

Special Issue

Molecular Design, Synthesis and Characterization of Multiscale Nanostructured Porous Materials and Functional Interfaces for Separation

Message from the Guest Editor

Separation technologies are critical to almost every aspect of our daily lives, from the clean water and air we use to the medications we take. Materials-driven separation and purification technologies have the great potential to dramatically drive down the energy use, cost, and environmental impacts of the traditional separation processes that rely on the vaporization of one or more of the chemical components. Molecular-level design, synthesis, and characterization of multi-scale organic and inorganic pores/channels and functional interfaces that can enable effective discrimination of molecules as well as understanding the nontrivial structure–property–performance relationships can lead to improved separation in order to rationally design future materials. On the other hand, external and internal interfaces and interfacial regions play a decisive role in the critical performance parameters of many separation processes. Fine control of interfacial phenomena is critical to the effective implementation of separation techniques.

Guest Editor

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