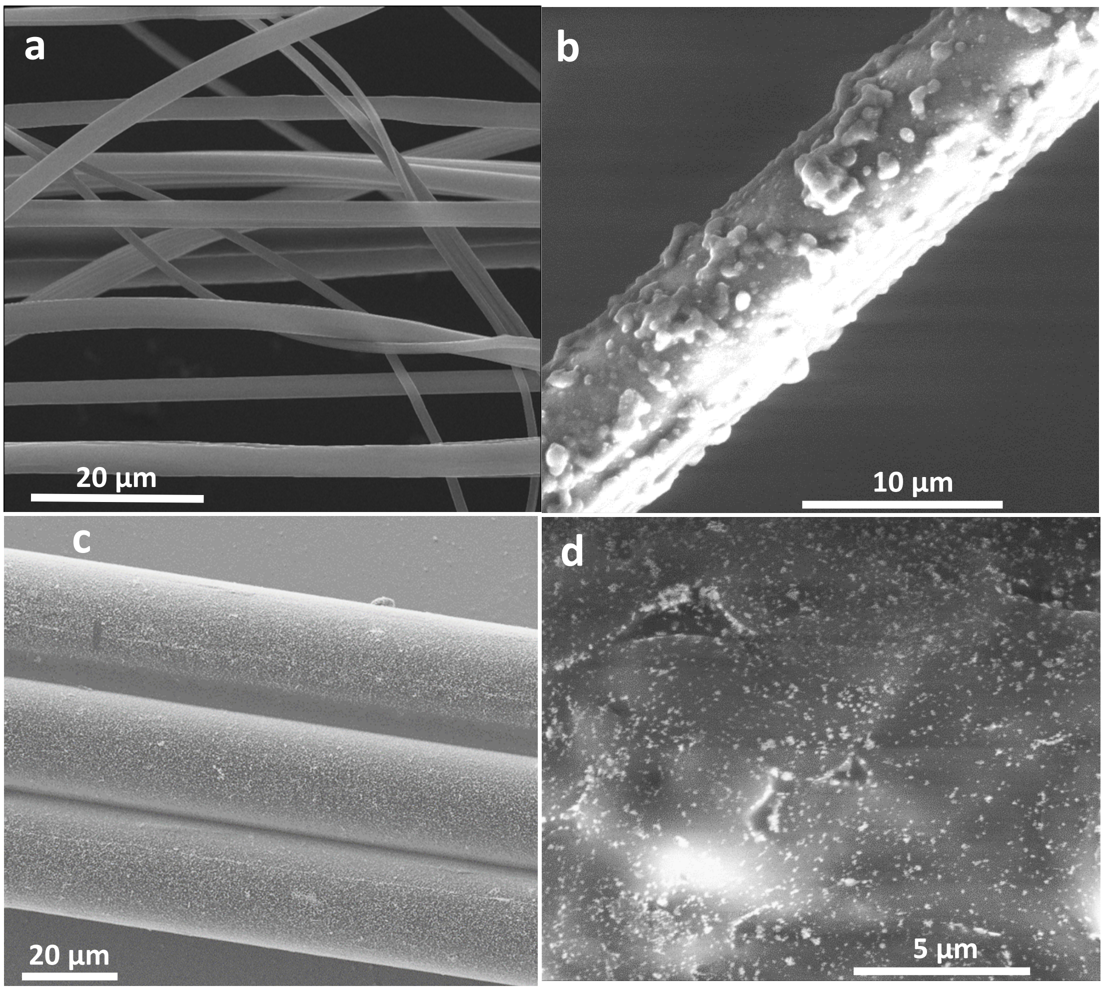


Fig. S1 (a) SEM image the jetted PLGA fibers prior to seed particle deposition. (b) a PLGA fiber after seed particle deposition and silver enhancement to enable easy SEM imaging. (c) SEM image of Nylon fibers coated with seed particles after silver enhancement. (d) SEM image of a higher magnification showing a small region of a Nylon fiber surface with the silver enhanced seed particles, demonstrating the uniform distribution of seeds.

[1] M. E. Layani-Tzadka, E. Tirosh, G. Markovich, *ACS Omega*, 2017, **2**, 7584–7592.

2. **SEM images of pulled Nylon fibers**
   SEM imaging was performed on the NW-coated Nylon fibers before and after stretching to ~ 10-15% elongation.

