Special Issue

Smart Sensor Systems for Detection of Volatile Organic Compounds

Message from the Guest Editors

The detection and quantification of volatile organic compounds (VOCs) using smart sensor systems represent cutting-edge technologies. Inspired by the human olfactory system, instrumental odour monitoring systems (IOMS), which often use sensor arrays, are used to detect and identify a wide range of volatile organic compounds by analysing their unique VOC profile. The innovative approaches of smart sensor systems have found applications across various industries, including environmental monitoring, healthcare, food quality control, and security. These devices offer numerous advantages, such as real-time monitoring, high sensitivity, improvements in selectivity and the ability to rapidly identify complex mixtures of VOCs and selectively quantify single VOCs in them. They have proven invaluable in detecting pollutants, diagnosing diseases and drug monitoring via breath analysis, and ensuring the safety of confined spaces. As the field of smart sensor systems continues to advance, it holds great promise for enhancing our ability to detect and manage VOCs in diverse settings, ultimately contributing to improved environmental protection and public health.

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Sensors is a leading journal devoted to fast publication of the latest achievements of technological developments and scientific research in the huge area of physical, chemical and biochemical sensors, including remote sensing and sensor networks. Both experimental and theoretical papers are published, including all aspects of sensor design, technology, proof of concept and application. Sensors organizes Special Issues devoted to specific sensing areas and applications each year.

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