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Nanocatalysis and Symmetry in Chemistry

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Message from the Guest Editors

Dear Colleagues,

Catalysis is a key enabling technology for developing the most feasible solutions towards a sustainable chemical industry. Especially heterogeneous catalysis, where the catalyst exists in a different phase (typically solids) from the reactants (mostly liquids or gasses), has a rich history of facilitating promising catalytic strategies for a number of energy and environmental applications. Advances in the heterogeneous catalysis and materials science fields have provided several potential methods for the design of various novel catalytic materials with unique characteristics and exceptional activities. In this context, nanostructured catalysts (where the particle size is less than 100 nm in at least one dimension) are the most versatile candidates largely used in the modern field of catalysis, popularly known as nanocatalysis. Symmetry in terms of particle size and its morphology plays a pivotal role in tuning the physicochemical, acid-base, and redox properties of nanostructured catalysts, and hence their chemistry with the reactant molecules, resulting in unusual catalytic activities.

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Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

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