A solid-state wire-shaped supercapacitor based on nylon/Ag/polypyrrole and nylon/Ag/MnO_2 electrodes

Ruirong Zhang [1,*], Xiangao Wang [1], Sheng Cai [1], Kai Tao [1] and Yanmeng Xu [2]

1 Ministry of Education Key Laboratory of Micro/Nano Systems for Aerospace, School of Mechanical Engineering, Northwestern Polytechnical University, Xi'an 710072, China

2 Cleaner Electronics Group, College of Engineering, Design and Physical Sciences, Brunel University London, Uxbridge UB8 3PH, UK

*E-mail: ruirongzhang@nwpu.edu.cn

Supplementary Figures

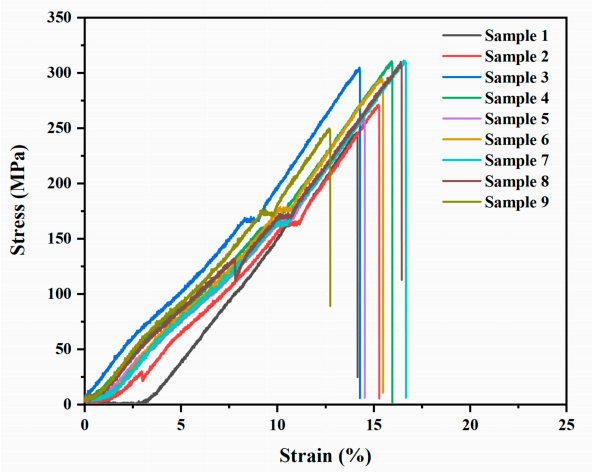

Figure S1. The stress-strain curves of nylon samples

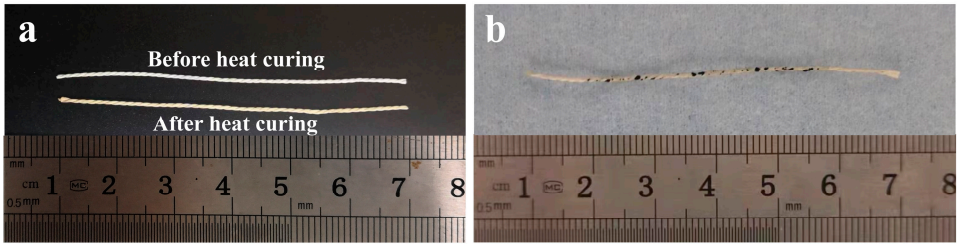

Figure S2. (a) Optical picture of the comparison of the nylon/Ag substrate before and after heat curing; (b) Optical picture of the electrode fabricated via directly electrochemically polymerizing PPy on nylon/Ag.

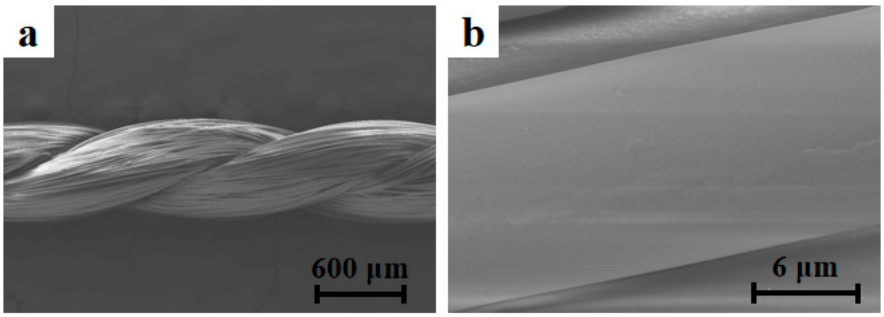

Figure S3. SEM images of the nylon yarn: (a) 40×magnification; (b) 3000×magnification.

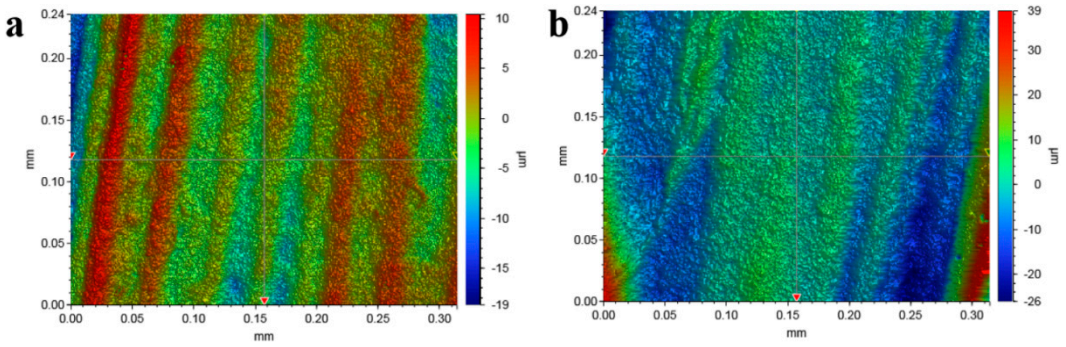

Figure S4. 3D profiles of (a) the nylon/Ag yarn and (b) the nylon/Ag/PPy yarn after chemical polymerization.

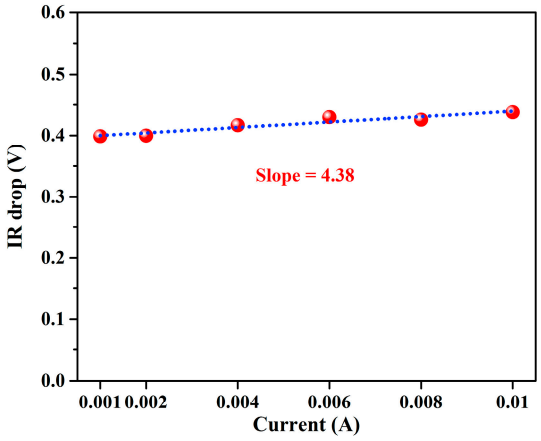

Figure S5. Variation of IR drop with different discharge currents of nylon/Ag/MnO_2 electrode.