Special Issue

Membrane Technologies in Hydrogen Separation and Purification

Message from the Guest Editor

The increasing strategic relevance of hydrogen as a clean energy vector, driven by ambitious decarbonization roadmaps and the necessity of developing hydrogen-based industrial value chains, has intensified global interest in advanced separation and purification technologies. Among these, membrane-based systems have consolidated their role as a central enabling technology, offering highly efficient, compact, and energy-intensified solutions critical to ensuring hydrogen delivery at suitable grades for fuel cells, synthesis pathways (e.g., NH_3, MeOH), or advanced catalytic processes. In this context, this Special Issue aims to provide an updated and comprehensive overview of current breakthroughs and future directions in membrane science and engineering for hydrogen purification. The scope encompasses fundamental materials development, innovative fabrication approaches, and system-level integration of membrane units across the hydrogen value chain, from primary production (reforming, gasification, pyrolysis) to process intensification via membrane reactors, or independent downstream purification and upgrading units for industrial off-gas streams.

Guest Editor

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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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