Special Issue

Membrane Technologies and Process Modelling for Circular Economy

Message from the Guest Editor

The global transition from a linear model to a circular economy hinges on our ability to efficiently recover and reuse resources. Membrane technologies are pivotal in this shift, offering selective separation solutions for resource valorization from complex waste streams. This Special Issue seeks to explore the critical intersection of advanced membrane processes and process modelling. We aim to bridge the gap between experimental development and practical, large-scale implementation by emphasizing the power of simulation, optimization, and systems analysis. We welcome high-impact research and review articles focusing on the following:

- The modelling of novel membrane processes for water reuse, nutrient recovery (N, P), and high-value chemical extraction.
- Techno-economic analysis (TEA) and life cycle assessment (LCA) to validate the viability and sustainability of membrane-centric circular economy solutions.
- The application of machine learning and AI for process control, optimization, and fouling prediction in resource recovery systems.
- Integrated hybrid process models designed to close industrial loops.

Guest Editor

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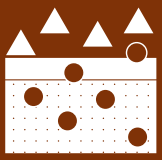

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About the Journal

Message from the Editor-in-Chief

You are cordially invited to contribute a research article or a comprehensive review for consideration and publication in *Membranes* (ISSN 2077-0375). *Membranes* is an international, peer-reviewed open accessjournal of membrane technology published monthly online by MDPI. The journal covers the broad aspects of the science and technology of both biological and non-biological membranes, including membrane dynamics and the preparation and characterization of membranes and their applications in water, environment, energy, and food industries. Articles contributing to better understanding of transport processes in all types of membranes are also welcome. The scientific community and the general public have unlimited and free access to the content as soon as it is published. We would be pleased to welcome you as one of our authors.

Editor-in-Chief

Prof. Dr. Spas D. Kolev
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