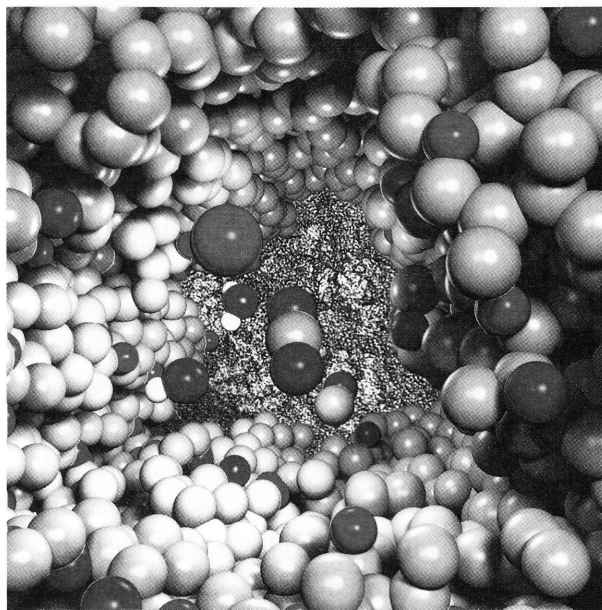


中国科学院科学出版基金资助出版

COVER PICTURE

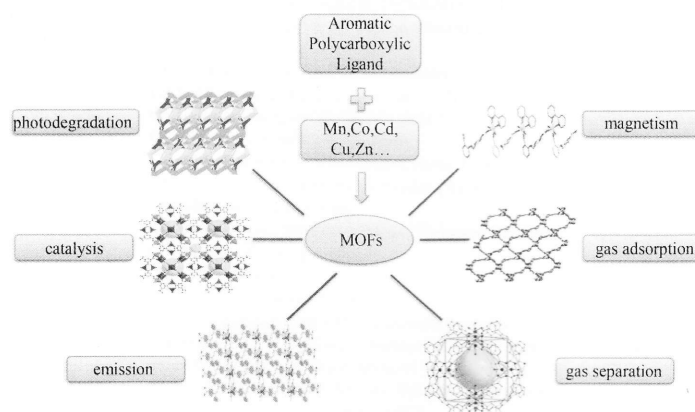
The cover picture is composed by an assumptive structure model of nitrogen-doped porous carbons synthesized by direct carbonization of a nitrogen-rich zinc glutamate metal-biomolecule framework. The background is made from an experimental transmission electron microscopy image. This cover picture illustrates that gas molecules and metal components released by the help of heating and chemical treatments, forming nitrogen-doped porous carbons. These carbons exhibited high specific surface areas (up to 1619.2 m²/g) and also a large specific capacitance of 140.8 F/g at a current density of 0.25 A/g. More details are discussed in the article by Qiu *et al.* on page 203—209.



REVIEWS

143

Research Progress of Metal-Organic Frameworks Based on Aromatic Polycarboxylic Acid

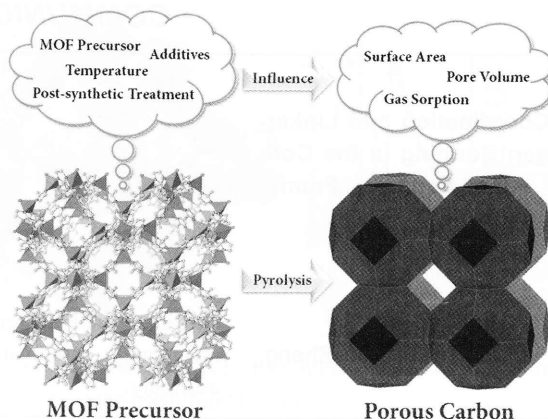


Metal-organic frameworks (MOFs) synthesized based on aromatic polycarboxylic ligand with metal cations of M (M=Mn, Co, Cd, Cu, Zn, ...) have been reported. The synthetic methods, structures and potential applications of the MOFs have also been introduced in details. The potential applications were chiefly recommended in magnetism, gas adsorption, gas separation, photodegradation, catalysis and emission.

