Special Issue

Synthesis and Applications of Metal–Organic Frameworks

Message from the Guest Editor

Metal–organic frameworks (MOFs) represent a rapidly advancing class of porous crystalline materials composed of metal ions or clusters coordinated to organic ligands. Their tunable structures, large surface areas, and versatile chemical functionalities make them ideal candidates for a wide range of applications. This Special Issue focuses on recent advances in the synthesis, functionalization, and practical deployment of MOFs across various fields. We welcome contributions exploring innovative synthetic strategies, including green synthesis, post-synthetic modification, and scalable production methods. This collection also highlights emerging applications of MOFs in gas storage and separation, catalysis, drug delivery, sensing, water purification, and energy storage. Special attention is given to structure–function relationships, stability under operational conditions, and the development of MOF composites and membranes for enhanced performance. By bringing together fundamental and applied research, this Special Issue aims at providing a comprehensive overview of current trends and future directions in MOF science and technology.

Guest Editor

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Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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