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PII: S2211-2855(18)30585-8
DOI: <https://doi.org/10.1016/j.nanoen.2018.08.023>
Reference: NANOEN2953

To appear in: *Nano Energy*

Received date: 9 July 2018
Revised date: 9 August 2018
Accepted date: 12 August 2018

Cite this article as: Che-Min Chiu, Yi-Yun Ke, Ting-Mao Chou, Yu-Jhen Lin, Po-Kang Yang, Chih-Cheng Wu and Zong-Hong Lin, Self-Powered Active Antibacterial Clothing through Hybrid Effects of Nanowire-Enhanced Electric Field Electroporation and Controllable Hydrogen Peroxide Generation, *Nano Energy*, <https://doi.org/10.1016/j.nanoen.2018.08.023>

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ABSTRACT

Pathogenic bacteria that give rise to infection have posed major health concerns over the past several decades. In this paper, we propose a self-powered active disinfection system controlled by human motions. The system is mainly composed of a multilayered triboelectric nanogenerator (m-TENG) for the harvesting of biomechanical energy and conductive fabrics as electrodes for the wearable disinfection system. The working principle of the system is based on hybrid effects of H₂O₂ production and electroporation, which provide good disinfection performance toward gram-negative *Escherichia coli* (*E. coli*) and gram-positive *Staphylococcus aureus* (*S. aureus*). In addition, we also demonstrate that the presence of gold-coated tellurium nanowires (Au-Te NWs) on the fabrics increased the strength of

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