Advanced Oxidation Processes for Water and Wastewater Treatment: Developments, Challenges, and Opportunities

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Message from the Guest Editors

Dear Colleagues,

Water scarcity and contamination are pressing issues that pose substantial threats to human health, ecosystems, and socio-economic stability. Effectively addressing these crises necessitates efficient water management, wastewater treatment, and promotion of water reuse. Advanced oxidation processes (AOPs) play a pivotal role in these efforts by efficiently breaking down contaminants, ensuring the safety of water for various uses, and enabling environmentally responsible discharge. AOPs present a promising alternative to conventional treatment methods, especially in their capacity to remove persistent pollutants, pharmaceutical residues, and emerging contaminants, which often challenge traditional treatment processes. While AOPs hold substantial potential for water treatment, they encounter various challenges. These encompass selecting the appropriate AOPs, optimizing catalysts, enhancing energy efficiencies, reducing costs, managing the generation of byproducts, and seamlessly integrating with existing treatment processes.

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Message from the Editor-in-Chief

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