Special Issue

Membrane Technologies for Biofouling Prevention in Water: Theory, Methods and Applications

Message from the Guest Editors

This Special Issue delves into the critical challenge of biofouling in reverse osmosis and nanofiltration membrane technologies, which significantly impacts the efficiency and longevity of membrane systems used in brackish water, seawater, and wastewater treatment. Biofouling, caused by microbial growth and biofilm formation on membrane surfaces, leads to decreased permeability, increased energy consumption, and high operational costs. The Special Issue compiles cutting-edge research on theoretical frameworks, innovative methods, and practical applications aimed at preventing and controlling biofouling. Topics include early detection techniques, the characterization of biofilm structures, and the development of physical, chemical, and biological strategies for biofouling mitigation in membrane systems. Contributions highlight advancements in membrane design, novel anti-fouling coatings, and the integration of biofouling prevention measures into existing membrane processes. The Special Issue aims to enhance the performance and sustainability of membrane technologies, ultimately contributing to more efficient and cost-effective water treatment solutions.

Guest Editors

Dr. Mònica Reig

Chemical Engineering Department, Universitat Politècnica de Catalunya (UPC)—Barcelona TECH, Campus Diagonal, Besòs, 08930 Barcelona, Spain

Dr. Guillem Gilabert-Oriol

Department of Chemical Engineering, Universitat Rovira i Virgili, Tarragona, Spain

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Water
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
water@mdpi.com

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In the context of global changes, the sustainable management of water cycles, going from global and regional water cycles to urban, industrial and agricultural water cycles, plays a very important role on the water resources and on their relationships with food, energy, biodiversity, ecosystem functioning and human health. *Water* invites authors to provide innovative original full articles, critical reviews and timely short communications and to propose special issues devoted to new technological and scientific domains and to interdisciplinary approaches of the water cycles. We ensure a critical review process and a quick turnaround between submission and final decision.

Editor-in-Chief

Dr. Jean-Luc PROBST
Centre de Recherche sur la Biodiversité l'Environnement (CRBE) UMR CNRS/UPS/INPT/IRD, Centre National de la Recherche Scientifique (CNRS), University of Toulouse, Campus ENSAT, Auzeville Tolosane, Toulouse, France

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