Special Issue

The Synthesis and Applications of Novel Porous Adsorbents: Metal-Organic Frameworks

Message from the Guest Editor

Metal–Organic Frameworks (MOFs) have emerged as one of the most innovative classes of porous materials in recent years, thanks to their exceptional surface areas, tunable pore structures, and chemical versatility. These crystalline frameworks, composed of metal ions coordinated to organic ligands, have found widespread applications in gas storage, separation, sensing, and environmental remediation. This Special Issue focuses on recent advances in the eco-friendly design, synthesis, and application of MOFs and MOF-based hybrid materials as adsorbents for environmental solutions. Topics of interest include, but are not limited to, the following:

- Eco-friendly and scalable synthesis strategies for MOFs
- Functionalization and hybridization of MOFs for enhanced adsorption
- MOF-based adsorbents for CO2 capture, VOCs, heavy metals, and emerging contaminants
- Applications in wastewater treatment, air purification, and soil remediation
- Structure–activity relationships and mechanistic insights
- Integration of MOFs with other materials (e.g., aerogels, biopolymers, graphene) for improved performance
- Use of agro-industrial or industrial waste as precursors in MOF synthesis

Guest Editor

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Message from the Editor-in-Chief

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.

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