Special Issue

Advantages and Disadvantages of Metal Catalysts

Message from the Guest Editors

For many decades, metal catalysts have been considered as highly impactful additives in chemical transformations in the pharmaceutical industry and in academic research. This is due to their effectiveness in offering surrogate reaction pathways with higher rates of reactions and lower activation energy than the non-catalytic variants. The methods associated with metal catalysts are highly selective and generally represent processes with high yields. Recently, considering the associated environmental aspects, the reusability of catalysts has been extensively studied in order to develop efficient chemical transformations that demonstrate the excellency of metal catalytic methods. Nevertheless, in addition to their high cost and toxic nature, the efficiency of specific metal catalysts is found to be low in a variety of chemical transformations. Hence, the screening and selection process of an effective metal catalyst for a particular chemical process remains a challenging task in synthetic chemistry. This Special Issue collection intends to address the related developments in this area.

Guest Editors

Dr. Chandi C. Malakar

Department of Chemistry, National Institute of Technology Manipur, Imphal 795004, India

Dr. Virender Singh

Department of Chemistry, Central University of Bathinda, Punjab 151001, India

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Metals
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
metals@mdpi.com

mdpi.com/journal/metals

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Metallic materials play a vital role in the economic life of modern societies; contributions are sought on fresh developments that enhance our understanding of the fundamental aspects related to the relationships between processing, properties and microstructure – disciplines in the metallurgical field ranging from processing, mechanical behavior, phase transitions and microstructural evolution, nanostructures, as well as unique metallic properties – inspire general and scholarly interest among the scientific community.

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Department of Materials Science and Engineering, College of Engineering & Applied Science, University of Wisconsin-Milwaukee, 3200 N. Cramer Street, Milwaukee, WI 53211, USA

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Beijing Advanced Innovation Center of Materials Genome Engineering, State Key Laboratory for Advanced Metals and Materials, University of Science and Technology Beijing, 30 Xueyuan Road, Beijing 100083, China

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