

Special Issue on
Advanced Functional Nanomaterials for Water Treatment

CALL FOR PAPERS

Water scarcity resulted mainly from worldwide population growth and climate change and is one of the reasons for armed conflicts. Richard Damania, a lead economist at the World Bank, predicts that, without adequate water supplies, economic growth in the most stressed parts of the world could decline by six percent of GDP. His findings conclude that the most severe impacts of climate change will deplete water supplies. Water will be the oil of the 21st century as in Jules Verne's 1875 novel "The Mysterious Island"; the lead character Cyrus Smith said that water will be the coal of the future. Innovative advanced functional nanomaterials can play a vital role in resolving the issues related to the water and wastewater treatment and lead to preservation of the sources of water. Nanotechnology has several potential impact areas for the treatment of surface water, groundwater, and wastewater contaminated by toxic metal ions, organic and inorganic solutes, and microorganisms including sensing, detection, remediation, treatment, and pollution control. Water and wastewater treatment using several nanomaterials exploits nanoscopic materials such as carbon nanotubes, alumina, zeolite, nanocatalyst, photocatalyst, nanozero valent iron, and magnetic nanoparticles which are existing hot topics. Nanosensors, such as those based on semiconductors nanowires or metal nanoparticles, can be also used for analytical detection of pollutants in water samples. The commercialization of water treatment nanomaterials as one of the hot topics in this special issue needs further research opportunities for each given type of nano-based material and process. Moreover, economic aspect associated with the production of nanomaterials and their feasibility to be used for real industrial scale water treatment.

Original research articles as well as review articles on the synthesis, characterization, properties, and applications of nanostructured and functional nanomaterials are invited to contribute to this special issue.

Potential topics include but are not limited to the following:

- ▶ Nanomaterials with novel morphology, roles of composition, and structure of nanostructured
- ▶ Novel synthetic approaches or hybrid heterostructures
- ▶ Ecofriendly nanomaterials and green routes for new application in surface, ground, and specialized water, wastewater, and water heating systems:
 - ▶ Adsorption
 - ▶ Photocatalysis
 - ▶ Desalination
 - ▶ Pollution detection
 - ▶ Remediation
 - ▶ Advanced oxidation

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/jnt/afnwt/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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