Accepted Manuscript

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PII: S0266-3538(18)30361-0

DOI: 10.1016/j.compscitech.2018.05.029

Reference: CSTE 7232

To appear in: *Composites Science and Technology*

Received Date: 11 February 2018

Revised Date: 13 May 2018

Accepted Date: 15 May 2018

Please cite this article as: Chen Z, Liu X, Wang S, Zhang X, Luo H, A bioinspired multilayer assembled microcrack architecture nanocomposites for highly sensitive strain sensing, *Composites Science and Technology* (2018), doi: 10.1016/j.compscitech.2018.05.029.

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A bioinspired multilayer assembled microcrack architecture nanocomposites for highly sensitive strain sensing

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Abstract

Despite the wide applications of strain sensor in wearable devices and electronic skins, the poor flexibility, low sensitivity and repeatability, as well as the utilization of noxious agents dramatically restrict its large-scale application. Herein, a simple and efficient strategy is demonstrated to fabricate flexible, ultrahigh sensitive and reproducible strain-sensing platforms via an eco-friendly water-based layer-by-layer assembly method. Specifically, renewable and biocompatible cellulose nanocrystals with electronegativity were used as the stabilizer to disperse multiwall carbon nanotubes (MWCNTs), meanwhile chitosan solution with rich positive charges was used as the effective "gluing" to enhance

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