Special Issue

Nanotechnology and Sediment Recycling for Sustainable Fertilizer and Crop Production

Message from the Guest Editors

The rising global demand for food and the environmental burden of conventional fertilizers have intensified the need for sustainable nutrient sources. The recycling of aquaculture sediments, once considered waste, has emerged as a promising pathway to restore soil fertility. Simultaneously, nanotechnology provides advanced solutions for enhancing nutrient efficiency and reducing environmental losses. This Special Issue aims to integrate nanotechnology and sediment recycling approaches to develop innovative, eco-friendly fertilizers that improve crop yield while mitigating pollution. Recent studies highlight nanomaterials' ability to enhance nutrient release, immobilize contaminants, and synergize with biochar or remediated sediments, leading to dual benefits in crop production and environmental protection. We invite original research articles, reviews, and case studies on nanofertilizers, sediment recycling, soil remediation, biochar-based nutrient carriers, heavy metal immobilization, and sustainable agricultural practices linking nanotechnology and sediment utilization.

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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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