

PAPER

Preface to the Special Issue on Flexible and Wearable Sensors for Robotics and Health

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Preface to the Special Issue on Flexible and Wearable Sensors for Robotics and Health

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Flexible and wearable sensors that can acquire signals of pressure, temperature, optical input, chemical environment as well as human body physiological and biological parameters, are of critical importance for robotics and health, in which these sensors are hence in urgent demands. On the fundamental side, there are still substantial challenges on how to design and fabricate materials with biocompatibility, robustness and excellent mechanical flexibility, as well as to achieve sensor devices with high performance, low power consumption and good system integration capability. Meanwhile in practical applications, there are also obstacles on the integration of various kinds of sensors with flexible substrates, signal processing and power supply units. With the fast development of Internet of Things (IoT), smart sensors will as well be interconnected to form sensor networks, providing big data for our future intelligent living. All these would deliver a profound socio-economic impact to our society.

This special issue comprises ten high-quality comprehensive review articles, covering a wide range of topics which include biocompatible flexible material fabrication, soft nanostructure patterning, flexible pH sensors for health monitoring, flexible photodetectors based on one-dimensional materials, flexible electrodes and nanogenerators, flexible pressure sensors and gas/chemical sensors. Beyond flexible materials and devices, this issue also introduces the progress on design and application of sensor systems for artificial intelligence.

All together, the editors hope that this special issue can provide readers an overall picture on the status of wearable and flexible sensor research with specific applications for robotics and health. We also hope the articles in this issue can inspire researchers to explore into new territories, such as finding new materials, device structures and algorithms, to build next-generation sensors for the coming intelligent era. Last but not the least, we would like to thank all the authors who have contributed high-quality peer-reviewed articles to this special issue. We are as well grateful to the editorial and production team of *Journal of Semiconductors* for their technical assistance.