

Special Issue

Emerging Trends in Flexible and Self-Powered Sensor Technologies

Message from the Guest Editors

The ever-growing need for energy to power electrical devices has driven parallel innovation in sensing technology. Different kinds of sensors with energy-harvesting capabilities are being developed and implemented in biomedical, industrial and environmental sectors. To develop prototypes with energy-harvesting capabilities, self-powered devices have become popular due to their continuous, long-term operation. These devices have been more reliable compared to batteries due to reduced maintenance costs and environmental sustainability. The self-powered sensors have been developed using a wide range of nanomaterials and flexible substrates. The nanomaterials are divided primarily into two types: carbon-based allotropes and metallic nanomaterials. Both types have been quite efficient at integrating with flexible substrates such as polymers and textiles. The working principles of these self-powered sensors have relied on piezoelectric, triboelectric, thermoelectric, and photovoltaic sensing. This Special Issue on “Emerging Trends in Flexible and Self-Powered Sensor Technologies” aims to highlight current work on the development of flexible electronics for self-powered applications.

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