Ling Li, Xinyu Cao, Rudan Huang*

157

Metal-Organic Frameworks Derived Porous Carbons: Syntheses, Porosity and Gas Sorption Properties

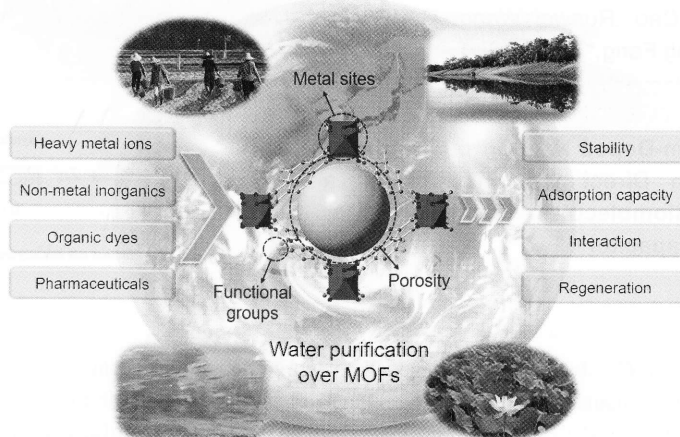


Porous carbon materials derived from metal-organic frameworks (MOFs) have been brought into stage due to the intrinsic advantages of MOFs such as high porosity and tailorable structure diversity, which might provide infinite possibility in producing porous carbons with diverse structures and various decorations. In this review, we summarize the performances of MOF-derived carbon materials (*i.e.* non-doped porous carbons, heteroatoms doped porous carbons, metal/metal oxide decorated porous carbons) and give a detailed discussion about the connections between the properties and four major effects (calcination temperature, loading of additional precursor, post-synthetic treatment as well as intrinsic properties of MOFs).

Xiaokun Pei, Yifa Chen, Siqing Li, Shenghan Zhang, Xiao Feng, Junwen Zhou, Bo Wang*

175

Water Purification: Adsorption over Metal-Organic Frameworks

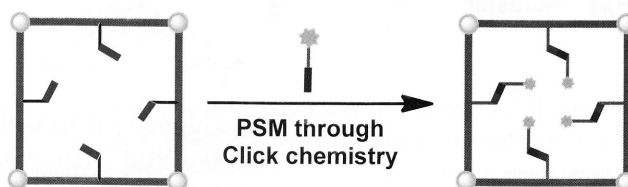


Metal-Organic Frameworks (MOFs) are promising adsorbents for their numerous active sites, uniform porosity and tailorable structure diversity. And adsorption over MOFs for water purification is an interesting and practical issue considering the importance of qualified water. In this review, we will systematically present the performances of MOFs for inorganic and organic contaminants purification in aqueous phase and give a detailed discussion about their performances, influences and potential mechanisms. We hope it is beneficial to the syntheses, regeneration and reuse of MOF adsorbents and could promote the development of MOFs for water purification.

Siqing Li, Yifa Chen, Xiaokun Pei, Shenghan Zhang, Xiao Feng, Junwen Zhou, Bo Wang*

186

Postsynthetic Modification of Metal-Organic Frameworks through Click Chemistry



Bo Gui, Xiangshi Meng, Hai Xu, Cheng Wang*

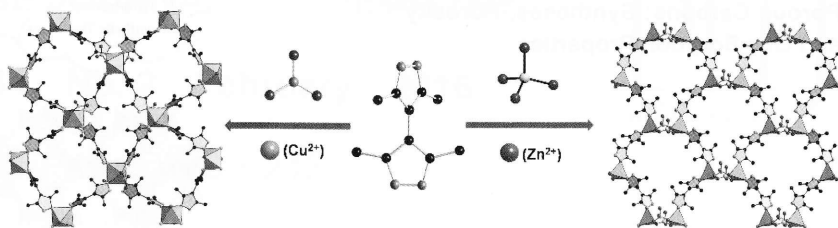
In this review, we summarize the research progress of PSM of MOFs through click chemistry, including azide-alkyne click reaction and thiol-ene reaction.

COMMUNICATION

191

Metal-Anion Coordination and Linker-Anion Hydrogen Bonding in the Construction of Metal-Organic Frameworks from Bipyrazole

Erpan Zhang,* Qizhang Jia, Jun Zhang, Zhenguo Ji



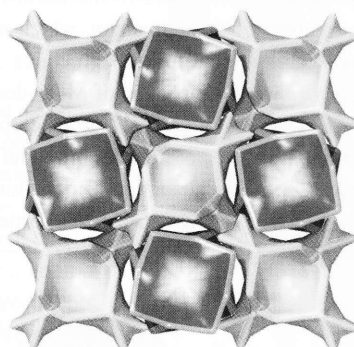
Two new MOFs based on bipyrazole were synthesized, and they provide examples of metal-anion coordination and linker-anion hydrogen bonding during the framework assembly.

