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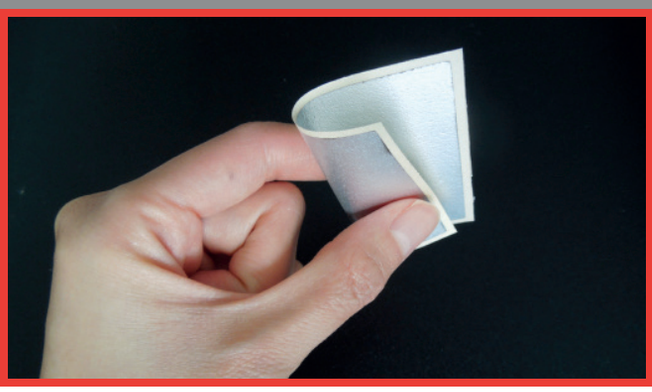

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1 *Flexibility of a piezoelectret film*

2 *Elbow bandage with integrated piezoelectret film as electrical supply for a display*

ENERGY HARVESTING FROM BODY MOVEMENTS WITH INTEGRATED PIEZOELECTRETS

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Benefit compact

With regard to the operation of electronic systems, batteries are indispensable for the provision of the supply energy. However, due to the limited life, not only increased costs, but also higher environmental loads are caused by the replacement or disposal of used batteries. Thus, energy-autonomous systems which can generate electrical energy by energy harvesting from other forms of energy, become increasingly important in both economic and environmental terms. Generally, piezoelectric materials such as PZT or PVDF are used for the mechano-electrical energy conversion. But these materials quickly reach their limits in terms of integration and application due to the characteristics. Piezoelectrets have a high piezoelectric coefficient and are characterized by their flexibility - thus the properties of PZT or PVDF are clearly exceeded.

Background and technology

The light weight and high flexibility make Piezoelektrets ideal for integration into textiles. Therefore, e.g. movements of the arm can be used to generate electrical energy and to provide electronics.

Added value

Wearable, energy-autonomous sensor systems will support human-machine interaction more efficient in the course of „Internet of Things“. Direct measurement data acquisition on the body allows body signals or movements to be directly recognized and interpreted by networked machines. Continuous interaction and embedding of sensor systems in everyday life will be ensured by energy harvesting with piezoelectrets.