Special Issue

Metal-Based Nanocomposites for Catalytic and Redox-Driven Aqueous Pollutant Remediation

Message from the Guest Editors

The increasing prevalence of aqueous pollution presents a formidable environmental challenge, necessitating the development of advanced and sustainable remediation strategies. Among the diverse approaches explored, metal and metal-based nanocomposites have emerged as highly effective materials for the removal of aqueous contaminants due to their exceptional catalytic activity, redox properties, and tunable surface chemistry. Through precise material engineering and rational structural design, these nanocomposites can be tailored to exhibit enhanced reactivity, selectivity, and durability, making them promising candidates for next-generation water treatment technologies. This Special Issue aims to showcase recent advances in the design, synthesis, and application of metal and metal-based nanocomposites for the catalytic and redox-mediated degradation or transformation of aqueous pollutants. Particular emphasis is placed on elucidating mechanistic pathways, optimizing material performance, and evaluating the practical feasibility of large-scale environmental applications.

Guest Editors

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Message from the Editor-in-Chief

Nanoscience and nanotechnology are exciting fields of research and development, with wide applications to electronic, optical, and magnetic devices, biology, medicine, energy, and defense. At the heart of these fields are the synthesis, characterization, modeling, and applications of new materials with lower nanometer-scale dimensions, which we call “nanomaterials”. These materials can exhibit unusual mesoscopic properties and include nanoparticles, coatings and thin films, metal–organic frameworks, membranes, nano-alloys, quantum dots, self-assemblies, 2D materials such as graphene, and nanotubes. Our journal, *Nanomaterials*, has the goal of publishing the highest quality papers on all aspects of nanomaterial science to an interdisciplinary scientific audience. All of our articles are published with rigorous refereeing and open access. We are proud of our increasing impact factor and ability to provide rapid decisions to authors.

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