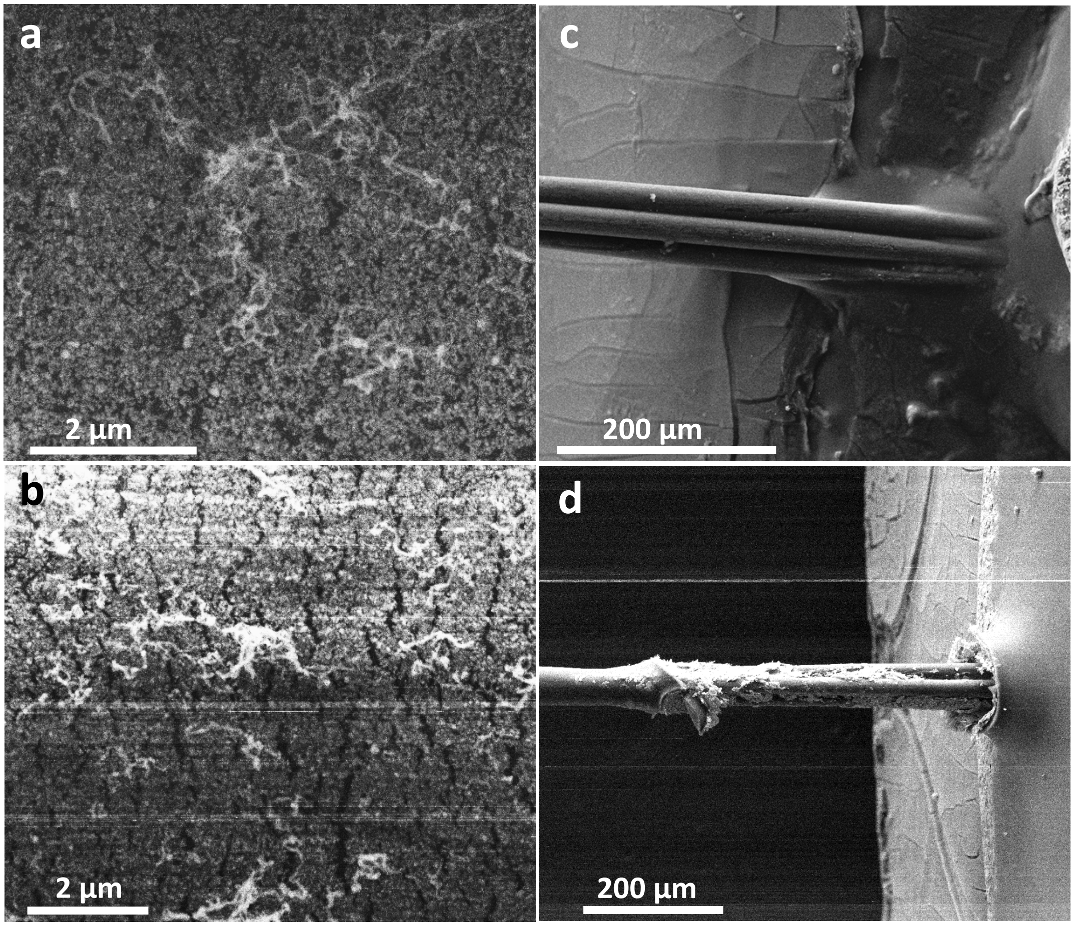


Fig. S2 (a) SEM image of NWs coating the Nylon fiber prior to stretching experiment. (b) SEM image of the Nylon fiber after stretching by ~13%, showing cracking at the fiber's surface. It should be stressed that only part of the NW network (the thicker NW) is visible. (c) The silver-paint-NW-coated-fiber contact area prior to the stretching experiment. (d) A contact area after the pulling experiment, showing a break in the silver-paint-fiber contact and apparent slipping of ~500 µm of the fiber out of the glue.

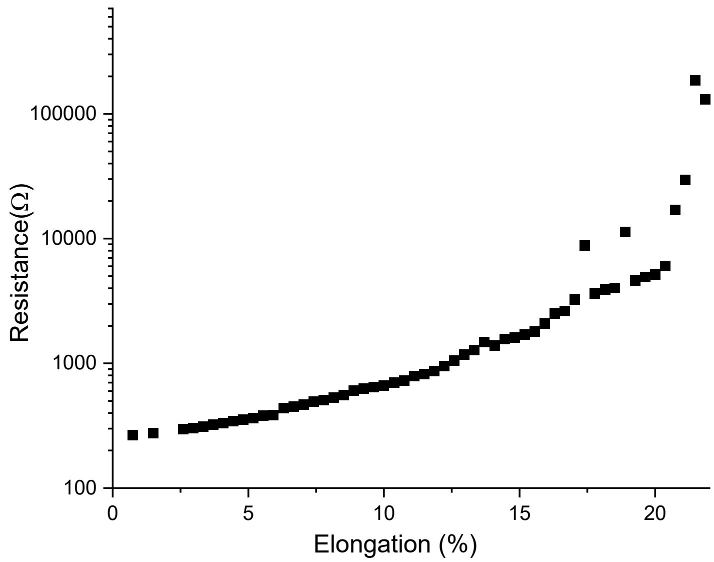
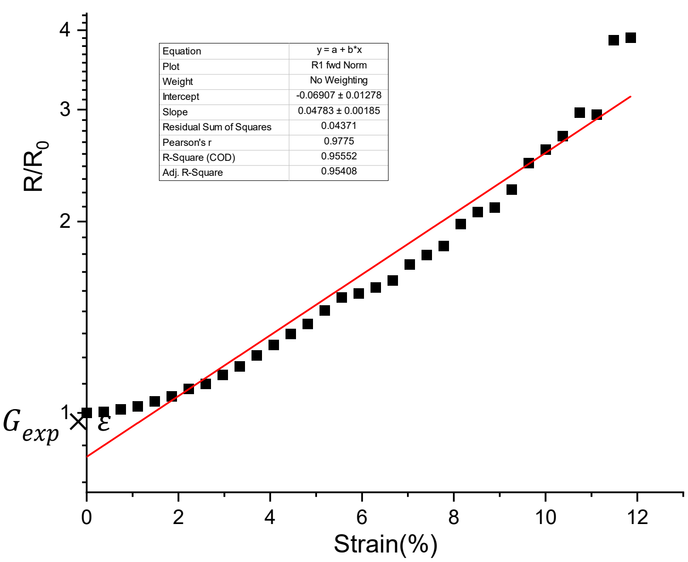


Fig. S3 Resistance vs. stain stretching curve of a nylon fibre coated with the metal NW network. This was the sample that achieved the highest strain while still electrically conducting.



$$log\left(\frac{R}{R_0}\right) = G_{exp} \times \varepsilon$$

Fig. S4 Resistance vs. strain curve for the first stretch cycle of the sample presented in Fig. 4b. The fit to a linear curve in a log-scale representation indicates a nearly exponential dependence with a slope of G_{exp}~4.8, representing the exponential Gauge Factor. A similar exponential dependence can be observed also in Fig. S3, for the initial part of the stretch (up to ~20% elongation).