Journal of Nanomaterials

Hindawi

Special Issue on

Advanced Nanostructured Materials for Sensing and Imaging Applications

CALL FOR PAPERS

Nanostructured materials, including organic, inorganic, polymeric, and hybrid nanomaterials, have shown enormous potentials for the applications in sensing and imaging. Their ultrasmall size, large surface-to-volume ratio, and surface specificity provide them high sensitivity and rapid response to specific analytes or environmental changes. In addition, endowed by the confined physical dimension at nanoscale, they possess unique optical, electrical, magnetic, or mechanical properties comparing to the bulk counterparts, allowing detection in various modalities. The detection methods thus mainly rely on monitoring the changes of luminescence, surface plasmon resonance (SPR), conductivity, magnetic relaxation, or elasticity of the nanosensors upon the selective recognition of target subjects. Such superior properties of nanostructures have also been extensively exploited for both in vivo and in vitro biomedical imaging using various imaging modalities such as optical, acoustic, magnetic resonance, nuclear, Raman, and SPR imaging. The recent notable success in new synthetic methods, morphology controls, and surface modifications lead to promising new functions. The latest improvements on the understanding of nanoscale phenomenon make them appealing as nanosensors and imaging agents in a variety of chemical and biological events. In the field, there have been continuous efforts in the construction of robust nanostructure-based sensors for probing physical, chemical, and biochemical variables, highlighting promising applications in semiconductor industry, medical devices, and disease diagnostics.

Overall the applications of using nanostructured materials for sensing and imaging have progressed rapidly over the past decade and this interest is continuously growing. Investigations on those novel materials will continue to assist tackling some of the critical issues confronting the development of high-performance sensing assays and imaging protocols.

Here we invite authors to contribute original research articles and review articles that will highlight the recent advances in the design of innovative nanostructured materials and the implementation of them with various sensing and imaging applications.

Potential topics include but are not limited to the following:

- The synthesis and characterization of novel nanostructured materials-based sensing and imaging platforms. The shape and morphology ranges from nanospheres to cubes, wires, hollow, and many other structures
- The application of developed optical nanosensor, electromagnetic nanosensor, and mechanical nanosensor in various sensing events
- The integration of nanosensors into devices
- The exploration of nanostructured materials in biomedical imaging systems such as cellular labelling and deep-tissue imaging

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/jnm/anmsi/.

Papers are published upon acceptance, regardless of the Special Issue publication date.

Lead Guest Editor
Naiqian Zhan, Florida State University, Tallahassee, USA
nz10d@fsu.edu

Guest Editors
Yiming Zhao, Mount Sinai Hospital, New York City, USA
yiming.y.zhao@gmail.com

Wei Wang, The University of Hong Kong, Hong Kong
wangwei_0415@163.com

Xin Ji, Ocean NanoTech, LLC, San Diego, USA
xji@chem.fsu.edu

Wentao Wang, Ocean NanoTech, LLC, San Diego, USA
wwang@chem.fsu.edu

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