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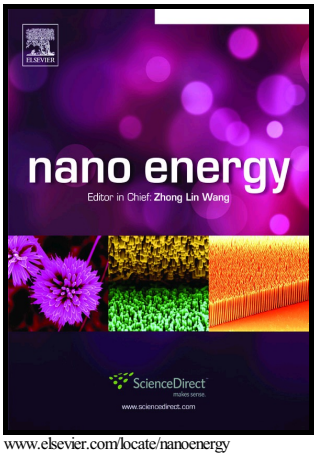

www.elsevier.com/locate/nanoenergy

PII: S2211-2855(17)30206-9
DOI: http://dx.doi.org/10.1016/j.nanoen.2017.04.006
Reference: NANOEN1886

To appear in: *Nano Energy*

Received date: 4 February 2017
Revised date: 3 April 2017
Accepted date: 3 April 2017

Cite this article as: Haoshu Peng, Xudong Fang, Samira Ranaei, Zhen Wen and Alan L. Porter, FORECASTING POTENTIAL SENSOR APPLICATIONS OF TRIBOELECTRIC NANOGENERATORS THROUGH TECH MINING, *Nano Energy,* http://dx.doi.org/10.1016/j.nanoen.2017.04.006

FORECASTING POTENTIAL SENSOR APPLICATIONS OF TRIBOELECTRIC NANOGENERATORS THROUGH TECH MINING☆

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Abstract

The Triboelectric Nanogenerator (TENG), invented in 2012, is an emerging energy harvesting technology that efficiently converts ambient mechanical energy into electricity. Much work has been done to develop this device and improve its performance. However, no systematic report about its applications through large-scale publication and patent data analysis is available. In this study, we use "Tech Mining," a systematic analytical method based on structured texts applied to publication and patent abstract data, to analyze potential applications of TENGs. A series of applications from product scale to industry scale are identified. The findings show that when used as sensors, TENGs are mostly applicable in automation and energy-intensive industries such as automotive, medical or surgical devices, consumer electronics and household appliances. TENGs in the form of sensors can also be integrated with future-oriented and exponentially growing technologies such as robotics, drones, nanotechnology, and

☆ This work is supported by the Science and Technology Committee of Shanghai, Grant NO. 201661880 (6): Services Development of Technology Opportunity Identification and Innovation Pathway Forecasting through Tech Mining.

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