

CALL FOR PAPERS

The emergence of nanosciences in the 21st century is undoubtedly considered by many as the turning point of many technological areas. Catalysis and sensing methods owing to the growing applications of nanoparticles have undergone an exponential growth during the past decade as well.

Catalysts are indispensable parts of various fields and industries that extend from oil and petrochemical refineries, fuel additives, and improvers to pharmaceutical practices. Constant advancements being reported on the synthesis of uniformly sized nanoparticles of the huge surface area with the availability of accurate surface engineering techniques have provided the industry with numerous opportunities to enhance the performance of the catalysts used. Nanoparticle-based catalysts (nanocatalysts) can substitute conventional industrial catalysts, leading to improved yields, making new reaction pathways possible, and last but not the least bringing about ecofriendly features. Such nanocatalysts also hold great promise to overcome some of the challenges faced in the field of energy and the environment.

Development of highly accurate, ultrasensitive, highly selective, cost-effective, and reliable sensing methods of minimal detection limit while observing the features required for their widespread application has also been at the core of numerous research attempts. Sensing methods are widely used in various fields ranging from detection of chemicals to biological agents and disease diagnosis. Nanoparticle-based sensors (nanosensors) have attracted a great deal of interest caused by the progressive advances achieved in nanomaterials engineering. Nanomaterials enjoy unique physicochemical, magnetic, electronic, mechanical, thermal, and optical properties, which have made possible the fabrication of nanosensors of superior sensing performances. These nanosensors have offered great opportunities to achieve real-time advanced detection in a range of fields (e.g., health diagnostic, environmental monitoring, food safety, and homeland security).

Researchers are now invited to submit manuscripts for the special issue of the "International Journal of Electrochemistry" that will stimulate the development of economically viable technologies for the production of different nanocatalysts and nanosensors. We are particularly interested in articles that explore aspects of novel processes and implementations in which the currently existing challenges associated with nanocatalysts and nanosensors production are addressed. Moreover, integration of various processes and equipment for the production of innovative nanocatalysis and nanosensing methods/techniques is also of special interest in order to improve the economy of the process.

Potential topics include, but are not limited to:

- ▶ Synthesis, characterization, properties, and understanding of the underlying mechanisms of the fabricated nanocatalysts
- ▶ Novel nanocatalysts and applications in various fields such as biofuels production, bioremediation, biomass conversion catalytic processes, waste treatment, and environmental protection
- ▶ Nanocatalysts for photocatalysis and electrocatalysis
- ▶ Nanocatalysts and green chemistry
- ▶ Catalytic applications of porous nanomaterials
- ▶ Sensing principles and mechanisms of various nanosensors
- ▶ Analytical electrochemistry
- ▶ Electrochemical power systems
- ▶ Materials for electrochemical systems
- ▶ Corrosion science and materials protection
- ▶ Bioelectrochemistry

Authors can submit their manuscripts via the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/ijelc/ecnc/>.

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