Editorial

Synthesis and Application of Novel Hybrid Nanomaterials in Catalysis, Adsorption, and Electrochemistry

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Porous materials with nanostructures are receiving great attention in the scientific community as well as in industry, thanks to their high performance and multifunctionality for various applications. Important requirements of the novel materials include high specific surface area, particularly well-controlled size, homogeneous distribution, and strong attachment to the interfacial surfaces. In addition, the ability to tailor the structure and properties of these materials over a broad length scale suggests that research on hybrid nanomaterials will have a tremendous impact in the fields of environmental adsorption, catalysis, and electrochemistry.

This special issue concentrates on the recent advances in the synthesis, processing, functionalization, application, and challenges of novel hybrid materials. Among ten papers published, three deal with nano-organic materials for bio-application; two endeavor to the development of novel adsorbents for removing toxic metals in the aqueous solution; two focus on catalytic materials for dye degradation and organic synthesis; one concentrates on nanoparticle synthesis; and the last two develop analytical methods.

The papers deal with a wide range of research from natural porous materials such as bentonite and hydroxyapatite to synthetic materials, e.g., highly ordered mesoporous materials like MCM-41, zeolitic imidazolate framework-8, or platinum nanoparticles. I hope that these special issues will be able to provide readers some typical and exciting snapshots regarding the synthesis of nanoparticles of metal oxides, ordered mesoporous materials, and metal-organic frameworks; functionalization of hybrid nanomaterials; environmental treatment application of novel hybrid materials; catalysis application in organic synthesis; and environmental treatment. Due to the highly dynamic nature of the field, it is impossible to cover every aspect of hybrid nanomaterials, particularly, those achieved recently by the research groups that do not involve in the preparation of this issue. It is clear that this field will develop significantly with the contribution of scientists in different fields.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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