

Surface Self-Assembly of Functional Electroactive Nanofibers on Textile Yarns as a Facile Approach Towards Super Flexible Energy Storage

*Mike Tebyetekerwa^{a†}, Zhen Xu^{a§†}, Weili Li^b, Xingping Wang^a, Ifra Marriam^c, Shengjie
Peng^{d,e}, Seeram Ramkrishna^e, Shengyuan Yang^{a*} and Meifang Zhu^{a*}*

^aState Key Laboratory for Modification of Chemical Fibers and Polymer Materials, College of
Materials Science and Engineering, Donghua University, Shanghai 201620, China

^bSchool of Materials Science and Engineering, National Demonstration Center for Experimental
Materials Science and Engineering, Jiangsu University of Science and Technology, Zhenjiang
212003

^cKey Laboratory of Textile Science & Technology, Ministry of Education, College of Textiles,
Donghua University, Shanghai 201620, PR China

^dCollege of Materials Science and Engineering, Nanjing University of Aeronautics and
Astronautics, Nanjing 210016, China

^eCentre for Nanofibers and Nanotechnology, National University of Singapore, Singapore
117581, Singapore

† Authors Contributed Equally Towards this Work

§ Present Affiliation, School of Engineering and Materials Science, Queen Mary University of
London, Mile End Road, London E1 4NS, United Kingdom

Corresponding Author(s) * S.Y (cmseysy@dhu.edu.cn) and M.Z (zhumf@dhu.edu.cn)

