Special Issue

High-Frequency Resonators for Chemical Sensing

Message from the Guest Editors

New air and drinking water contaminants have emerged due to the increased technological impact caused by the development of civilization. Their detection and monitoring require sophisticated instrumentation, e.g., HPLC–MS and laboratory environment. However, there is a significant need for portable instrumentation to carry out in-field detection. This can be performed by using chemical sensors. There are two key components of such a sensor: the sensing layer and the transduction mechanism, e.g., electrochemical, optical. The most versatile transduction is gravimetric detection because every compound has a mass. This is frequently achieved by using piezoelectric acoustic resonators. Their sensitivity with some assumptions is proportional to their resonant frequency squared. That is why the use of high-frequency resonators is gaining increased popularity. This Special Issue is dedicated to this emerging field in chemical sensing. By high-frequency, in this context, we mean QCMs with a resonant frequency above 50 MHz, all types of SAW resonators, MEMS and cantilever detection systems.

Guest Editors

Dr. George R. Ivanov

University Laboratory "Nanoscience and Nanotechnology", University of Architecture, Civil Engineering and Geodesy, 1046 Sofia, Bulgaria

Prof. Dr. Huiliang Cao

School of Information and Electronics, Beijing Institute of Technology, Beijing 100081, China

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Micromachines
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
micromachines@mdpi.com

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