FULL PAPERS

196

Three-Dimensional Porous Heterometallic-Organic Frameworks: Synthesis, Luminescent, Magnetic, Adsorption and Hydrogen Storage Properties

Yaqun Cao, Runwei Wang, Gang Wu, Qianrong Fang,* Shilun Qiu*

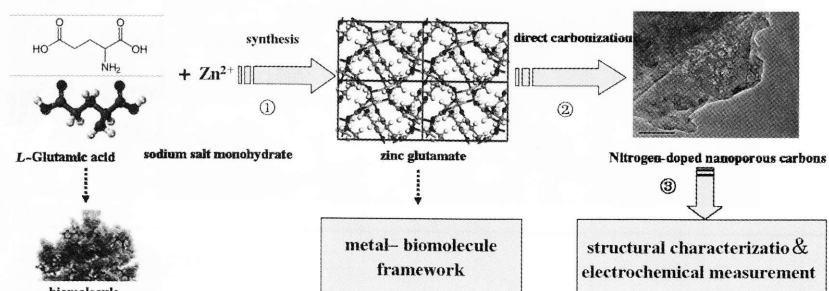


Two 3D porous heterometal-organic frameworks (HMOFs) with isostructures have been successfully synthesized by utilizing two kinds of 3d metal ions, and their multifunctional properties have also been studied.

203

Nitrogen-Doped Nanoporous Carbons through Direct Carbonization of a Metal-Biomolecule Framework for Supercapacitor

Jianhui Zhang, Daliang Zhang,* Guanghui Dai, Qianrong Fang, Shilun Qiu*

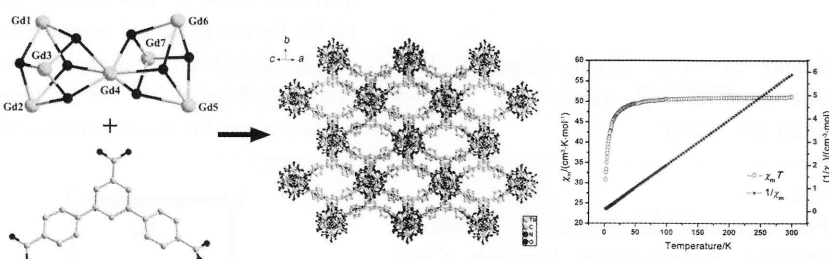


Nitrogen-doped nanoporous carbons have been successfully synthesized by direct carbonization of a nitrogen-rich metal-biomolecule framework, and these carbons exhibited high specific surface areas and large specific capacitances, which will further facilitate the exploration of such materials as supercapacitors.

210

Synthesis and Characterization of Two Isostructural Lanthanide-Containing Metal-Organic Frameworks Constructed from an Unprecedented $[Ln_7(\mu_3-OH)_8]^{13+}$ Cluster

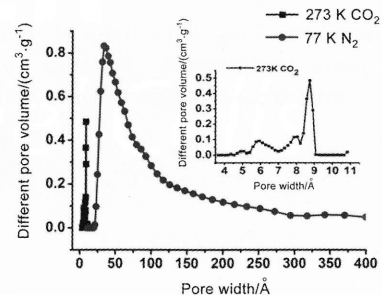
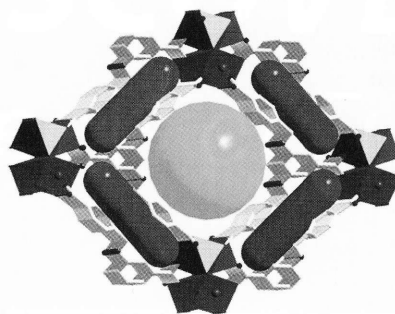
Lianchao Liu, Chaojun Shen,* Fangfang Dong, Wenjing Wang, Daqiang Yuan*



Two isostructural 3D lanthanide-containing MOFs constructed from an unprecedented $[Ln_7(\mu_3-OH)_8]^{13+}$ ($Ln = Gd, Tb$) cluster in which the Ln^{3+} ions are arranged in a distorted vertex-sharing dicubane-like geometry were obtained based on a rigid tripodal ligand. Furthermore, the magnetic property of **1** and the fluorescent property of **2** were also studied.

215

A Hierarchically Porous Metal-Organic Framework from Semirigid Ligand for Gas Adsorption



Lizhen Liu, Yingxiang Ye, Zizhu Yao, Liuqin Zhang, Ziyin Li, Lihua Wang,* Xiuling Ma, Qian-Huo Chen, Zhangjing Zhang, Shengchang Xiang*

A new strategy is proposed to construct a hierarchically porous metal-organic framework via using a multiple-branched semirigid ligand.

220

Directional Functionalization of MOF-74 Analogs via Ligand Pre-installation

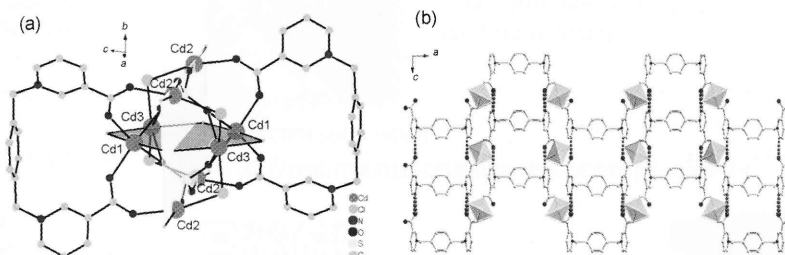


An effective functionalization strategy has been developed. Well designed pre-installation of the ligand can easily remain the original MOF structure under mild conditions. Meanwhile, the insert of active group into MOF can't be achieved by the multi-constituents assembly method rather than the direct way.

