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A Low-Frequency Piezoelectric-Electromagnetic-Triboelectric Hybrid Broadband Vibration Energy Harvester

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Abstract

In practical applications, vibration-based energy harvesters are usually restricted by their output performance and operating bandwidth. Therefore, improving the performance and increasing the operating bandwidth of vibration energy harvester become two significant and urgent research focuses in past years. In this paper, a low-frequency piezoelectric-electromagnetic-triboelectric hybrid broadband vibration energy harvester is presented and investigated. It consists of flexible PET picking-up vibration structures which designed to achieve broadband behavior at low acceleration. In the meanwhile, integrate piezoelectric, triboelectric and electromagnetic mechanisms successfully enhanced the electric output of the hybrid energy harvester. As a result, the novel hybrid harvester can scavenge

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