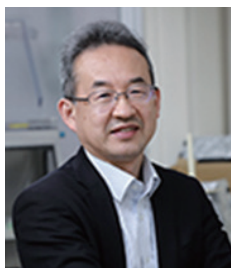


EDITORIAL



Since the beginning of 2020, I have been an Editor of the International Journal “*Sensors and Materials (S&M)*”. Since its launch in 1988, S&M has been publishing contributions describing original work in the experimental and theoretical fields, with the aim of increasing the understanding of sensing technology and related materials under the editorship of Emeritus Professor Susumu Sugiyama, Ritsumeikan University. It is an honor to bring my competency to the editorial team of S&M.

My academic background is in mechanical and energy engineering (B.E. and M.E.), and my Ph.D. focused on novel biosensors in the biomedical and healthcare fields. Since 2003, I have been a Full Professor at Institute of Biomaterials and Bioengineering, Tokyo Medical and Dental University. So far, I have investigated several non-invasive biosensing devices such as soft and flexible biosensors fabricated on biocompatible polymers using safe MEMS techniques as well as gas phase biosensors and imaging systems for target volatile chemicals. In addition, novel autonomous artificial organs (pancreas, muscles) have also been developed using an “organic engine” (a biosensing-actuator for chemomechanical energy conversion) in my lab.

The growing interest in medical and residential–environmental sensors can be attributed to the increasing awareness that health is essential for enjoying and maintaining a good quality of life. The advent of wearable and gas sensors for healthcare represents an important development in this field. Additionally, an emerging technology is sensor networks based on the Internet of Things (IoT), which are networks of tiny human-monitoring devices placed on the body or installed in the surrounding infrastructure. Novel sensors are also required for preventive medicine and residential–environmental assessment to meet future healthcare requirements. From these viewpoints, I have proposed a new device category of “cavitas sensors”, which are attached to human body cavities for real-time biomonitoring. These include soft contact lens glucose sensors, telemetric mouthguard sensors with a Bluetooth transmitter, and an optic pharyngeal manometric sensor for deglutition analysis. I have also developed gas phase biosensors (bio-sniffer, sniff-cam) for the real-time sensing and imaging of target volatiles in exhaled air, skin gas, and food and drink with good sensitivity, gas selectivity, and insensitivity to humidity.

I have written more than 240 peer-reviewed research articles published in international journals and 20 books. One of the books, “Chemical, Gas, and Biosensors for Internet of Things and Related Applications” (Elsevier, 2019), won a prestigious 2020 PROSE award

(Professional and Scholarly Excellence) in the category of Chemistry and Physics, sponsored by the Association of American Publishers (AAP).

I am looking forward to fruitful cooperation with Editor-in-Chief Prof. M. Ishida and the Editors Profs. J. Wilde and S. Roy. I have that S&M can continue to shed light on various technological aspects of sensors and stimulate further research in many fields.

Kohji Mitsubayashi
Professor
Department of Biomedical Devices and Instrumentation
Institute of Biomaterials and Bioengineering
Tokyo Medical and Dental University
Japan