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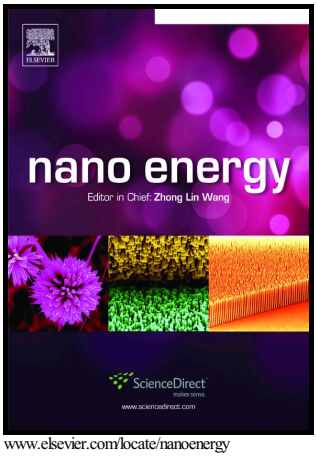

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An electret film-based triboelectric nanogenerator with largely improved performance via a tape-peeling charging method

Hanlu Zhang, Shan Feng, Delong He*, Yiguo Xu, Minhao Yang, Jinbo Bai*

Laboratoire Mécanique des Sols, Structures et Matériaux (MSSMat), CNRS UMR 8579, Ecole CentraleSupélec, Université Paris-Saclay, 8-10 rue Joliot-Curie, 91190 Gif-sur-Yvette, France

*Corresponding authors:

jinbo.bai@centralesupelec.fr

delong.he@centralesupelec.fr

Abstract

Harvesting energy from the environment is a sustainable solution for powering decentralized sensor networks, Internet of Things systems, etc. In this work, a triboelectric nanogenerator (TENG) based on the fluorinated ethylene propylene (FEP) electret film is investigated to generate electricity from mechanical motions in the environment, and its working principle is explained with a variable capacitance model. For the first time, the validity of this model is verified with a capacitor discharge curve fitting method. Based on this model, the maximum output energy of the TENG per working cycle is calculated, which could be useful for comparing the property of TENGs working under different