Special Issue

Feature Papers in Separation and Purification

Message from the Guest Editor

Since ancient times, people have used separation and purification to improve life quality. These processes isolate, refine and concentrate components from mixtures, ensuring quality, safety and efficiency in pharmaceuticals, petrochemicals, environmental management and others. Highly energy-intensive, they account for 15% of global energy and 50% of industrial energy, causing ~4.9 gigatons of CO_2 emissions yearly. Advances in separation materials and technologies drive demands for higher efficiency, selectivity and sustainability, with innovations in nanotechnology, porous materials and hybrid systems, reshaping practices. This Special Issue disseminates novel materials and methods for separating homogeneous and heterogeneous mixtures (liquids, vapours, gases), focusing on experimental and theoretical analyses of emerging materials, mechanisms and process/equipment design. We welcome contributions on enhancing efficiency, sustainability and cost-effectiveness via advanced materials, process intensification and digital optimization.

Guest Editor

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About the Journal

Message from the Editor-in-Chief

Purification is international, peer-reviewed, open access journal offering a platform for theories, emerging technologies, and practical applications focused on purification across chemistry, biology, chemical and environmental engineering, materials science, pharmaceutical technology, food engineering, and related disciplines. Due to ongoing advances in purification science, novel materials and regulatory frameworks have emerged, as well as new technical and societal challenges. By bringing together researchers in sustainable manufacturing, environmental remediation, biotechnological innovation, and other emerging fields, Purification fosters open, high-quality research exchange and accelerates the development of related sustainable solutions.

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