

# Fibre-enabled High-performance Wearable Energy Storage Devices

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Wearable electronics is foreseen to be the next major technology after smart phone in the near future. However, most conventional electronic devices are rigid, bulky, and heavy, making them difficult to wear. On the other hand, fibres are materials that have been worn by human beings for more than a thousand years. Fibres are flexible, lightweight, conformal, and highly manufacture-able. This talk will introduce how our research group makes use of fibre for wearable electronics. These fibre-based electronic devices can function as high-performance electronics while maintaining the flexibility, lightweight, permeability, processibility, and even washing ability like textiles. In addition, we also show that fibre-based device can significant improve the electrochemical properties of the devices.

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## Short BIOGRAPHY

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Prof. Zijian Zheng is currently Full Professor at the Institute of Textile and Clothing (ITC) at The Hong Kong Polytechnic University. His research interests are surface science, self-assembly, nanolithography, polymer science, and bendable/stretchable/wearable/graphene materials and electronic devices. He received his B. Eng. with honor from the Department of Chemical Engineering at Tsinghua University in 2003. Between 2004 and 2007, Dr. Zheng moved to the Department of Chemistry and Nanoscience Center at University of Cambridge for his PhD study under the supervision of Prof. Wilhelm T. S. Huck, where he worked on nanotechnology and organic optoelectronics. In 2008, Prof. Zheng joined the group of Prof. Chad A. Mirkin as a postdoctoral research fellow in the Department of Chemistry and International Institute for Nanotechnology at Northwestern University, working on the development of Dip-Pen Nanolithography and Polymer Pen Lithography. He joined ITC as Assistant Professor in 2009 and was promoted to tenured Associate Professor via a fast track in 2013. He has published >70 papers in high-impact international scientific journals including *Science*, *Nature Comm.*, *Advanced Materials*, *Journal of the America Chemical Society*, *Angewandte Chemie*. He also files 16 international and China patents. He serves as Guest Editor for *Advanced Materials* and *Small*. He is recipient of more than 10 academic awards such as GENEVA Innovation Award, Future Leaders Programs and Early Career Awards. He is selected as Founding Member of The Young Academy of

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