Special Issue

Advancing Sustainable Energy Solutions with Micro/Nanofluidic Systems

Message from the Guest Editors

The transition towards a sustainable, low-carbon energy future requires transformative advancements in energy and environmental technologies. Carbon capture and sequestration, underground hydrogen storage, and geological disposal of nuclear waste will be central aspects of a sustainable energy future, both for mitigating CO2 emissions and providing green energy. A comprehensive understanding of multiphase flow through porous media, along with reactive transport and microbial activities, is essential for assessing the feasibility and managing the risks of these technologies. Micro/nanofluidic platforms have emerged as powerful tools for the direct visualization of multiphase reactive flow in porous media and eventually optimizing these multiple physicochemical and biological processes. This Special Issue focuses on critical scientific challenges associated with these sustainable energy solutions and state-of-the-art micro/nanofluidic techniques for studying the interplay between multiphase flow, reactive transport, and biological effects in porous media.

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As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

Editor-in-Chief

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