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Special Issue Reprint

Science and Technology for Water Purification

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Water resource scarcity and water pollution are serious problems threatening the whole world. The supply of adequate freshwater is essential in order to guarantee the welfare of people and global economy development. Water scarcity and pollution remain two of the most pressing global challenges, with profound implications for public health, environmental sustainability, and economic development. As the global population continues to grow and industrial activities expand, the demand for clean, safe water is steadily increasing. Continuous research on water and wastewater treatment has promoted the evolution of water purification science and technology, leading to greater accessibility and affordability of clean water. Emerging technologies have also been studied to further support a sustainable water supply.

This Reprint presents 9 rigorously peer-reviewed studies advancing water purification science and technology. The collection explores innovative approaches to pollutant removal, resource recovery, and process optimization, with particular emphasis on membrane technologies, bioremediation systems, and advanced oxidation processes. Selected contributions demonstrate successful applications of machine learning in water quality monitoring and novel reactor designs for energy-efficient treatment.

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