Liang Hao, Qiming Qiu, Hui Li*

225

Three New Complexes Based on the Flexible Zwitterionic Dicarboxylate Ligand: Synthesis, Structures, and Properties



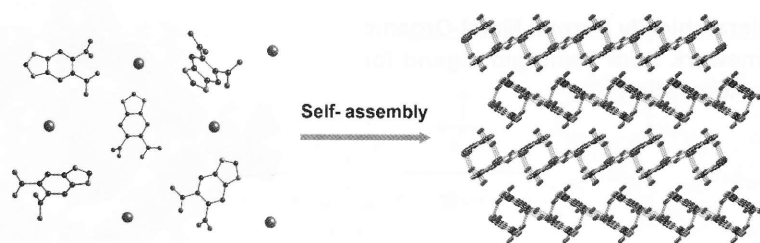
1 crystallizes in monoclinic space group $C2/m$, displaying a 2-D layer structure with three unique Cd^{2+} centers, which are distributed in two mutually-perpendicular planes. **2** and **3** are isomorphous structures with the orthorhombic $Cmca$ space group. They exhibit a 1-D zigzag chain, which can be linked to generate a 2-D layer via the hydrogen bonding interactions ($C-H\cdots O$).

Qing Wang, Bao Mu, Dandan Yang, Lei Lv, Changxia Li, Rudan Huang*

CONTENT

233

Mn-Based Two Dimensional Metal-Organic Framework Material from Benzimidazole-5,6-dicarboxylic Acid

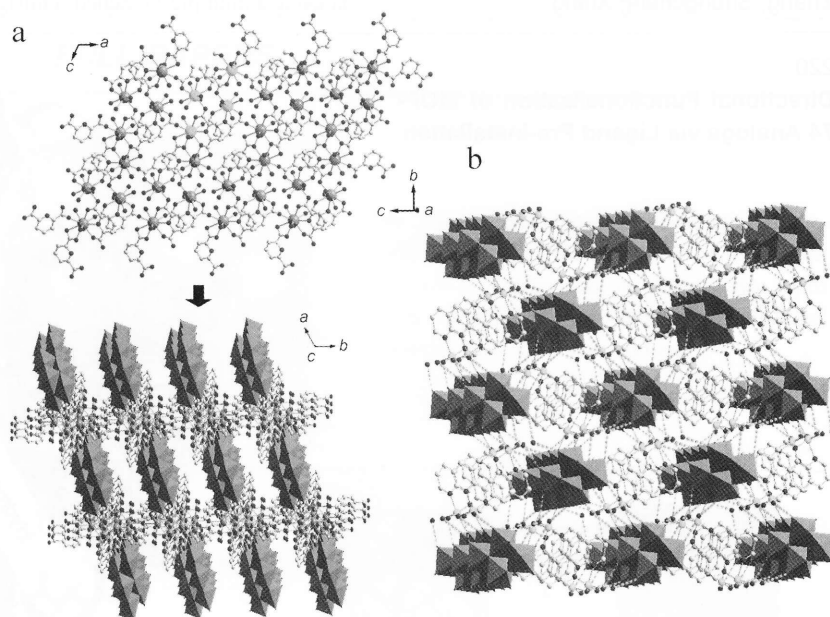


Erpan Zhang, Lili Zhang, Zhe Tan, Zhenguo Ji, Qiaowei Li*

Self-assembly of Mn^{2+} and benzimidazole dicarboxylic acid generates a new two-dimensional MOF with high thermal and water stabilities.

239

Structures and Properties of Two New Three-Dimensional Inorganic-Organic Hybrid Compounds Based on Isopoly-molybdate Clusters



Jingjing Wang, Xuena Yin, Bao Mu, Na Li, Rudan Huang*

Compound **1** features the 3D pillar-layered framework structures assembled by 2D cerium-organic coordination sheets pillared by $\beta\text{-}[\text{Mo}_8\text{O}_{26}]^{4-}$ clusters. Compound **2** exhibits a 3D supramolecular structure containing $[\text{Mo}_6\text{O}_{20}]^{4-}$ polyoxoanions-based 1D molybdate chains through hydrogen bond interactions. The UV-vis spectra and fluorescence properties of compounds **1–2** have also been investigated in detail.