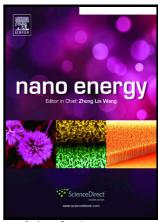
Author's Accepted Manuscript

All-in-one piezoresistive-sensing patch integrated with micro-supercapacitor

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www.elsevier.com/locate/nanoenergy

PII: S2211-2855(18)30602-5

DOI: https://doi.org/10.1016/j.nanoen.2018.08.041

Reference: NANOEN2971

To appear in: Nano Energy

Received date: 6 February 2018 Revised date: 10 August 2018 Accepted date: 19 August 2018

Cite this article as: Yu Song, Haotian Chen, Xuexian Chen, Hanxiang Wu, Hang Guo, Xiaoliang Cheng, Bo Meng and Haixia Zhang, All-in-one piezoresistive-sensing patch integrated with micro-supercapacitor, *Nano Energy*, https://doi.org/10.1016/j.nanoen.2018.08.041

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ACCEPTED MANUSCRIPT

All-in-one piezoresistive-sensing patch integrated with micro-supercapacitor

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Keywords: porous CNT-PDMS elastomer, piezoresistance sensor, micro-supercapacitor, pressure sensing, human machine interface.

Abstract

Portable and wearable sensors have attracted considerable attention, which could perceive and respond to ambient stimuli accurately. For the sake of solving the limited power supply and low integration, it is critical to develop and combine functional electronics with flexible energy devices. In this work, we designed an all-in-one sensing patch integrated with piezoresistance sensor and micro-supercapaitor with the porous CNT-PDMS elastomer. Taking the advantage of porous structure with piezoresistivity and elastomer with electrochemical performance, the piezoresistance sensor shows high sensitivity (0.51 kPa⁻¹) and wide detection range as functional fraction, and micro-supercapacitor maintains excellent areal capacitance and cycling stability after 6,000 cycles as energy storage fraction, respectively. Assembled with piezoresistance sensor and micro-supercapacitor, the sensing patch could be easily

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