



Advancements of 2D Materials-Based Membranes

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Message from the Guest Editor

Dear Colleagues,

Two-dimensional (2D) materials such as graphenes, MXenes, MoS₂, 2D covalent-organic frameworks, and metal-organic frameworks are rapidly emerging in the development of membranes with high selectivity and permeability. Characteristic properties of 2D materials including high conductivity, hydrophilicity, rational tunability and precise control of interlayer spacing and/or nanochannels enable 2D materials-based membranes to achieve highly selective and precise separations. In recent years, several theoretical and experimental efforts were devoted to advance the rational design of predefined interlayer channels, membrane nanopores, and reasonable functionalization to overcome the tradeoff between selectivity and permeability of 2D nanomaterial-based membranes.

This Special Issue is focusing on the recent advancements of the various 2D materials-based membranes. It covers all aspects associated with the synthesis and modifications of 2D materials, different fabrication methods of 2D materials based membranes, their separation mechanisms, and applications in various membrane-based processes.





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Message from the Editor-in-Chief

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Membranes is an international, peer-reviewed open access journal 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.

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