

Special Issue

Catalytic Properties and Atomic Structure of Bimetallic Nanoparticles

Message from the Guest Editors

Bimetallic nanoparticles (NPs), composed of two different metals, are of great interest from both a scientific and technological point of view. Their electronic and structural properties need to be studied at an atomic scale as they strongly influence the catalytic properties of surfaces. Synchrotron-based X-ray absorption fine structure spectroscopy (XAFS) has evolved as a well-established technique for understanding the local atomic structure in bimetallic NPs enabling also in situ and/or real-time changes studies. On the other hand, scanning and transmission electron microscopy techniques provide information about the structural, morphological, compositional, and textural properties of these materials. Furthermore, XAFS and electron microscopy techniques can be fruitfully combined with other advanced characterization techniques to properly correlate and understand the structure–function relationships in these materials. The present Special Issue will present recent developments in the synthesis, characterization, and use of bimetallic nanoparticles in the field of catalysis. Studies focused on the structure–activity/selectivity relationship in bimetallic NPs.

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Nanoscience and nanotechnology are exciting fields of research and development, with wide applications to electronic, optical, and magnetic devices, biology, medicine, energy, and defense. At the heart of these fields are the synthesis, characterization, modeling, and applications of new materials with lower nanometer-scale dimensions, which we call “nanomaterials”. These materials can exhibit unusual mesoscopic properties and include nanoparticles, coatings and thin films, metal–organic frameworks, membranes, nano–alloys, quantum dots, self-assemblies, 2D materials such as graphene, and nanotubes. Our journal, *Nanomaterials*, has the goal of publishing the highest quality papers on all aspects of nanomaterial science to an interdisciplinary scientific audience. All of our articles are published with rigorous refereeing and open access. We are proud of our increasing impact factor and ability to provide rapid decisions to authors.

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