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Metallic Nanoparticles and Metal-Mediated Synthesis in Catalysis

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Message from the Guest Editors

The application of nanotechnology in catalysis and in particular in organic synthesis involving CO and H_2 oxidation, hydrocarbons functionalization, nitroarenes and NO reduction or C-C coupling among others, has made important advances in order to achieve the highest catalytic activity and selectivity while maintaining high stability. For this purpose, metallic and bimetallic nanoparticles as well as various types of core-shell nanostructures with specific functions have been developed through various synthetic protocols. Catalytic studies have demonstrated a relationship between size and shape and increasing rates of conversion and selectivity. In addition, bimetallic nanocatalysts have shown a synergistic effect relative to the individual properties of each metal.

For these reasons, we propose as the theme of this Special Issue the development of new metal-based nanocatalysts capable of, in suspension or supported, catalyzing several important reactions including the synthesis of organic compounds, degradation of pollutants and biomass valorization, in an efficient and sustainable way.