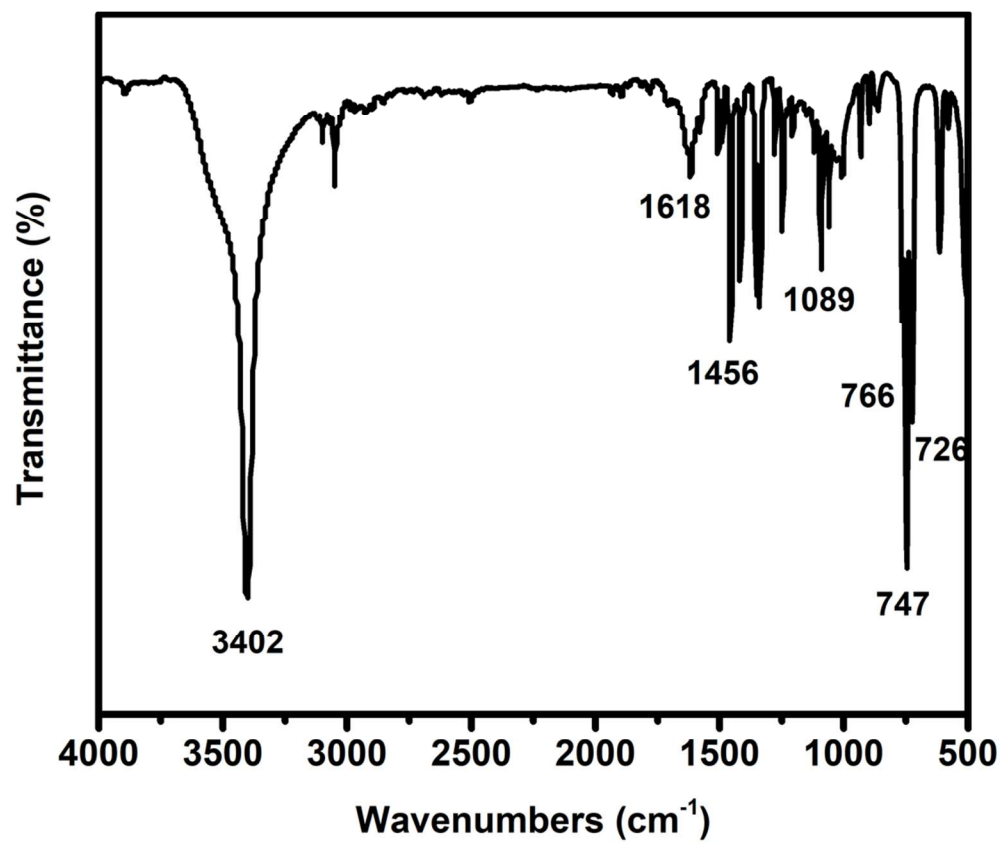


Figure S1. FTIR curve of indole monomer

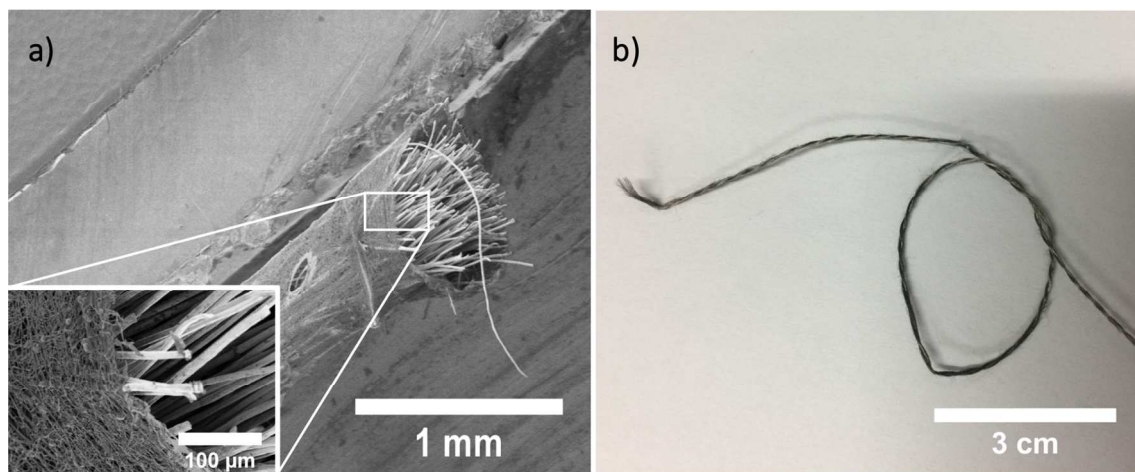


Figure S2. a) SEM image of Pind/CB 1-4 after 3 min of electrospinning and b) pictorial image of the flexible SSY employed

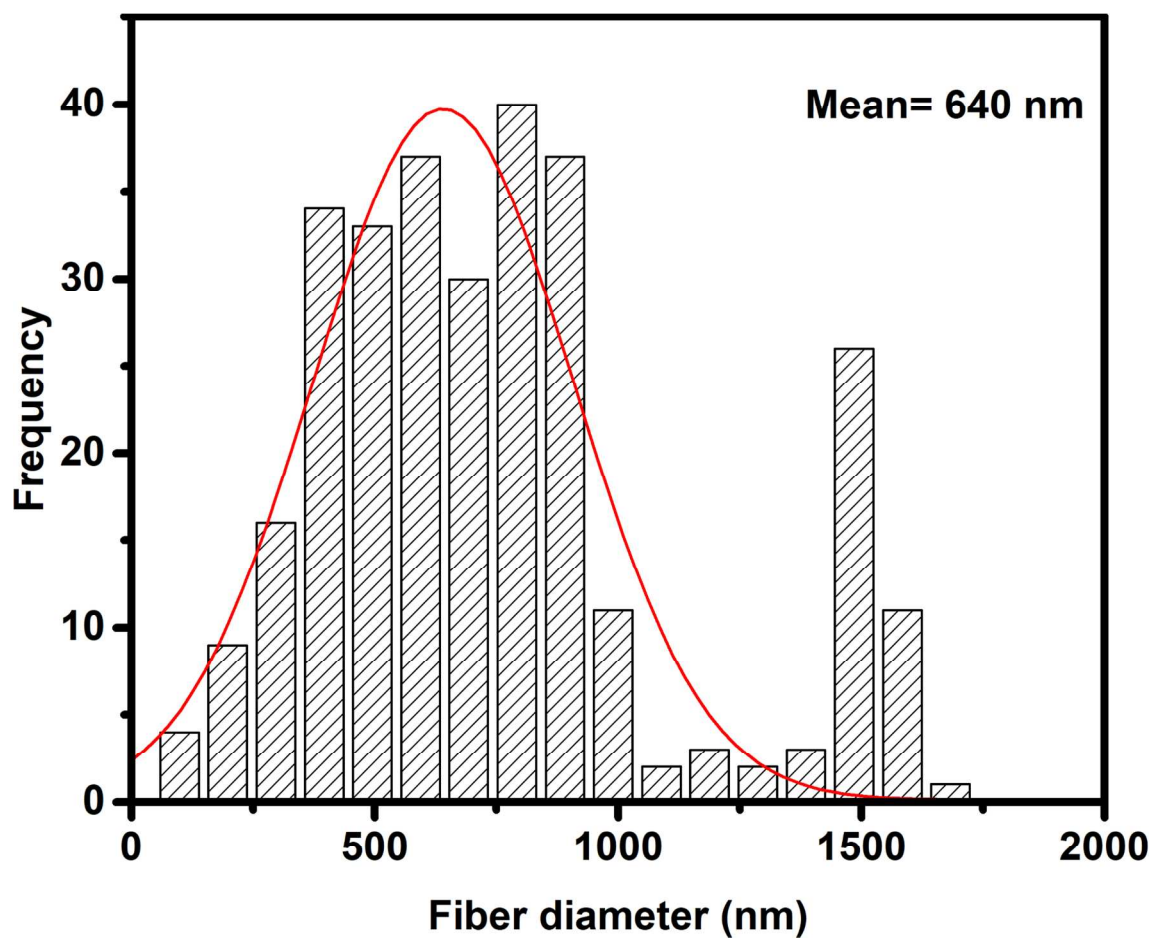


Figure S3. Diameter distribution of the Pind/CB 1-4 nanofibers spun on NCY with the mean diameter of 640 nm

