Special Issue

Nanomaterials and Water Treatment: Pharmaceutical Degradation, Membrane Filtration, Adsorption, and Optical Sensors

Message from the Guest Editor

The advantages of nanomaterials in the field of water treatment are particularly prominent. Firstly, their ultrafine nanoscale size provides a large specific surface area, enabling more efficient contact and adsorption of pollutants in water. Secondly, when utilized as catalysts, nanomaterials can significantly lower the activation energy of chemical reactions, accelerate pollutant decomposition processes, and achieve higher quality water purification in a shorter timeframe. Furthermore, the flexibility of nanotechnology allows for the design of nanomaterials with specific functions and selectivity tailored to address particular water quality issues and pollutant types, thereby achieving precise governance while avoiding excessive treatment of harmless components and ensuring maximum utilization of water resources with environmental friendliness. The current Special Issue of *Nanomaterials* aims to showcase the latest advancements in the application of nanoparticles for water treatment, including pharmaceutical degradation, membrane filtration, adsorption, and optical sensors for pollutant separation and degradation to produce purified water.

Guest Editor

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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.

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