

## Accepted Manuscript

Chemical modification of polymer surfaces for advanced triboelectric nanogenerator development

Yanhao Yu, Xudong Wang

PII: S2352-4316(16)30008-6

DOI: <http://dx.doi.org/10.1016/j.eml.2016.02.019>

Reference: EML 130

To appear in: *Extreme Mechanics Letters*

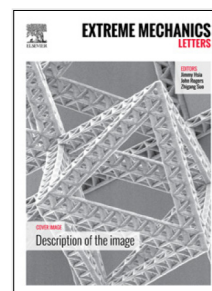
Received date: 12 January 2016

Revised date: 22 February 2016

Accepted date: 22 February 2016

Please cite this article as: Y. Yu, X. Wang, Chemical modification of polymer surfaces for advanced triboelectric nanogenerator development, *Extreme Mechanics Letters* (2016), <http://dx.doi.org/10.1016/j.eml.2016.02.019>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



**Chemical Modification of Polymer Surfaces for Advanced Triboelectric Nanogenerator****Development**

Yanhao Yu<sup>1</sup>, Xudong Wang<sup>1,2,\*</sup>

1. Department of Materials Science and Engineering, University of Wisconsin-Madison,  
Madison, WI 53706, USA
2. Beijing Institute of Nanoenergy and Nanosystems, Chinese Academy of Sciences;  
National Center for Nanoscience and Technology (NCNST), Beijing, 100083, P. R.  
China

Email: [xudong.wang@wisc.edu](mailto:xudong.wang@wisc.edu)

**Abstract**

Triboelectric nanogenerator (TENG) is a newly developed technique for harvesting mechanical energy from ambient environment with sparkly high output and extremely flexible structural designs. The operation of TENGs is based on the combined effects of triboelectrification and electrostatic induction. The charge density on triboelectric surfaces (mostly polymers) sets the foundation of TENG output. Meanwhile, the charge density on polymer surface is closely related to the surface chemical property. Therefore, engineering the surface chemical environment by appropriate functionalization is the most fundamental approach in controlling the TENG outputs. This article systematically reviews recent processes of chemical modifications of triboelectric polymers for advanced TENG developments. According to different functionalization techniques, four categories of chemical modifications, including fluorinated surface, ion injection, sequential infiltration synthesis and molecular-targeting

Download English Version:

<https://daneshyari.com/en/article/5014655>

Download Persian Version:

<https://daneshyari.com/article/5014655>

[Daneshyari.com](https://daneshyari.com)