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Efficient Use

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Sustainable Powering Triboelectric Nanogenerators: Approaches and the Path towards Efficient Use

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Abstract

Triboelectric nanogenerators (TENGs), which have demonstrated that all moving things in the universe can generate electricity in a sustainable way are currently being developed to be integrated with electronics, and to improve user convenience. The electrically charged surface upon a contact electrification phenomenon caused by contact of the materials determines the output performance of TENGs. This review focuses on the electrification and surface charge density characteristics of various fluoropolymer-based materials as active materials that have been investigated to realize high performance TENGs, and the results of the study of their applications. Furthermore, the characteristics of electrification with differently polymerized P(VDF-TrFE) as TENGs' active materials and their applications are reviewed. The boosted output performance characteristics when used as a matrix material and integrated with a composite system with a high dielectric constant material are also reviewed. Finally, the paper

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