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(Research Article)
Electric energy generation from acoustic waves using triboelectric nanogenerator

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Abstract

Triboelectric nanogenerators are a new generation of transducers of mechanical energy to electric energy which have attracted great attention because of their high performance. In this research a new kind of triboelectric nanogenerators with a unique structure is fabricated. It can transform environment acoustic noise into electric energy. The structure of this nanogenerator is investigated with scanning electron microscopy and the existence of poly vinylidene fluoride nanofibers is verified. Furthermore, the nanogenerator has potential of use as a selfpowered microphone. Results of acoustic tests showed that putting the nanogenerator in a acoustic pressure field with 90 dB intensity and 90 Hz frequency can generate open circuit voltage of 70V peak to peak.

Keywords: Triboelectric Nanogenerator, Acoustic waves, Electrospinning, Nanofibers, Poly vinylidene fluride.

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