

Special Issue

Advancements on Functional Catalytic Materials with Noble-Metal-Like Characters

Message from the Guest Editor

Traditional highly efficient catalytic nanomaterials usually contain noble metals, such as platinum, palladium, gold, and silver. Regarding the practical application of these catalysts, there are several unignorable limitations. For instance, noble metal elements are scarce and the cost of raw material is high. Nanosized noble-metal-containing catalysts usually have poor heat resistance and chemical stability, which makes it challenging to maintain catalytic performance. In recent decades, non-noble-metal-containing catalysts, such as transition metal nitride, carbide, and sulfide, with a similar electronic structure to noble metals, have become popular, and the related research results indicated them to be significantly promising low-cost catalyst materials. The Special Issue focus on articles about noble-metal-like characteristics and their related catalytic performance. By defect implant and material synthesis and design of novel functional catalysts genome engineering, it is proved to be significantly effective to tune the electronic properties of non-noble-metal-containing catalysts, which is a new research field that has attracted worldwide interest.

Guest Editor

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Message from the Editorial Board

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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