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Zhaoling Li^{a,b,1}, Jun Chen^{a,1}, Jiajia Zhou^b, Li Zheng^{a,c}, Ken C. Pradel^a, Xing Fan^a, Hengyu Guo^a, Zhen Wen^a, Min-Hsin Yeh^a, Chongwen Yu^{b,*}, Zhong Lin Wang^{a,d,*}

^a*School of Materials Science and Engineering, Georgia Institute of Technology, Atlanta, Georgia 30332-0245, United States.*

^b*Key Laboratory of Science & Technology of Eco-Textile, Ministry of Education, College of Textiles, Donghua University, Shanghai, 201620, China.*

^c*School of Mathematics and Physics, Shanghai University of Electric Power, Shanghai, 200090, China.*

^d*Beijing Institute of Nanoenergy and Nanosystems, Chinese Academy of Sciences, Beijing, 100083, China.*

zlwang@gatech.edu (Zhong Lin Wang)

yucw@dhu.edu.cn (Chongwen Yu)

*Corresponding author.

¹These authors contributed equally to this work.

Abstract

As one of the strongest and oldest natural fibers, ramie fiber has been widely used for fabric production for at least six thousand years. And degumming is a critical procedure that has been developed to hold the ramie fiber's shape, reduce wrinkling, and introduce a silky luster to the fabric appearance. Herein, we introduce a fundamentally new working principle into the field of ramie fiber degumming by using a triboelectric effect. Resort to a water-driven triboelectric nanogenerator (WD-TENG), the ramie fibers degumming efficiency was greatly enhanced with improved fiber quality, including both surface morphology and mechanical properties.

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