

Poster Presentation

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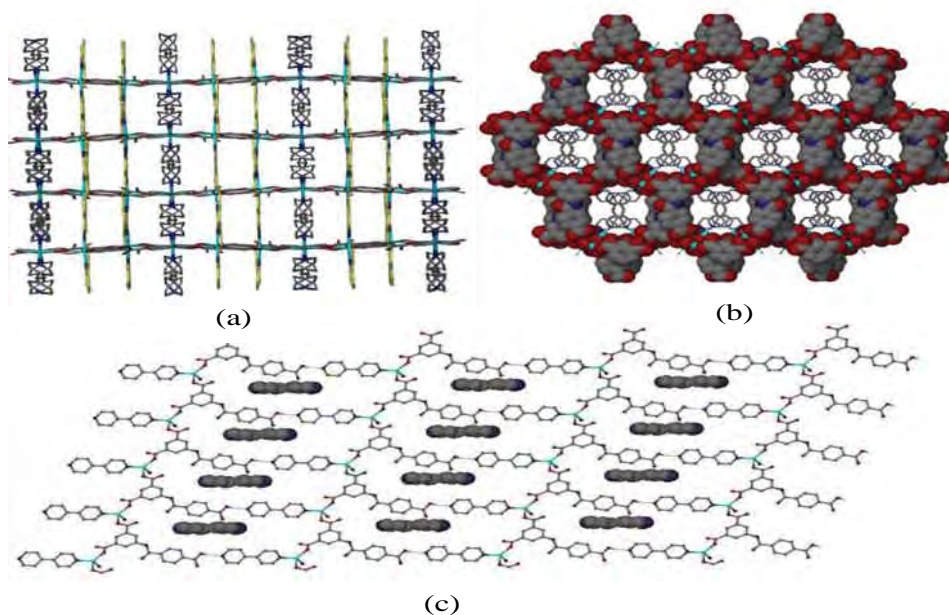
Structural Diversity of MOFs Constructed by Tricarboxylate Ligand

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Considerable progress has been made in the construction of metal-organic frameworks (MOFs) recently[1]. Due to the close relationship between the structures of MOFs and their properties, tuning structures by rational design through the judicious choice of metal ions, bridging organic ligands and reaction conditions becomes very attractive[2]. Three-dimensional pillar-layer architecture of $[\text{Co}_3\text{L}_2(\text{bpe})_4] \cdot 2\text{DMF} \cdot 2(\text{H}_2\text{O})$ (complex 1, Fig 1a), honeycomb-like channels of $[\text{Zn}_2\text{L}(\text{OH})(\text{bpe})] \cdot 5.5(\text{H}_2\text{O})$ (complex 2, Fig 1b), and chain-like structure of $[\text{Zn}_2(\text{HL})_2(\text{bpy})_2(\text{H}_2\text{O})]_2 \cdot (\text{bpy}) \cdot 6(\text{H}_2\text{O})$ (complex 3, Fig 1c) ($\text{HL}_3 = 5$ - (4-carboxybenzoylamino-isophthalic acid), $\text{bpe} = 1,2$ -bis(4-pyridyl)ethane and $\text{bpy} = 4,4'$ -bipyridine and) have been synthesized and characterized by single X-ray crystallography (Figure 1). Complex 1 features a three-dimensional (3D) pillar-layer architecture generated from bpe -pillared M-L^{3-} layers. Complex 2 is a 3D structure with 4- and 6-coordinated Zn^{2+} in the centrosymmetric tetranuclear $\text{Zn}_4(\mu_3\text{OH})_2(\text{COO})_6(\text{bpe})_4$ SBU. Complex 3 is 2D structure. The $[\text{Zn}(\text{HL})(\text{bpy})(\text{H}_2\text{O})]$ chains are connected each other by hydrogen bonding, with free bpy and guest water molecules accommodated in.

[1] H.-C. Zhou, J. Long, O. M. Yaghi, *Chem. Rev.* 2012, 112, 673-674 (2012 metal-organic frameworks issue), [2] F. A. Almeida Paz, J. Klinowski, S. M. F. Vilela, J. P. C. Tome, J. A. S. Cavaleiro, J. Rocha, *Chem. Soc. Rev.* 2012, 41, 1088-1110.



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