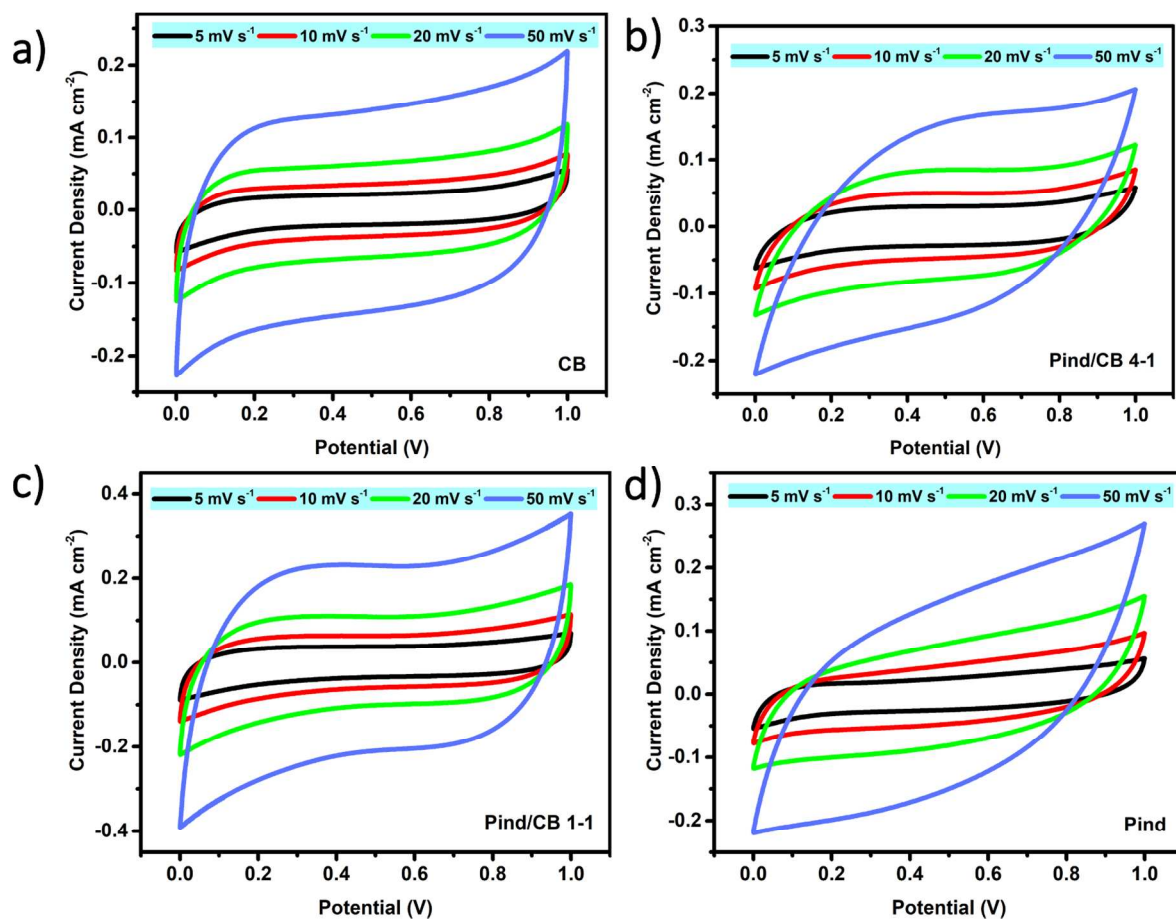


Figure S4. CV curves of CB (a), Pind/CB 4-1(b), Pind/CB 1-1(c), and Pind NCY (d)

supercapacitors

Table S1. Comparison of the currently reported NCY supercapacitor with other high-performance supercapacitors in the literature

Metal@Active Material Fiber Devices	Device Capacitance	Reference
rGO-Ni-PET yarn	72.1 mF cm ⁻²	Ref 15
Pt@CNT/Pani	52.5 mF cm ⁻²	Ref 5
SSY@ rGO/MnO ₂ /Ppy	205.5 mF cm ⁻²	Ref 50
ZnO@ PMMA on Au@Kevlar fiber	2.4 mF cm ⁻²	Ref 7
Stainless steel wire @AC	3.18 mF cm ⁻²	Ref 9
Ti@MnO ₂	15.6 mF cm ⁻²	Ref 48
Ni@graphite Carbon (Pen Ink)	19.5 mF cm ⁻²	Ref 11
SSY@Pind/CB NCY	28.16 mF cm⁻²	This work