

Measurement of Piezoelectric Properties of an Electrospun Polyvinylidene Fluoride Nanowire Using Quartz Tuning Fork

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Piezoelectric polymers with low acoustic impedance and high breakdown strength have attracted much attention as promising materials for sensing and energy harvesting devices. A polyvinylidene fluoride (PVDF) nanowire was prepared by electrospinning and transferred onto the two prongs of a quartz tuning fork (QTF) to form a polymer bridge. The piezoelectric properties of the PVDF nanowire were measured during the vibration of the QTF that stretched and retracted the nanowire. Unlike the conventional methods that could be applied for only wire bundles due to the lack of sensitivity, QTF could evaluate the piezoelectricity of a PVDF nanowire.