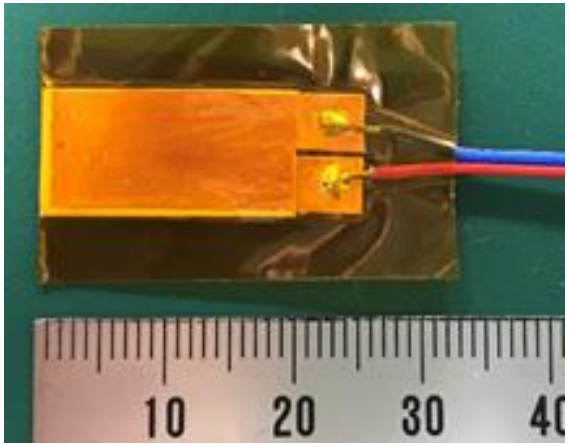
Tohoku Univ. Technology

Functional piezoelectric material

It is possible to harvest energy from vibration as well as impact



Overview

Energy harvesting devices that can convert mechanical energy such as heat, wind, and vibration etc. into electrical energy are attracting attention. Piezoelectric material is one of the materials for energy harvesting. It is sensitive to small strains and can be expected to have high power density and voltage. In addition, because it can be made compact, it is the optimum solution as a power supply source of various sizes.
The invention is a flexible piezoelectric material formed by mixing piezoelectric polymer and piezoelectric ceramics. Conventionally, piezoelectric ceramics are affected by fatigue cracks when repeatedly subjected to a load, so that it is difficult to secure flexibility by itself. The invention does not require any countermeasures and has an advantage that the applicable range can be expanded.

Features・Outstandings

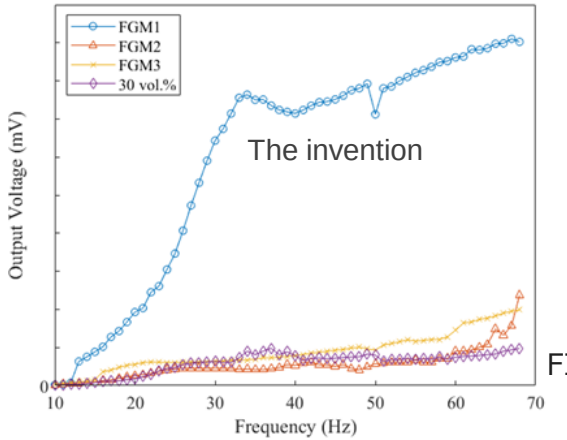


FIG. Vibration power generation.

Product Application

- Piezoelectric element
- Vibration power generation element
- Sensor (Strain, load, etc.)

Related Works

[1] Z. Wang, H. Kurita, H. Nagaoka and F. Narita, Potassium Sodium Niobate Lead-Free Piezoelectric Nanocomposite Generators Based on Carbon-Fiber-Reinforced Polymer Electrodes for Energy-Harvesting Structures, Composites Science and Technology, 199 (2020) 108331.

IP Data

IP No. : patent applied for (PCT application)
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