Special Issue

Advances in Membrane Technology for Ion Separation

Message from the Guest Editor

The growing demand for critical resource recovery, water security, and environmental remediation underscores the urgent need for precise and energy-efficient ion separation technologies. In this context, membrane-based processes have emerged as a pivotal solution for selective ion removal and fractionation. This Special Issue focuses on fundamental and applied breakthroughs in ion-selective membranes. We invite contributions addressing the following topics:

- Novel membrane materials (MOFs, COFs, biomimetic channels, graphene oxides, hybrid polymers);
- Advanced fabrication/modification techniques for enhanced selectivity, separation efficiency, and stability;
- Mechanistic studies of ion transport and separation phenomena;
- Process innovations in electrodialysis, nanofiltration, selective electro-membranes, and hybrid systems;
- Applications in mineral extraction, industrial wastewater valorization, battery recycling, and acid/base recovery;
- Sustainability analyses: energy efficiency, fouling mitigation, and lifecycle assessment.

Guest Editor

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Deadline for manuscript submissions

20 June 2026

Separations

an Open Access Journal by MDPI

Impact Factor 2.7
CiteScore 4.5

mdpi.com/si/259670

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Message from the Editor-in-Chief

Separations offers the scientific community a high-quality, open-access journal option with rapid time-to-publication without any sacrifice of a rigorous peer-review process. We invite contributions ranging from fundamental characterization and instrumentation development through application of techniques to shed light on a broad spectrum of separation science needs. Since inception, *Separations*, has become unique in its combination of rapid publication and thorough scientific content. We invite you to consider us for your next contribution.

Editor-in-Chief

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