

Special Issue on
Sensor and Biosensor Technologies for Healthcare

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As the diagnostic market, the point-of-care testing (POCT) market, is growing, there has been a great demand for rapid and reliable methods which can be used in biochemical laboratories for determination of substances in biological fluids such as blood, serum, and urine. There is also a demand to move clinical analysis from centralized laboratories to a doctor's clinic and patients self-testing at home. Sensor and biosensor technologies show great potentials to solve these problems.

With the help of micro-electro-mechanical system (MEMS) and nanotechnology, sensors can be miniaturized to micro- and nanoscales and integrated into lab-on-a-chip devices as the sensitive arrays for analyte detections. Biosensors are defined as analytical devices incorporating biological or biological-derived sensing elements either integrated within or intimately associated with physicochemical transducers for analyte detections. Over last decades, various biologically derived materials, such as enzyme, cell, nucleic acid, antigen-antibody, and microorganism, were incorporated into different electrochemical, optical, acoustic, and mechanical detectors to fabricate sensors and biosensors with high sensitivity and selectivity. Although the sensors have found immense applications in various fields, their use in health care monitoring is of utmost importance.

The purpose of this special issue is to publish high-quality research articles as well as reviews that seek to address recent development on the preparation, characterization, and application of sensor and biosensor technologies for healthcare based on novel materials and electronic devices, as well as the relevant prospect on opportunities and challenges.

Potential topics include but are not limited to the following:

- ▶ Novel sensor and biosensor development for personal health, such as immunosensors, enzyme sensors, organism-based biosensors, cell-based biosensors, aptamer sensors, and even implantable sensors
- ▶ Flexible materials and nanomaterials in fabricating sensors or biosensors for healthcare
- ▶ Microfluidics and immobilization technologies for establishing biosensors
- ▶ Integrated with mobile devices (such as smartphone), designing sensors and biosensors based on optics, surface plasmon resonance, electrochemistry, and near-field communication for healthcare detection
- ▶ Fabrication and testing of sensors and biosensors for mobile diagnostics and point of care testing (POCT)

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Lead Guest Editor

Qingjun Liu, Zhejiang University,
Hangzhou, China
qjliu@zju.edu.cn

Guest Editors

Manas R. Gartia, Louisiana State
University, Baton Rouge, USA
mgartia@lsu.edu

Mo Yang, Hong Kong Polytechnic
University, Hong Kong
mo.yang@inet.polyu.edu.hk

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