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Nota di contenuto	Current overview of nano-solutions in water and wastewater management -- Nanotechnology-Based Adsorption and Membrane Processes for Water and Wastewater Treatment -- Nanomaterials for Heavy Metal Removal from Water and Wastewater -- Nanotechnology for the Elimination of Emerging Contamination in Wastewater Treatment -- Nanomaterial-Based Filtration Technologies for Particle and Colloid Removal -- Sensing and efficient removal of polycyclic aromatic hydrocarbons (PAHs) in (waste) water using nanomaterials -- Insights into Nanofiltration and Reverse Osmosis Membranes for Water Purification -- Nanotechnological Approaches in Desalination and Brackish Water Treatment -- Nanomaterial-Enhanced Catalytic Processes for Wastewater Treatment -- Nanotechnology in Advanced

Oxidation Processes for Water Remediation -- Waste dye removal with nanotechnological methods: photocatalytic processes -- Nanostructured Catalysts for Sustainable Water Treatment -- Nanomaterial-Based Sensors and Monitoring Devices for Water Quality Assessment -- Advancements in Real-Time Water Quality Monitoring: Integrating Sensing Technology, ICT, and Data-driven Approaches -- Integration of artificial intelligence in aquaculture water management -- Intelligent Monitoring and Control Systems for Smart Water Management -- Nano-enabled Microbial Control and Disinfection in Water and Wastewater -- Integration of Advanced Biological Processes and Nanotechnology for Sustainable Wastewater Treatment -- Polymer Nanocomposites: A Promising Approach to treat Tannery Wastewater -- Nanotechnology in Infrastructure of Urban Water: Enhancing Resilience and Efficiency -- Challenges and Future Perspectives in Nanotechnology for Sustainable Water and Wastewater Management -- Application of nano-based solutions for water and wastewater management through science and technological innovations for sustainable environmental and economic growth.

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### Sommario/riassunto

The proposed book aims to provide a comprehensive overview of the advancements and potential applications of nanotechnology in addressing the challenges of water and wastewater management. The book intends to explore the latest research findings, innovative technologies, and emerging trends in utilizing nanomaterials for sustainable and efficient water treatment processes. The primary purpose of this new book is to bridge the gap between nanotechnology and water/wastewater management by presenting cutting-edge research and practical applications. The main objective of this new book is to serve as a valuable resource for researchers, engineers, policymakers, and professionals working in the field of water and wastewater treatment. The wide range of topics, including nanomaterial synthesis, characterization techniques, various nanotechnology-based treatment processes, nanomaterials for contaminant removal, nanosensors for water quality monitoring, and nanotechnology-enabled resource recovery will be covered in this book. As the authors of this book, our motivation stems from the urgent need to address global water scarcity and pollution issues. The nanotechnology holds immense potential in revolutionizing water and wastewater management practices by offering highly efficient, cost-effective, and sustainable solutions. By compiling and presenting the latest research and advancements in this field, we aim to inspire further research, collaboration, and innovation in utilizing nanotechnology for the betterment of water resources and environmental sustainability. The main goal of this new book is to contribute to the dissemination of knowledge and promote the adoption of nanotechnology in achieving sustainable water and wastewater management worldwide.

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