Journal of Spectroscopy

Hindawi

Special Issue on

# Advanced Spectroscopic Investigations of Materials for Energy and Environment

# CALL FOR PAPERS

The growing demand in energy and the need to reduce the carbon footprint of our society call for the development of new technologies for energy production, conversion, and storage, as well as engineering systems with improved efficiencies. The availability of new materials plays a crucial role in enhancing sustainability through the development of these novel technologies. It is becoming increasingly evident that the rational design of materials with task-specific performances relies on establishing a deeper understanding of the material process-structure-property relationships (i.e., the interrelationship between composition, structure, and functional behavior). A key step in establishing such an understanding is the atomic- and molecular-level characterization of the structure and physicochemical properties of materials.

Recent advancements in materials science analytical methods have allowed the investigation of the local structure, chemistry, and mechanics of materials, resulting in a sudden acceleration in our fundamental understanding of materials for a wide variety of applications. Additionally, advances in computational methods have significantly contributed to the discovery and rational design of materials. In this special issue, we invite authors to submit original research and review articles that highlight recent progresses in spectroscopic methods for the characterization of materials for energy and environment.

Potential topics include, but are not limited to:

- Novel X-ray, electron, and vibrational spectroscopic methodologies for the characterization of materials, surfaces, and interfaces
- *In situ* spectroscopic investigations of surface phenomena and phase transformations
- Nuclear magnetic resonance spectroscopic investigation of fuels cells, batteries, and materials for photovoltaics
- Vibrational and electron spectroscopic studies of catalytic materials and surface reactions
- Synchrotron-based techniques for the investigation of catalytic reactions
- Combined spectroscopic and theoretical investigations of surface reactions on catalytic materials
- Spectroscopic investigations of tribochemistry of lubricants and lubricant additives

Authors can submit their manuscripts via the Manuscript Tracking System at http://mts.hindawi.com/submit/journals/jspec/asi/.

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